

**PATENT, TRADEMARK AND  
COPYRIGHT JOURNAL OF  
RESEARCH AND EDUCATION  
VOLUME 2  
1958**

**PAGES IN THIS VOLUME  
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**THIS VOLUME CONTAINS A SUPPLEMENT  
PAGINATED SEPARATE FROM THE VOLUME**

**VOLUME 2  
1958  
PAGES 1 TO 568**

**CONFERENCE ISSUE  
1958  
PAGES 1 TO 230**





# The Patent, Trademark, and Copyright Journal of Research and Education

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VOLUME 2

MARCH, 1958

NUMBER 1

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THE PATENT, TRADEMARK, AND COPYRIGHT JOURNAL OF RESEARCH AND EDUCATION is published periodically by The Patent, Trademark, and Copyright Foundation of The George Washington University. \$3.50 per regular issue. Supplements, \$3.00 per copy. Printed by the John D. Lucas Printing Company, Baltimore, Md.

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THE PATENT, TRADEMARK, AND COPYRIGHT JOURNAL OF RESEARCH AND EDUCATION is published quarterly with a special Conference Supplement edition by The Patent, Trademark, and Copyright Foundation of The George Washington University. Application for second-class mail privileges is pending at Washington, D.C. To non-members, \$3.50 per regular issue, Supplement edition, \$3.00 per copy. Printed by the McGregor & Werner, Inc., Washington, D. C.

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# The Patent, Trademark, and Copyright Journal of Research and Education

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DECEMBER, 1958

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# The Non-Use of Patented Inventions\*

BARKEV S. SANDERS, Co-Principal Investigator  
JOSEPH ROSSMAN, Co-Principal Investigator  
L. JAMES HARRIS\*\*

## SUMMARY

A STUDY OF PATENT UTILIZATION is not complete without a consideration of the factors which account for the non-use of patents.<sup>1</sup> Therefore, assignees and inventors that were canvassed were asked to give reasons for the non-use of their sampled patents. In this respect we have analyzed their replies and explored the association between reasons given for the current non-use of the patent and certain other characteristics of the patent or its inventor.

### *Reasons for Non-Use*

The patent system has been frequently attacked because of alleged non-use of patented inventions. This analysis focuses attention for the first time on a quantitative appraisal of the reasons for non-use.

The reasons most frequently given by assignees for non-use are: (1) *competitively at a disadvantage* (41%), (2) *lack of market demand* (31%), and (3) *rapid obsolescence* (15%).<sup>2</sup> The frequency of the first two reasons is fairly uniform for patents issued in the three different years sampled. Obsolescence, on the other hand, is highest for patents issued in 1938 (20%) and lowest for those issued in 1952 (12%).

These three reasons for non-use were also the three principal reasons given by inventors of assigned patents, but in the reverse order. Reasons for non-use given with the highest frequency by inventors were (1) *development of the art has taken a different course*, which is analogous to *rapid obsolescence* (25%), (2) *lack of market demand* (20%), (3) *competitively at a disadvantage* (13%) and (4) *don't know the reason* (10%). For inventors, as in the case of assignees, the largest variability among the three years sampled, 1938, 1948, and 1952, is in the reason that the *development of the art has taken a different course*, or its homologue, *rapid obsolescence*.

The reasons for non-use given by inventors of unassigned patents are distinctly different from the reasons given above by the assignees and inventors of assigned patents. These are, in order of frequency: (1) *shortage or lack of venture capital* (28%), (2) *neglect to exploit it* (27%),

---

\* This is a research interim report on *Project 1a, Patent Utilization*. Mr. Robert L. Carter and Mr. Robert E. Grindle are assisting on this project.

\*\* The Co-Principal Investigators of this project have insisted that Executive-Director L. James Harris join them as co-author in view of his invaluable technical, supervisory, and drafting contributions beyond his duties as Executive Director at every stage of the project.

<sup>1</sup> The term "patent" will be used generally as referring to the invention covered by the patent.

<sup>2</sup> Italics denotes exact quotation of reasons for non-use for the specific question in the questionnaires.

(3) *lack of market demand* (17%), and (4) *development of the art has taken a different course and rapid obsolescence* combined (7%). The frequency of obsolescence is highest for patents issued in 1938 (13%), while *shortage or lack of venture capital* occurs with a much lower frequency among patents issued in that year (10%).

#### *Reasons for Non-Use of Patents with Different Utilization Status*

Analysis of reasons for non-use of patents by utilization status shows a high concentration of obsolete patents among those used in the past. This is true for assignee replies and even more so for replies of inventors of assigned patents, and to a lesser extent for inventors of unassigned patents. This concentration appears to be logical and indicates the vitality of our patent system.

Leading reasons for non-use given by assignees for patents used in the past are: (1) *development of the art has taken a different course and rapid obsolescence* (40%), (2) *lack of market demand* (27%), and (3) *competitively at a disadvantage* (20%).

For patents that are to be used in the future the leading reasons for non-use given by assignees are: (1) *lack of market demand* (48%), followed by (2) *competitively at a disadvantage* (38%). Inventors of assigned patents reported very few patents that were to be used in the future. Inventors of unassigned patents give as the leading reasons their patents have not been in use sooner (1) *shortage or lack of venture capital* (53%) and (2) *neglect to exploit it* (27%).

The leading reasons for non-use given by assignees for patents not in use nor likely to be used in the future are: (1) *competitively at a disadvantage* (53%), (2) *lack of market demand* (29%) and (3) *rapid obsolescence* combined with *development of the art has taken a different course* (9%). The replies of inventors of assigned patents that have not been used are: (1) *rapid obsolescence* combined with *development of the art has taken a different course* (40%), (2) *competitively at a disadvantage* (22%) and (3) *lack of market demand* (18%). The leading reasons given by inventors of unassigned patents are: (1) *shortage or lack of venture capital* (27%), (2) *neglect to exploit it* (23%) and (3) *lack of market demand* (18%).

#### *Licensing Status*

Assignees report 27 per cent of the sampled patents are licensed, inventors of assigned patents report 17 per cent, and inventors of unassigned patents, 9 per cent.

Unlicensed sampled patents (as reported by assignees and inventors) have been sub-divided as follows, based on the attitude of the respondent with respect to licensing: will license, will not license, might license, and those who gave no indication whether they would license or not. In addition, there are returns with no information on licensing.

*Reasons for Non-Use of Patents with Different Licensing Status*

In returns from assignees the reasons for non-use are not markedly different for the group who responded with respect to licensing, except for the small number within that group who indicated an unwillingness to license. The difference in the reasons given for non-use is that obsolescence is comparatively smaller for the latter group. Whether this suggests the possibility of deliberate non-use cannot be determined without further information. However, there are only 12 patents out of 528 in this group and of these, three have been used in the past.

A larger proportion of inventors of unassigned patents, as compared with assignees, show an unwillingness to license. There are marked variations in the reasons for non-use for unassigned patents differentiated according to licensing status.

*Class of Patents*

Grouping of patents by subject matter according to the broad Patent Office classification shows that about 55 per cent of the assigned patents represented by completed questionnaires are mechanical, 25 per cent chemical and the balance electrical. The distribution is distinctly different for unassigned patents, the percentages being 85, 4, and 11, for mechanical, chemical, and electrical patents, respectively. There has been a marked decline in the proportion of assigned mechanical patents since 1938. The declining role of the individual inventor may be the result of a shift in patented inventions from mechanical to chemical and electrical.

*Reasons for Non-Use by Class of Patents*

Reasons for non-use differ for patents in the three classes. Assignee returns indicate the leading reason is *competitively at a disadvantage*. This reason is given most frequently for chemical patents (50%), and least for mechanical (37%). The converse is true with respect to obsolescence. Obsolescence ranks third in order of frequency. The highest relative concentration of this latter reason is among mechanical patents (20%), and the lowest among chemical (14%).

The order of frequency is reversed in inventors' replies for assigned patents as follows: (1) *obsolescence*, (2) *lack of market demand*, and (3) *competitively at a disadvantage*. The third reason occurs with the highest relative frequency among chemical patents (22%). This was also true with respect to assignee replies.

In the case of unassigned patents *shortage or lack of venture capital* is given most frequently as the reason for non-use for mechanical patents (30%). However, for electrical patents *shortage or lack of venture capital* is the third most frequently given reason (16%). *Lack of market demand*, third most frequent reason for mechanical patents (16%), is the most frequently given reason for electrical patents (28%).

*Pre-testing of Patents*

According to the returns of inventors of assigned patents, more than 80 per cent of the patents were pre-tested prior to filing.<sup>3</sup> Inventors of unassigned patents indicated that fewer than two-thirds of their patents were pre-tested. There is some variation in reasons for non-use between pre-tested and non-pretested patents, given by inventors of assigned and inventors of unassigned patents.

*Reasons for Non-Use Associated with Employment Status of Inventors*

Inventors of assigned patents who were self-employed at the time they invented the sampled patent give reasons for non-use that are similar to the reasons given by inventors of unassigned patents. Less than 10 per cent of the inventors of assigned patents, but 47 per cent of the inventors of unassigned patents reported that they were self-employed when they made the sampled invention.

*Other Differences Among the Three Groups of Respondents*

On the whole, the reasons given by assignees for non-use are least diffuse. Their replies are more concentrated among two or three leading reasons. The opposite is the case with respect to the replies of the inventors of unassigned patents. These inventors show a greater propensity to give multiple reasons for non-use.

The analysis of reasons for non-use as given by assignees and inventors of assigned and unassigned patents does not appear to support those who have condemned the patent system on the score of non-use. On the contrary, the relationships found between the reasons for non-use and the utilization status of patents appear to indicate the vitality of the patent system. Many patents become obsolete or are rendered competitively at a disadvantage long before their expiration date.

## INTRODUCTION

IN THE PREVIOUS REPORT and in the Proceedings of the First Public Conference of The Patent, Trademark, and Copyright Foundation, brief references were made to the reasons given by inventors and assignees for their sampled patents not being in current use.<sup>4</sup> In the present report those reasons are analyzed in greater detail vis-a-vis the legal and social considerations of non-use.

The term "use" or "commercial use" in the Patent Utilization Study was defined

<sup>3</sup> Inventors were asked if their patented invention was actually produced in the laboratory or otherwise to test its feasibility. They were instructed that this could include laboratory trial, construction of a model, or any other concrete means of testing the workability of the machine, process or product. See "Patent Utilization Study," *The Patent, Trademark, and Copyright Journal of Research and Education*, I, (June, 1957), p. 102, Question 14. The assignee questionnaire did not have a question on pre-testing.

<sup>4</sup> See PTCJRE, I, (June, 1957), pp. 97-98, and Conference Supplement, (1957), pp. 74 and 152.

as "making or selling the patented invention or using the patented invention in the production of goods or services, or making financial arrangements with a third party for the production or sale of the patented invention."<sup>5</sup>

Inventors were asked to check the specific reasons which accounted for the current non-use of the patented invention, as listed in question 32 of the inventor questionnaire. The inventor was not restricted to giving a particular reason for the current non-use of the patent.

Question 32 in the inventor questionnaire reads:

If your sampled invention is not being used in production at this time, or it is being used only slightly, is it because of: (check) (a) *lack of market demand*; (b) *rapid obsolescence*; (c) *competitively at a disadvantage*; (d) *shortage or lack of venture capital*; (e) *development of the art has taken a different course*; (f) *foreign competition*; (g) *supporting arts have not developed sufficiently*; (h) *patent does not provide sufficient protection*; (i) *neglect to exploit it*; (j) *do not know the reason*; (k) *other (specify)*.<sup>6</sup>

Question 12 in the assignee questionnaire paralleling 32 in the inventor questionnaire reads as follows:

If the sampled invention is not being used now in production check the reason why it is not being used: (a) *lack of market demand*; (b) *rapid obsolescence*; (c) *competitively at a disadvantage*; (d) *shortage or lack of venture capital*; (e) *foreign competition*; (f) *patent does not provide sufficient protection*; (g) *outright neglect to develop it*; (h) *other, (specify)*.<sup>7</sup>

Question 12 in the assignee questionnaire is not identical with question 32 in the inventor questionnaire, though closely parallel. In analyzing the returns we have assumed the two questions are sufficiently alike to permit some cross-comparisons between responses of inventors and assignees. To do this, where necessary, the assignee replies were made to parallel the replies listed in the inventor questionnaire. Inventors and assignees were asked to check the reason or reasons for the current non-use of the sampled patent. If the listed reasons were not appropriate or adequate they were instructed to supply the appropriate reasons under "other."

#### LEGAL AND SOCIAL IMPLICATIONS OF NON-USE

In the United States non-use of a patented invention will not invalidate it per se, nor affect the rights of the patentee against infringers. A patent owner has no obligation to use the patented invention or to permit others to use it. He may, if he wishes, neglect to use his invention or refuse to permit others to use it for the period the patent is in force.<sup>8</sup>

In any objective appraisal of the patent system the extent and nature of the non-use of patented inventions must be weighed and considered in relation to the

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<sup>5</sup> *Id.* at Appendix B, "Instructions for Filling Out the Questionnaire on the Patent Utilization Study (For the Inventor)," item 16, p. 102. Question 31 in the inventor questionnaire, p. 106; "Instructions for Filling Out the Assignee Questionnaire on the Patent Utilization Study (For the Assignee)"; definition of words and phrases used: "commercial exploitation," "used commercially," "use (used) in production," p. 108.

<sup>6</sup> *Id.* at Appendix B. Questionnaire for inventor, question 32, p. 106.

<sup>7</sup> *Id.* at Appendix B. Questionnaire for assignee, question 12, p. 110.

<sup>8</sup> See Irving M. Freedman, "Certain Aspects of the Non-Use of Patented Inventions," pp. 159-167 of this issue.

over-all effectiveness of the system and not in terms of single patents. Obviously, a patent system in which all patents were unused would not be accomplishing the ends for which the patent system was designed: i.e., "to promote the progress of science and useful arts."<sup>9</sup> But it does not follow that the ideal patent system is one in which all or almost all the patents issued under it are used. In fact, the effectiveness of the patent system in stimulating inventions may contribute heavily to the current non-use of patents because of rapid obsolescence. Yet, much of the discussion of the evils of non-use has been in terms of a general condemnation of all non-use, with no effort to differentiate and appraise the varying reasons for it. It is clear that the frequencies of the various reasons for current non-use indicate the social and economic effects of non-use and no real appraisal of the patent system can be made without ascertaining the specific reasons, and the extent and relative importance of each of them.

In the literature some attempt has been made in a few instances to differentiate certain types of non-use, such as "suppression," "blocking," "fencing," etc., but these differentiations have not been sharply delineated.<sup>10</sup> Much more important, no systematic attempt has been made to appraise the extent of such practices. On the basis of the literature it seems that the critics of the patent system assume that their criticism is validated if they can quote any sort of evidence that abuses such as suppression, blocking or fencing have occurred. In fact, the sparse evidence of such abuses cited, even if taken at face value, is so sporadic that it is impossible to fix a universe of patents in force to which these abuses can be referred as a base to gain some concept of the relative frequency with which they occur.<sup>11</sup> Without such specificity of the relative frequency of occurrence, and the underlying reasons for these occurrences, it is doubtful if one could objectively appraise the over-all social and economic consequences of the non-use of patents.

Under the present patent system over 2.8 million patents have been issued. It would be surprising indeed, if there were not some instances of abuse. While it may be desirable, as an ideal, to eliminate all abuse, it is hardly rational to condemn the entire patent system if instances of abuse occur. Were such a criterion applied to other institutions none would meet the test.<sup>12</sup>

It is plausible that the over-all objective of promoting the progress of science and the useful arts might be better attained by allowing, or even encouraging a, certain proportion of so-called useless, that is, "paper" patents.<sup>13</sup> Frequently at their inception the potentialities of revolutionary inventions cannot be foreseen. Therefore,

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<sup>9</sup> U. S. CONST., Art. 1, § 8, cl. 8.

<sup>10</sup> See the bibliography on non-use in the Freedman article in this issue, pp. 159-167.

<sup>11</sup> Floyd L. Vaughan, *The United States Patent System* (Norman: University of Oklahoma Press, 1956), the last chapter. This author does not differentiate suppression from any other form of non-use.

<sup>12</sup> *Op. cit.*, Vaughan pleads the excuse of difficulty in obtaining objective evidence of abuse. Those who have worked in this area will agree with him, but the difficulty of getting factual evidence is no excuse for reaching sweeping conclusions without such evidence.

<sup>13</sup> When we were struggling with clarification of the concept of the use of a patented invention, one of the authors was impressed by the observation of a young patent attorney. He had found that sometimes an apparently useless paper patent was submitted to the company with which he had been connected. The useless patent, however, at times sparked a course of research which resulted in one or more very practical and, in the ordinary sense, "useful" patents. Therefore, who can say what is a useless patent?

designing a patent system with the sole objective of maximizing the usefulness of inventions patented under it may not help progress optimally.<sup>14</sup> Just as the astute entrepreneur knows that maximum unit price for a commodity may spell economic disaster, so the student of the patent system might discover that a patent system which aims through restrictive requirements to reduce all possibility of non-use may stifle initiative and slow down or even inhibit the pace of progress. Only a dispassionate first-hand study of the workings of the patent system, both in this country and elsewhere, continued over time and based solidly on empirical findings can yield any reliable signposts as to the direction the patent system should take to best achieve its agreed upon goal: "to promote the progress of science and useful arts."

In view of the foregoing considerations, it was deemed essential to obtain information on the reasons for the current non-use of patented inventions, as a corollary to the Patent Utilization Study. In order to appraise fully the extent and the underlying causes of non-use other approaches to this problem must be explored. However, it is believed that much insight and useful factual information will result from this study of the reasons for the current non-use of patents as reported by assignees and inventors for a cross-section of patents in force at a given time.<sup>15</sup>

The Patent Utilization Study has given us, for the first time, some idea of the approximate proportion of patents that are used and also the numerical extent of non-use of patents.<sup>16</sup> The questionnaires returned to date by assignees suggest that for assigned patents in force at any given time about 30 per cent are in current use. Nearly 20 per cent have been used in the past but are no longer in use. About 10 per cent will be used in the near future. For unassigned patents the proportion in current use is of the same general magnitude, that is, 30 per cent, the proportion used in the past but no longer in use is about 10 per cent, half as large as for assigned patents; and the proportion to be used in the future is almost as high, 8 per cent.<sup>16</sup> Information regarding use for unassigned patents was obtained from the inventors, while that for assigned patents was based on replies of assignees rather than inventors.<sup>17</sup>

#### LIMITATIONS OF THE PRESENT STUDY

Basically, the Patent Utilization Study is limited to firsthand information derived

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<sup>14</sup> Had there been a patent system based on the principle of actual use at the time the first steam engine was invented, it probably would have failed to meet the standards of present day critics of the so-called "paper" patents, and this would be true with respect to many other basic inventions.

<sup>15</sup> It is possible that the present approach may enable us to concentrate intensive, independent appraisal of the "true" reasons for non-use on a relatively small group of patents, or will at least allow some stratification of patents relative to the frequency of possible non-use that might be present in each stratum, thus making an intensive study focused sharply on this problem of non-use practicable.

<sup>16</sup> These percentages are based on returns received by 9/20/57. They are not materially different, however, from the percentages in the previous interim reports which were based on smaller numbers of returns.

<sup>17</sup> The replies of inventors of assigned patents indicate a substantially higher proportion of patents in current use, 40 instead of 30. They show almost the same percentage in past use, 18.4, instead of 19 or 20%, but they report a much smaller percentage to be used in the near future, 2.7, instead of 8 to 10.

from inventors and assignees who are, of course, interested parties. A second important limitation is that the patents included in our analysis do not represent a probability sample of the patent population in force. The sample for this pilot study was limited to a 2 per cent probability sample of all the patents issued in 1938, 1948, and 1952. To the extent that the "mix" of the patents in these three years approximates the characteristics of patents in force at this time the findings from our sample may be considered equally applicable. The primary purpose of the present Patent Utilization Study has been to develop a method of approach rather than to obtain definitive findings of general applicability to all the patents in force at this time or any other specified time. For a more extensive description of the scope and nature of the Patent Utilization Study see this *Journal*, vol. 1, no. 1, June, 1957, pp. 74-99, and this *Journal*, vol. 1, Conference Supplement, 1957, pp. 66-84.

The third important limitation of the present study is the fact that the results which are analyzed in this report are partial and preliminary, based on completed questionnaires returned on or before September 20, 1957. Of the 1,237 assigned patents in the 2 per cent probability sample, completed questionnaires have been received from 528 assignees, or 43 per cent of the total. Almost all of these assignees who have returned a completed questionnaire are corporate rather than individual assignees.<sup>18</sup> The returns by inventors of assigned patents, counting multiple inventors as one, number 567 or 46 per cent of the total in the sample. For the unassigned patents there are 198 returned questionnaires, or 32 per cent of the total. These gaps in the sample would affect the reliability of the findings. Whether they bias the results appreciably cannot be definitely determined at present. In connection with the previous interim reports on the use of patents, extensive internal comparisons gave no indication of any significant bias. This evidence is less unequivocal, at least, regarding the reasons for the current non-use of patents.

The plan of the Patent Utilization Study provides for an eventual follow-up of a sub-sample of non-responding inventors and assignees by personal interview, to determine to what extent, if any, the patents of this group are different from the patents of inventors and assignees who returned completed questionnaires. The plan also provides comparative studies of the patents of deceased inventors and the patents of inventors and assignees who could not be reached, with those reached, in terms of characteristics of the patents and the characteristics of the inventors and assignees that can be compiled from the Patent Office or other published sources.<sup>19</sup>

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<sup>18</sup> If we relate the 528 to the total number of patents assigned to corporations in our sample the percentage responding would be slightly higher, 46 instead of 43.

<sup>19</sup> Note regarding the tables in this report. Table I in Appendix A indicates three separate though closely related criteria of reasons for non-use. Column 22 shows the distribution of both the single and the multiple reasons given for the current non-use of the patent. It is of interest to compare the relative frequency of different reasons, vis-à-vis one another, whether a particular reason is given singly or in combination. Therefore, the percentages shown in column 23 were derived, indicating patents in connection with which a particular reason for non-use was given, whether singly or in combination with other reasons. This type of percentage introduces a certain spuriousness when cross comparisons are made, since a particular patent represented by multiple reasons will be counted more than once. This means that the sum of the percentages will exceed 100. In comparing different columns the percentages will not be equivalent, one totaling, let us say 110, and another 130. To overcome this problem column 25 was derived. The base in column 25 is not the number of patents, but the different reasons for non-use given, and



## ASSIGNEE REASONS FOR CURRENT NON-USE OF PATENTS

This section of the report presents an analysis of 528 replies received as of 9/20/57 to question 12 of the assignee questionnaire. These replies were classified so as to conform with the classification of replies received from inventors. This analysis is shown in Table I (See Appendix A).<sup>20</sup>

*Leading Reasons for Non-Use*

Column 25, confined to reasons for current non-use (including *don't know the reason*) shows that the highest concentration is with respect to item (c) *competitively at a disadvantage* (41%). The percentage consists of the reason whether given

the relative frequency of any one reason may be obtained by finding its percentage of the total number of reasons. Each of these three sets of percentages highlights a different phase. However, this three-level analysis proved too cumbersome. To facilitate the problem of presentation, in the discussion which follows, the percentage of a particular reason for non-use in relation to all the reasons was considered.

In other words, the discussion of reasons for non-use, shown in Table I in Appendix A, will be restricted to columns 7, 13, 19 and 25, respectively. Table I is submitted as a model of all the subsequent analyses embodied in Tables II through XVIII. Mimeographed copies of these tables are available and will be mailed to interested individuals upon request. These tables are referred to in Roman numerals in the text.

There are two kinds of tables in the text. One, in the footnotes, shows the percentage distribution of types of response. These are returns with no reason for non-use, because none was required (i.e., the patent was in current use), the respondent failed to give a reason, or the question was not asked. (The inventor interview questionnaire did not contain a question with respect to reasons for non-use.) These tables include patents for which a single reason for non-use is given and patents represented by two or more reasons. This summary information appears to be associated with the quality of the response and the specificity of reasons for non-use.

The second type of text table is derived from the tables in Appendix A and gives the reasons for non-use which occur with the highest frequencies.

<sup>20</sup> The asterisked reasons are those not specifically listed in question 12, and therefore are derived from reasons entered under *other (specify)*. In most instances, reasons given under *other* could not be differentiated in meaning from those listed, even though the respondent failed to check one. If the reasons given under *other (specify)* appear to be the same as those listed, they are included under the listed reason in the present tabulation.

The types of replies to question 12 are apparent by inspecting columns 20 and 21. The highest number of patents are classified under the caption "not applicable." These are patents reported to be in current use, for which the assignee gave no reason for non-use and we have assumed none was required.

Of the total number in column 20 and the percentages in column 21, about 4% failed to give any reason for the current non-use. In all, therefore, some 34% gave no specific reason for the current non-use of the patent. Nearly 59% of all who responded gave only one reason for the current non-use of the patent, and about 7% gave two or more different reasons for non-use. Inspection of columns 3, 9 and 15, corresponding to column 21 for the entire three years, shows some year to year variation in terms of these broad groupings of patents as may be seen in Table 1, derived from Table I in Appendix A.

TABLE 1

TYPES OF RESPONSE ON NON-USE	PERCENTAGES IN EACH YEAR			THREE YEARS COMBINED
	1938	1948	1952	
No reason for non-use	30.9	28.5	40.2	34.0
One reason only	59.4	62.4	52.8	58.8
Two or more reasons*	9.7	9.1	7.0	7.2

\* Obtained by subtracting the previous percentages from 100.0.

alone or in combination with other reasons. The second most frequent reason given is item (a) *lack of market demand* (31%). The third most frequently mentioned reason is item (b) *rapid obsolescence* (15%). If item (e) *development of the art has taken a different course* is added to item (b) the combined percentage is 18. These leading reasons singly or in combination with one another or with other reasons accounted for about 89 per cent of the reasons given for the current non-use of patents.

It will be observed in connection with columns 7, 13, and 19, the components of column 25, that in all three years these reasons predominate. There are, however, variations which one logically would expect.

Admittedly, the reasons for non-use cannot be so sharply differentiated that different assignees faced with the same facts might not select different reasons. Whether it is practical to develop operationally useful distinctions in reasons for non-use that will be uniformly interpreted by all respondents is difficult to say. In a sense, the reasons given are no more than entrepreneurial opinions, but if genuine, they are legitimate reasons why these companies do not put these patents into use.

The reasons, *competitively at a disadvantage*, which occurs with the highest frequency, and *lack of market demand*, second in rank, show no appreciable variation in the three years studied. This could mean a lack of differentiation in relation to time, or it could mean that these categories include two divergent sub-categories each; that is, patents which have been rendered competitively at a disadvantage because of displacement by newer inventions and patents with respect to which technical deficiencies have not been ironed out as yet, sometimes because of the revolutionary departure of these patents from the prior art. Analogously, *lack of market demand* could include patents that have lost their markets to newer and better products, as well as patents for which markets have not as yet been developed. These are matters to consider in future appraisal and further extension of this research.

These percentages for the three leading reasons for non-use are summarized in Table 2. *Rapid obsolescence*, either singly or in combination with item (e) *development of the art has taken a different course*, shows a markedly higher percentage for patents issued in 1938 in comparison to patents issued later. This is what would normally be expected.

TABLE 2

REASONS INDICATED	PERCENTAGE EACH REASON APPEARED, BY YEAR			THREE YEARS
	1938	1948	1952	
(c) competitively at a disadvantage.....	39.4	42.7	40.7	40.9
(a) lack of market demand.....	29.5	29.9	32.1	30.6
(b) rapid obsolescence.....	20.5	13.7	12.1	15.4
(b) and (e) development of the art has taken a different course.....	23.5	14.6	15.0	17.7
Total.....	92.4	87.2	87.8	89.2

These variations in the percentages for the individual years could be attributed to selective factors operating over time, and to specific factors, such as inventions produced in a war economy, at a given time. The higher obsolescence percentage for 1938 patents compared with those of 1948 and 1952 is what would be expected.

#### INVENTOR REASONS FOR CURRENT NON-USE OF ASSIGNED PATENTS

The distribution of replies of reasons for the current non-use of the sampled patent received from inventors of assigned patents was analyzed in the same manner as that shown in Table I (Appendix A).<sup>21</sup>

#### *Leading Reasons for Non-Use*

The leading reason for non-use is item (e) *development of the art has taken a different course* (25%). This reason, as such, was not listed in the assignee questionnaire. This partly explains, perhaps, why very few assignees, five in all, gave this as

<sup>21</sup> In compiling Table II (unpublished) with respect to assigned patents where questionnaires were received from two or more inventors, only one of these questionnaires was used. In the earlier reports on utilization of the patented invention a priority order was established. If two or more inventors returned different answers with respect to the use of the patent, the response of only one inventor was used. The priority order was according to the utilization status reported, that is, (1) in current use; (2) past use only; (3) future use; (4) no use; (5) unknown; and (6) unanswered. If the answers were identical, then it was immaterial which one was used. In compiling Table 2 the same inventor response used in tabulating the use of the patent was used in the present tabulation of inventor replies. Considering the types of replies to question 32, the highest concentration is classed "not applicable." These are for questionnaires in which the reasons for non-use of the patent were not given, but if the patent was reported in current use, the failure to give reasons for the current non-use was considered proper. Of the inventors whose questionnaires were considered in compiling Table II, 26% were in this category. Over 8% failed to reply to this question, though they were not in the group reporting the sampled patent in current use. This is twice as large as the per cent of assignees who failed to give reasons for non-use. About 4% of the questionnaires are from inventors included in the initial interviews. At that time the inventor questionnaire did not include a question similar to 32. Therefore, nearly 39% of the inventors whose questionnaires were used in compiling Table II did not respond to question 32. Of the 61% who specifically gave reasons for the current non-use of the sampled patent, 46% (including the unknowns) gave a single reason, and the balance, about 15%, gave two or more different reasons. It should be noted that the proportion of inventors with multiple reasons for non-use is markedly higher than the proportion of assignees. These marked variations, however, are almost entirely eliminated if the returns are grouped in three broad classes according to the type of response, as shown in the summary Table 3, derived from Table II.

TABLE 3

TYPE OF RESPONSE ON NON-USE	PERCENTAGES IN EACH YEAR			THREE YEARS
	1938	1948	1952	
No reason given	37.6	36.7	40.4	38.7
One reason only	46.8	49.0	45.1	46.6
Two or more reasons	15.6	14.3	14.5	14.7

the reason for non-use under *other*.<sup>22</sup> In general, the types of answers by inventors and assignees, if not identical, seem quite compatible and consistent.<sup>23</sup>

The second largest concentration of replies is for item (a) *lack of market demand* (20%). This reason was also second in frequency in the assignee replies.

The third and fourth heaviest concentrations of replies are found for items (b) and (c), *rapid obsolescence*<sup>24</sup> (13%) and *competitively at a disadvantage* (13%). These were the leading reasons given by assignees as well. The fifth highest percentage gave item (j) *don't know the reason*. For inventors of assigned patents this is understandable. Of course, very few assignees, four in all, gave this response. Thus, on the whole, the relative frequency with which specific reasons for current non-use of the patents were given by assignees and inventors of assigned patents appear consistent. Table 4 below (derived from Table II) summarizes the relative frequencies of reasons for non-use. It includes the frequency with which each reason for non-use appears whether singly or in combination.

TABLE 4

REASONS INDICATED	PERCENTAGE FREQUENCY WITH WHICH EACH REASON APPEARED			Three years
	1938	1948	1952	
(e) development of the art has taken a different course .....	31.6	20.8	24.6	25.4
(b) rapid obsolescence.....	52.7	35.0	33.2	38.7
(a) lack of market demand.....	16.7	17.5	22.3	19.5
(c) competitively at a disadvantage.....	10.5	13.3	14.7	13.3
(j) don't know the reason.....	10.5	10.0	9.4	9.9
Total.....	90.4	75.8	79.7	81.4

There are, of course, marked differences in the relative frequency with which each reason was mentioned for patents issued in different years. Thus, obsolescence, (e) and (b) combined, accounts for 53 per cent of the patents issued in 1938 and only 33 per cent of those issued in 1952. These differences are such as one might expect.

The five reasons account for more than 80 per cent of all the 13 reasons considered. Except for item (j) these reasons are essentially the same as the three which accounted for 87 per cent of the reasons for current non-use given by assignees. In

<sup>22</sup> Also the reason that *the development of the art has taken a different course* is one that the inventor might easily read into the fact that the great interest in the sampled patent has disappeared. The assignee might perhaps indicate to his employee that the reason for non-use of a particular patent was that the art had taken a different course, a reason, which whether precisely true or not, might be more palatable to the employee inventor. Though *rapid obsolescence* and *development of the art has taken a different course* are synonymous, the latter may be more impersonal and less distasteful to the inventor.

<sup>23</sup> See Table BB in Appendix B.

<sup>24</sup> Items (e) and (b) combined indicate that, in effect, obsolescence accounts for 37% of the reasons for non-use reported by these inventors.

this respect, the replies appear quite consistent in view of the absence of item (e) from the assignee questionnaire and the fact that inventors may not be as well informed as assignees with respect to the reasons for the current non-use of the sampled patent.<sup>25</sup>

#### INVENTOR REASONS FOR CURRENT NON-USE OF UNASSIGNED PATENTS<sup>26</sup>

In comparison with assignee returns the returns of inventors of unassigned patents have a much smaller proportion of "not applicables," a larger proportion of unanswered and a larger proportion with multiple reasons. In this respect the replies of inventors of assigned patents are intermediate. These differences suggest that inventors of unassigned patents have been less discriminating in their reply to this question.

#### Leading Reasons for Non-Use

The reason for current non-use given with the highest frequency is (d) *shortage or lack of venture capital* (28%). Second in frequency is (i) *neglect to exploit it* (27%). Third is (a) *lack of market demand* (17%). This third reason ranked second in the replies of both assignees and inventors of assigned patents. The fourth reason is (c) *competitively at a disadvantage* (6%). This ranked first among assignee reasons for non-use and third among the reasons given by inventors of assigned patents. Item (e) *development of the art has taken a different course* is not much lower than

<sup>25</sup> Tabulation of replies of multiple inventors did not appreciably change the pattern of reasons for non-use as given in summary Table 4.

<sup>26</sup> In the analysis of replies of inventors of unassigned patents concerning the reasons for non-use, where completed questionnaires were received from more than one inventor for a sampled patent, only one of these questionnaires was used (Table III). In selecting the reply the order of preference was followed as used in connection with multiple inventors of assigned patents. There was very little difference in the relative frequency of the various reasons for non-use whether the returns of one or all of the inventors were used. In fact, there were very few multiple inventors among inventors of unassigned patents.

Considering the types of replies to question 32, some 10% of the returns with no reply to question 32 were for patents in current use and were, therefore, classed "not applicable." Another 9% were unanswered, even though there was no indication that the patents were in current use. Finally, 7% were questionnaires completed in the initial interviews, at which time no question on the reasons for non-use was contained in the questionnaire. Thus, no reason for non-use was obtained for more than 26% of the patents with completed questionnaires. Of the remaining 74%, over 54% gave a single reason for non-use, and the balance, 20%, gave two or more reasons in combination.

Partly because of the small number of cases, and perhaps because of the greater inherent variability, even the broad patterns of replies show a greater variation for this group compared with the replies of assignees or inventors of assigned patents. These variations for response groups for the different years are summarized in Table 5, derived from Table III.

TABLE 5

TYPE OF RESPONSE ON NON-USE	PERCENTAGES IN EACH YEAR			THREE YEARS
	1938	1948	1952	
No reason given	34.4	26.5	23.9	26.3
One reason only	50.0	46.9	57.3	53.5
Two or more reasons*	15.6	26.6	18.8	20.2

\* Obtained by subtracting the previous percentages from 100.0.

(c) and if combined with (b) *rapid obsolescence*, the combination will have the fourth highest frequency, 7 per cent of the replies of inventors of unassigned patents. This same combination was, in effect, the leading reason given by inventors of assigned patents, representing 39 per cent of the total and ranked third in the replies of assignees, 18 per cent.

Considering the different years, marked variations exist in the reasons given by inventors of unassigned patents. Item (d) *shortage or lack of venture capital*, the leading reason for the three years combined, ranks fourth for 1938, with 10 per cent, while items (i) *neglect to exploit it* and (a) *lack of market demand* are tied for first place, 23 per cent each, and item (e) *development of the art has taken a different course*, 13 per cent, ranks third. The latter percentage is 20 when combined with item (b) *rapid obsolescence*. The percentages for the five leading reasons for the individual years and for the three years combined are given in Table 6, derived from Table III.

TABLE 6

REASONS INDICATED	SEPARATE PERCENTAGES				CUMULATIVE PERCENTAGES			
	1938	1948	1952	3 years	1938	1948	1952	3 years
(d) shortage or lack of venture capital.....	9.9	28.0	33.1	28.2	9.9	28.0	33.1	28.2
(i) neglect to exploit it.....	23.3	26.0	27.8	26.7	33.2	54.0	60.9	54.9
(a) lack of market demand.....	23.3	10.0	18.3	16.9	56.5	64.0	79.2	71.8
(c) competitively at a disadvantage.	6.7	8.0	5.2	6.2	63.2	72.0	84.4	78.0
(e) development of the art has taken a different course.....	13.3	8.0	2.6	5.6	76.5	80.0	87.0	83.6
(b) rapid obsolescence.....	6.7	....	.9	1.5	83.2	80.0	87.9	85.1

For 1948 the leading reasons approximate the ranks for the three-year total. The year most closely approximating the ranking for the three years combined is 1952, which, of course, is the year with respect to which most of the replies were received. The percentage of patents not in use because of obsolescence, the combination of items (b) and (e), ranks very low, since it only constitutes about 3 per cent of the replies, compared with 20 per cent for 1938 and 8 per cent for 1948. These relationships are shown in the summary Table 6.

#### *Comparison of Reasons for Non-Use Given by the Three Groups of Respondents*

The replies of inventors of unassigned patents with respect to reasons for non-use are the most diffuse, while those of assignees are least diffuse.<sup>27</sup> In general, this analysis indicates some sharp differences in reasons for non-use for assigned and unassigned patents.<sup>28</sup> The differences may be easily explained. Some of the underlying differences may be associated with differences in the use of the patents

<sup>27</sup> The three leading reasons account for 89% of the replies of assignees, 58% of the replies of inventors of assigned patents, and 72% of the replies of inventors of unassigned patents.

<sup>28</sup> For a more specific comparison of the differences in the replies of assignees, inventors of assigned patents and those of unassigned patents, see Table IV in Appendix A.

as reported by assignees, by inventors of assigned patents and by inventors of unassigned patents.

It is of interest to determine whether the proportion of inventors of unassigned patents more often than others gave the reason *supporting arts have not developed sufficiently*, item (g), since it is commonly held that most of the revolutionary inventions originate with the independent inventor. Nearly 5 per cent of the inventors of unassigned patents gave this as the reason. An almost equally large proportion of inventors of assigned patents gave this reason. However, less than 1 per cent of the assignees gave this reason.

In the case of assigned patents the higher proportion of inventors giving reason (g) *supporting arts have not developed sufficiently*, is probably an indication of limited information on the part of the inventor. Whether or not this type of reply on the part of independent inventors also indicates restricted information cannot be said. Perhaps both these and an inherent difference in the proportion of patents with exceptional originality may account for the higher frequency with which this reason is cited by inventors of unassigned patents. The evidence at this stage of our analysis is by no means unequivocal in this respect.

#### ASSIGNEE REASONS FOR CURRENT NON-USE OF PATENTS WITH DIFFERENT UTILIZATION STATUS<sup>29</sup>

The distribution of replies of assignees with respect to the utilization status of the patent was analyzed in the following terms (Table V) :

(1) In current use:— these patented inventions, according to the respondent, were being used commercially at the time the questionnaire was answered. Of the 160 patents in current use, for 159 the respondents did not answer question 12. These are, therefore, all classified as “not applicable.” Only one assignee respondent gave item (b) *rapid obsolescence* as the reason for current non-use for a patent that he reported in current use. This reply may not be incompatible since this patent, although still being used to a minimal extent, may have been headed for obsolescence. The impressive fact is that with this one possible exception all other respondents are consistent in their replies.

<sup>29</sup> With respect to the types of replies to question 12, of the total number of patents used in the past, about 7% did not answer. Of the remaining, about 82% gave a single reason, and about 11% gave two or more reasons. Even in this broad grouping, marked differences are observed between the patents used in the past, those to be used in the future, and those that will never be used. These variations are shown in summary Table 7 derived from Table V.

TABLE 7

TYPES OF RESPONSES ON NON-USE	PERCENTAGES BY UTILIZATION		
	Past Use	Future Use	No Use
No reason for non-use	7.0	...	5.5
One reason only	81.8	86.0	88.1
Two or more reasons*	11.2	14.0	6.4

\* Obtained by subtracting the previous percentages from 100.0.

(2) Past use:—these are patented inventions which were used in the past but are no longer in use.

(3) Future use:—patented inventions with an early expectation of use.

(4) No use:—these are patented inventions that have not been used and according to the respondent there is no prospect of their being used.

In addition to the above, there are two “catch all” categories as follows:

(5) Unanswered:—returned questionnaires on which the respondent failed to give any information with respect to use. There were three such assignee questionnaires, and in all the assignee failed to give information with respect to reasons for non-use.

(6) Don't know:—three assignees in reply to questions on utilization said that they did not know. One of these did not answer the question with respect to non-use, one gave (b) *rapid obsolescence*, as the reason, apparently assuming that the patent was not being used and the third answered the question of non-use also with “don't know.”

#### *Leading Reasons for Non-Use of Patents Used in the Past*

For patents used in the past, the most frequently mentioned reason for current non-use is (b) *rapid obsolescence* (35%). To this percentage could be added item (e) *development of the art has taken a different course*. Thus combined, 40 per cent of the patents used in the past apparently were discarded because better methods were developed. This might very well reflect the vitality of the American patent system. The second most important reason is (a) *lack of market demand* (27%). The third most frequently mentioned reason is (c) *competitively at a disadvantage* (20%). For patents used in the past these four accounted for 87 per cent of all the reasons for non-use.

#### *Leading Reasons for Non-Use of Patents to Be Used in the Future*

For this group, the most frequently mentioned reason by assignees for current non-use is item (a) *lack of market demand* (48%). The second is item (c) *competitively at a disadvantage* (38%). These two account for 86 per cent of all the reasons for non-use.

#### *Leading Reasons for Non-Use of Patents Which Have Not Been and Will Not Be Used*

The greatest concentration of reasons is under item (c) *competitively at a disadvantage* (53%). The second is item (a) *lack of market demand* (29%). The third is item (b) *rapid obsolescence* (8%). The combined percentage for (b) and (e) is 9.

These three (or four) account for 90 per cent of all the reasons for non-use. These different reasons for non-use are summarized in Table 8 (derived from Table V).



TABLE 8

REASONS INDICATED	PERCENTAGES OF REASONS BY UTILIZATION			
	Past Use	Future Use	No Use	Total
(a) lack of market demand.....	26.6	48.0	28.7	30.4
(b) rapid obsolescence.....	34.9	2.0	8.3	15.4
(b) and (e) development of the art has taken a different course.....	40.4	2.0	9.2	17.4
(c) competitively at a disadvantage.....	20.2	38.0	53.0	41.7
Total.....	87.2	88.0	90.9	89.5

It is apparent that these three to four reasons account for nearly 90 per cent of all reasons and their relative frequency is quite distinctive in relation to utilization status. The most striking differential relationship is the concentration of obsolescence as a reason for the non-use of patents used in the past, and its virtual absence from patents to be used in the future.

INVENTOR REASONS FOR CURRENT NON-USE OF ASSIGNED PATENTS WITH  
DIFFERENT UTILIZATION STATUS<sup>30</sup>

*Leading Reasons for Non-Use by Utilization Status*

Of the patents reported in current use the highest concentration of reasons for current non-use is for item (a) *lack of market demand* (32%). Second in frequency is item (b) *rapid obsolescence*, combined with (e) *development of the art has taken*

<sup>30</sup> There were 223 patents reported in current use by these inventors. No entry was recorded in question 32 for 146 (65%) of these patents. They were considered as "not applicable." The inventors of five of these patents were interviewed but non-use was not considered. For the remaining 72 patents, one or more reasons are given for non-use even though the patent was said to have been in current use. This may indicate a misunderstanding in some instances. Since question 32 for inventors reads: "*If your sampled invention is not being used in production at this time, or it is being used only slightly . . .*" it may mean that the inventor believed the current use would have been more extensive had it not been for the reasons given.

For patents used in the past there were 106 completed questionnaires. For only 15 patents was "expected future use" indicated as the utilization status by the inventor. There were 125 patents that were not used and not likely to be used, and 87 patents with unknown utilization.

The percentage distribution of types of responses with respect to question 32, by inventors of assigned patents, for patents with different utilization status is summarized in Table 9, derived from Table VI.

TABLE 9

TYPES OF RESPONSES ON NON-USE	PERCENTAGES BY UTILIZATION					Total
	Current Use	Past Use	Future Use	No Use	Don't Know	
No reason for non-use	67.6	14.2	40.0	5.6	40.2	38.7
One reason only	23.0	67.8	46.3	68.8	51.8	46.6
Two or more reasons*	9.4	18.0	13.3	25.6	8.0	14.7

\* Obtained by subtracting the previous percentages from 100.0.

Table 9 shows that each utilization group (e.g., current use, past use, etc.) has a more or less unique pattern in terms of the broad types of responses considered.

a different course (31%). Third in rank is item (c) *competitively at a disadvantage* (9%). These three (or four) account for 72 per cent of the reasons for non-use reported.

For patents used in the past the greatest frequency is found for item (e) *development of the art has taken a different course* (35%). The percentage is 55 when item (b) *rapid obsolescence* is combined with item (e). These two items are nearly identical in meaning. This higher concentration is evidence of the general conviction of the assignees and inventors that the predominant reason for the current non-use of assigned patents which were used in the past is their displacement by more efficient inventions.

The next highest percentage is (a) *lack of market demand* (14%). In one sense, this reason could be interpreted as analogous to obsolescence. It is reasonable to assume that patented inventions once used in production are discontinued when they can no longer be marketed because they have been displaced.

The next in rank, the third (or fourth), depending upon whether (b) and (e) are counted as a single reason or as two separate reasons, is item (c) *competitively at a disadvantage* (12%). These three (or four) most frequently occurring reasons account for 81 per cent of the reasons for the current non-use of the patents used in the past. There were nine patents with an expected use for which reasons for non-use were reported. Of the eleven reasons given, three were (g) *supporting arts have not developed sufficiently*. Though these frequencies are small, the concentration is noteworthy.

Of the patents not used and not likely to be used the highest frequency is with respect to item (e) *development of the art has taken a different course* (28%). These apparently are patents that died at or before birth. If item (b) *rapid obsolescence* is added, the percentage of non-use is 40. The next in rank is (c) *competitively at a disadvantage* (22%). The third most frequently mentioned reason is (a) *lack of market demand* (18%). These three (or four) account for 80 per cent of the reasons for the non-use of patents that are not used and are not likely to be used. These interrelationships among the leading reasons for non-use and the different utilization groups are summarized in Table 10 (derived from Table VI). The detailed distribution of reasons for non-use is found in Table VIa of Appendix A.

TABLE 10

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY UTILIZATION				
	Current Use	Past Use	Future Use	No Use	Don't Know
(a) lack of market demand.....	32.0	14.3	9.1	18.4	12.9
(e) development of the art has taken a different course.....	16.5	34.8	....	28.5	16.1
(e) and (b) rapid obsolescence.....	30.9	55.3	....	39.9	20.9
(c) competitively at a disadvantage..	9.3	11.6	9.1	21.5	8.1
Total.....	72.2	81.2	18.2	79.8	41.9

The relationships in Table 10 appear to be internally consistent.

INVENTORS REASONS FOR CURRENT NON-USE OF UNASSIGNED PATENTS  
WITH DIFFERENT UTILIZATION STATUS<sup>31</sup>

*Leading Reasons for Non-Use by Utilization Status*

For patents in current use, the most frequently reported reason for current non-use is (d) *shortage or lack of venture capital* (30%). The second highest frequency is (i) *neglect to exploit it* (26%). The third highest frequency reported is (a) *lack of market demand* (15%). These three reasons constitute 70 per cent of the reasons for non-use of patents in this group.

Among the patents used in the past the highest percentage is (i) *neglect to exploit it* (30%). Two reasons with 18 per cent each are second in relative frequency, namely (a) *lack of market demand* and (d) *shortage or lack of venture capital*. The three leading reasons account for 67 per cent of the reasons for non-use of these patents.

The relatively high concentration of patents used in the past under item (i) and also the high concentration of this reason for patents reported in current use suggests perhaps a certain ideal of utilization in the mind of the inventor of an unassigned patent.

Thirteen patents were reported about to be used. The leading reasons for non-use are first, (d) *shortage or lack of venture capital* (53%), second (i) *neglect to exploit it* (27%) and third (a) *lack of market demand* (13%).

For patents not used and not likely to be used the leading reasons for non-use are, first (d) *shortage or lack of venture capital* (27%), second (i) *neglect to exploit it* (23%) and third (a) *lack of market demand* (18%). These three reasons account for 68 per cent of the patents reported not used and not likely to be used.

<sup>31</sup> Of the 62 unassigned patents reported in current use, one or more reasons for non-use are reported for 55%. The corresponding percentage for assigned patents for which inventors reported reasons for non-use is 32. For about 35% no reply was made to question 32. This was appropriate in that the question was "not applicable." Six inventors were interviewed and a question relating to non-use was not considered. Without further probing, it is not possible to state in what proportion of the 55% of the patents reported in current use the entry of a reason for current non-use is a misunderstanding, and in how many a reflection of slight use. See the wording of question 32, p. 5. Of the 55%, about 35% gave one reason and the balance, almost 20%, gave two or more reasons. This percentage of multiple reasons to single reasons is considerably higher than among inventors of assigned patents. Inventors of unassigned patents more often give multiple reasons for non-use compared with assignees and inventors of assigned patents. The broad groupings by type of response are shown in summary Table 11, derived from Table VII.

TABLE 11

TYPES OF REASONS ON NON-USE	PERCENTAGES BY UTILIZATION				
	Current Use	Past Use	Future Use	No Use	Don't Know
No reason for non-use	45.2	10.0	13.4	21.4	13.1
One reason only	35.4	55.0	73.4	64.3	52.2
Two or more reasons*	19.4	35.0	13.2	14.3	34.7

\* Obtained by subtracting the previous percentages from 100.0.

For 20 patents the inventor indicated the utilization status was unknown, but nevertheless gave reasons for non-use. In order of frequency the reasons are: (i) *neglect to exploit it* (39%), (d) *shortage or lack of venture capital* (19%), (a) *lack of market demand* (16%), (j) *don't know the reason* (6%).

Table 12, derived from Table VII, summarizes the leading reasons for non-use in relation to utilization status.

TABLE 12

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY UTILIZATION				
	Current Use	Past Use	Future Use	No Use	Don't Know
(a) lack of market demand.....	14.9	18.5	13.3	18.2	16.1
(d) shortage or lack of venture capital.	29.6	18.5	53.4	27.3	19.4
(i) neglect to exploit it.....	25.5	29.6	26.7	22.7	38.7
Total.....	70.0	66.6	93.4	68.2	74.2

#### COMPARISON OF REASONS FOR NON-USE AMONG THE THREE GROUPS OF RESPONDENTS RELATING TO UTILIZATION STATUS

Table VIIa in Appendix A sets forth in parallel columns the percentage distributions of reasons for non-use given by assignees, inventors of assigned patents and those of unassigned patents, by the reported utilization status of each response group. An analysis of this table suggests a greater heterogeneity between responses of assignees and inventors of unassigned patents than between inventors of assigned patents and those of unassigned patents. It also suggests that the responses from these different sources show the least heterogeneity with respect to patents not used and not likely to be used, perhaps intermediate for patents with past use. The greatest heterogeneity appears with respect to patents which are to be used in the future.

#### ASSIGNEE REASONS FOR CURRENT NON-USE RELATED TO LICENSING OF PATENTS

##### *Licensing*

This study compares the differential reasons for non-use given for licensed patents with unlicensed, or patents for which there is no information on licensing. In this comparison the unlicensed patents are subdivided by the attitude of the assignee toward licensing.

Question 21 in the assignee questionnaire which deals with licensing reads as follows:

Have licenses been issued by you to others for the sampled patent? (a) yes; (b) no. If "no" would you be willing to license it? (1) yes, (2) no, (3) other (specify). If "yes" did the license contain provisions relating to: (check) (a) quantity, (b) territory, (c) price, (d) other (specify).<sup>31a</sup>

In the present analysis only the first part of the question is used. The categories of licensing status considered are:

<sup>31a</sup> See PTCJRE, I, (June, 1957), p. 111.

(a) the sampled patent is licensed. This category will be designated as "licensed" and consists of those who checked "yes" under (a) in the first part of question 21.

(b) the sampled patent is not licensed, and the respondent says he is willing to license. This category checked (b), and (b, 1), "yes." This category is designated "will license."

(c) the sampled patent is not licensed and the respondent indicates an unwillingness to license. This category checked (b) and (b, 2) and is referred to as "will not license."

(d) the sampled patent is not licensed and the respondent does not indicate whether he would license it. This category checked (b) and (b, 3) other,<sup>32</sup> and is referred to as "might license."

(e) the sampled patent is not licensed, and there is no indication whether the assignee would license. This category checked (b) but no usable entry after (1), (2) or (3), and is referred to as "not licensed" (n.e.c. not elsewhere classified).

(f) no useful information was supplied with respect to licensing (either an entry of "don't know" or no entry). This category is referred to as "no information."

The replies to the question with respect to licensing, received from assignees, in terms of the categories specified above are given in Table 13. In considering the status of licensing, patents in current use are separated from others.

TABLE 13

NUMBER AND PER CENT OF PATENTS REPRESENTED BY COMPLETED ASSIGNEE QUESTIONNAIRES  
ACCORDING TO LICENSING STATUS FOR PATENTS IN CURRENT USE AND THOSE NOT IN  
CURRENT USE

LICENSING STATUS	TOTAL		IN CURRENT USE*		NOT IN CURRENT USE		(x) +2 × 100
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total .....	528	100.0	158	100.0	370	100.0	42.7
Licensed .....	141	26.7	53	33.5	88	23.8	60.1
Not licensed .....	368	69.7	102	64.6	266	71.9	38.4
Will license .....	219	41.5	49	31.0	170	46.0	28.8
Will not license .....	33	6.2	21	13.3	12	3.2	175.0
Might license .....	58	11.0	12	7.6	46	12.4	26.1
Not licensed (n.e.c.) .....	58	11.0	20	12.7	38	10.3	52.6
No information .....	19	3.6	3	1.9	16	4.3	18.8

\* In this tabulation, by including the group of assignee responses to question 12, classed as "not applicable" with respect to reasons for non-use, all but two patents that are reported in current use are accounted for.

This summary table, with respect to the licensing status of 528 patents as reported by assignees, indicates that known licensed patents constitute less than a third of all the patents, about 27 per cent, and the known non-licensed patents constitute

<sup>32</sup> Some of these were patents which had expired and, therefore, the assignee indicated that any statement of his willingness with respect to licensing would be meaningless. In the more detailed analysis of these returns, this group will be differentiated from others and any qualifying conditions analyzed.

about 70 per cent of the total. For over half of the non-licensed patents (60%) the assignee indicates he would be willing to license.

Only for 6 per cent of all the patents does the assignee indicate definitely that he would not license. This represents less than 9 per cent of the non-licensed patents. Most of these patents, nevertheless, are in current use. Twelve of these 33 patents are not in current use.<sup>88</sup>

The licensing status of patents appears to be associated with their utilization status. On the whole, a higher proportion of the licensed patents are in current use. However, the highest proportion of patents in current use is in the sub-category of non-licensed patents with respect to which the assignee replied he would not license.

### *Leading Reasons for Non-Use by Licensing Status*

For all categories item (c) *competitively at a disadvantage*, has the highest frequency (38 to 53%). The second most frequent is (a) *lack of market demand* (25 to 34%). The third most frequent is (b) *rapid obsolescence* (7 to 22%).

However, for patents with respect to which the assignee indicated he would not license there are two other items that have the same frequency as (b), namely, (i) *neglect to exploit it*, and (1) *outside the line of business*. Considering the small frequencies (see Table IXa in Appendix A) in this category no firm deductions can be made. It appears, nevertheless, that the pattern of reasons for non-use for this category is distinct from the other categories. The relationships between leading reasons for non-use by licensing status are summarized in Table 14 (derived from Table IX).

TABLE 14

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY LICENSING STATUS					
	Licensed	Will license	Will not license	Might license	Not licensed	No information
(c) competitively at a disadvantage..	43.3	40.2	53.3	40.7	37.5	50.0
(a) lack of market demand.....	27.8	31.0	26.7	33.9	31.3	25.0
(b) rapid obsolescence.....	15.6	15.8	6.7	13.6	21.9	8.3
(b) and (e) development of the art has taken a different course.....	17.8	18.0	6.7	15.3	21.9	16.6
Total.....	88.9	89.2	86.7	89.9	90.7	91.6

<sup>88</sup> An examination of these 12 patents not in current use, which the assignee indicated he would not license, showed that three were used in the past. One of the three assignees checked as his reason for non-use (k) *other* and entered "not a practical device," which we reclassified as (c). The second indicated "Ours is not a production item. . . . We custom engineer every sale with overlapping patents." The third assignee checked (a) and (e).

Of the remaining nine patents, one, it was reported, will be used in the future, although the reason given for current non-use is (b) *rapid obsolescence*.

The remaining eight patents are not used and there is no prospect of use. Of these, five have expired. Of the three remaining patents, the assignee of one gives the following explanation: "Closely related chemical proved better and is the one being sold." For the last one, there is no special comment. The impressive element in these statistics is that of the 508 patents for which specific information is given for licensing status, only for three unused patents not licensed does the assignee indicate an unwillingness to license. Compare British experience with respect to compulsory licensing. See Terrell and Shelley, *Law of Patents*, 9th ed. (London: Sweet and Maxwell, Ltd., 1951), pp. 273-277. See also T. A. Blanco (White), *Patents for Inventions*, 2nd ed. (London: Stevens & Sons, Ltd., 1955), pp. 271-86.

## INVENTOR REASONS FOR NON-USE OF ASSIGNED PATENTS RELATED TO LICENSING

Since the inventor of assigned patents has no voice in the licensing of his patent, except perhaps when he is a policy-making official of the assignee company, it is unnecessary to analyze in detail the relationships found between reasons for non-use reported by these inventors and licensing status.<sup>34</sup> In a real sense, question 24 in the inventor questionnaire is irrelevant as far as the average inventor of assigned patents is concerned. This is partly reflected by the fact that 188 respondents stated they did not know the licensing status of the sampled patent and another 21 respondents failed to answer the question on licensing. These two groups account for 37 per cent of the total returns. The licensing status reported by inventors of assigned patents is summarized in Table 15 (derived from Table X).

TABLE 15

LICENSING STATUS	PERCENTAGE DISTRIBUTION	
	Completed Questionnaires	Completed Questionnaires with Information on Licensing
Licensed.....	17.3	27.4
Not licensed.....	45.8	72.6
Will license.....	1.8	2.8
Will not license.....	19.7	31.3
Might license.....	18.3	29.0
Not licensed (n.e.c.).....	6.0	9.5
No information.....	36.9	....

Percentages in the first column are markedly different from those shown for assignees, indicating that the average inventor of assigned patents may not have or may not believe he has reliable information on licensing. According to the percentages in the second column, if the inventors who supplied no information are excluded, the proportion of patents licensed and not licensed are similar to those reported by assignees.

However, with respect to the attitude toward licensing of assigned patents the percentages in both columns are quite different. Table Xa in Appendix A gives the reasons for non-use for the different categories of patents according to licensing status as reported by inventors.

## INVENTOR REASONS FOR NON-USE OF UNASSIGNED PATENTS RELATED TO LICENSING

*Licensing Status*

The licensing status reported by inventors of unassigned patents is quite different from that of assigned patents, reported by assignees. The distribution by licensing for the unassigned patents is shown in Table 16 (derived from Table XI).

It is obvious from Table 16 that a much smaller proportion of unassigned patents is licensed compared with assigned patents. Likewise, a smaller proportion of

<sup>34</sup> If the inventor is a policy-making official in the company, it is likely that his reasons for non-use will agree with those of the assignee.

TABLE 16

LICENSING STATUS	NUMBER	PER CENT
Total.....	198	100.0
Licensed.....	17	8.6
Not licensed.....	124	62.6
Will license.....	25	12.6
Will not license.....	44	22.2
Might license.....	53	26.8
Not licensed (n.e.c.).....	2	1.0
Unknown.....	33	16.7
Not answered.....	24	12.1

inventors who own their patents express an unconditional willingness to license it, less than 13 per cent, as contrasted with almost 42 per cent of the total for assignees. On the other hand, a much larger proportion of inventors state that they will not license, 22 per cent as against 6.

The results show a wide range of variation in the percentage of "not applicable" in the different categories of patents according to licensing. This would suggest that there is probably some association between current use and licensing status. The highest percentage of "not applicable" is with respect to licensed patents, while the "will license" category does not have a single "not applicable" case, and other categories have much lower percentages.

#### *Leading Reasons for Non-Use by Licensing Status*

With respect to reasons for non-use there are wide variations for the different licensing categories. The two dominant reasons are (d) *shortage or lack of venture capital*, and (i) *neglect to exploit it*, followed by item (a) *lack of market demand*. The variations of the percentages of the leading reasons for non-use given for the different categories by licensing status are summarized in Table 17 (derived from Table XI).

TABLE 17

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY LICENSING STATUS					
	Licensed	Will License	Will Not License	Might License	Unknown	No Information
(a) lack of market demand.....	12.5	15.6	20.8	19.3	12.1	13.3
(d) shortage or lack of venture capital.....	25.0	43.8	18.7	28.1	27.3	26.7
(i) neglect to exploit it.....	37.5	15.6	25.0	28.1	33.3	26.7
Total.....	75.0	75.0	64.5	75.5	72.7	66.7

These percentages suggest greater homogeneity in the patterns of leading reasons for non-use between the categories "will not license" and "might license." Also the percentages in the "licensed" category are not too different from the category "licensing unknown."



## ASSIGNEE REASONS FOR CURRENT NON-USE OF PATENTS BY CLASS

*Class of Patents*

In the present analysis the patents have been grouped into three broad categories, that is, mechanical, chemical and electrical, to determine on the basis of the present Patent Office classification, whether the reasons for non-use are different for these different classes.

The gross frequencies in the three broad classes show that the proportion of mechanical patents varies markedly from chemical and electrical patents. The percentage distributions for the entire working sample, the component patents in current use (those classed as "not applicable") and the balance of the working sample are shown in Table 18 (derived from Table XII).

TABLE 18

CLASS	TOTAL		IN CURRENT USE*		NOT IN CURRENT USE		CURRENT USE NOT CURRENT USE X100
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Total.....	528	100.0	159	100.0	369	100.0	43.1
Mechanical.....	288	54.6	110	69.2	178	48.3	61.8
Chemical.....	131	24.8	29	18.2	102	27.6	28.5
Electrical.....	109	20.6	20	12.6	89	24.1	22.5

\*These are patents classed "not applicable" which include 159 of the 160 patents in current use.

The table indicates, assuming the sample is not biased because of selective returns, that well over half of the assigned patents are mechanical, that about a quarter are chemical patents and less than 21 per cent are electrical. Another relationship that this sample shows is that the proportion of mechanical patents that are in current use is more than twice as high as the proportion of chemical and electrical patents in current use. This difference in the proportion of mechanical patents in current use is statistically significant at the 1 per cent level of significance. The proportion of chemical patents in current use is also somewhat higher in comparison to electrical patents. This difference, however, is not statistically significant.

There is also some indication that the percentage which gave multiple reasons for current non-use is higher for mechanical patents than for the other two classes. The percentages giving multiple reasons are 16, 10, and 6 for mechanical, chemical, and electrical patents, respectively.<sup>35</sup>

*Leading Reasons for Non-Use by Class of Patents*

For mechanical patents, the reason for current non-use given most frequently is item (c) *competitively at a disadvantage* (37%). The second most frequent reason is item (a) *lack of market demand* (32%) and the third is (b) *rapid obsolescence*

<sup>35</sup> The percentage difference between mechanical and electrical patents is large enough to be statistically significant.

(17%). If (b) is combined with (e) *development of the art has taken a different course*, the percentage is 20. These three leading reasons combined with (e) account for 88 per cent of the reasons given for non-use of the mechanical patents.

For chemical patents, the dominant reason for current non-use is (c) *competitively at a disadvantage* (50%). This is followed by (a) *lack of market demand* (26%), and (b) *rapid obsolescence* (13%). Item (e) *development of the art has taken a different course* added to (b) is 14 per cent. These reasons represented 90 per cent of the reasons given for non-use of chemical patents.

With respect to electrical patents, the dominant reasons for non-use are (c) *competitively at a disadvantage* (41%), (a) *lack of market demand* (32%), (b) *rapid obsolescence* together with (e) *development of the art has taken a different course* (17%). These reasons account for 91 per cent of the reasons given for non-use of the electrical patents.

The relationships between leading reasons for non-use and the class of patents are summarized in Table 19.

TABLE 19

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY CLASS OF PATENTS		
	Mechanical	Chemical	Electrical
(c) competitively at a disadvantage.....	36.9	50.0	41.4
(a) lack of market demand.....	31.8	26.4	32.2
(b) rapid obsolescence.....	16.9	12.7	14.9
(b) and (e) development of the art has taken a different course.....	19.5	13.6	17.2
Total.....	88.2	90.0	90.8

The dominant reasons are the same for the three different classes. The pattern, however, is somewhat more distinctive for chemical patents compared with mechanical and electrical patents.

#### INVENTOR REASONS FOR CURRENT NON-USE OF ASSIGNED PATENTS BY CLASS

##### *Class of Patents*

The proportionate distribution of patents by the three classes derived from the inventor questionnaires should be the same (within sampling variability) as that derived from the assignee questionnaire if the working sample (that part of the 2% sample for which questionnaires have been returned) is not biased.<sup>38</sup> In Table 20 the percentage distributions of patents derived from the questionnaires of inventors of assigned patents are compared with the percentages from the assignee questionnaires, derived from Tables XII and XIII.

<sup>38</sup> It should be noted that if the class distribution of patents derived from inventor responses is compared with that of assignee responses and statistically significant differences are obtained, it would indicate that either one or the other of the samples is biased. But the lack of a difference is not adequate proof of the absence of bias.

TABLE 20

CLASS	INVENTOR		ASSIGNEE	
	No.	Per Cent	No.	Per Cent
Total.....	567	100.0	528	100.0
Mechanical.....	305	53.8	288	54.6
Chemical.....	138	24.3	131	24.8
Electrical.....	124	21.9	109	20.6

The two distributions are surprisingly close. These two distributions, however, are not independent of one another. Some 312 patents are common to both. That is, the inventor and the assignee have returned a completed questionnaire for these patents. The percentages are so close, the two distributions could easily have come from a common population. When a chi-square test is applied to the two distributions, excluding the patents for which both inventor and assignee questionnaires were received,<sup>37</sup> a chi-square value of .41 is obtained. This is equivalent to a probability value of between .90 and .80. In other words, in random samples of this size, variations as large or larger may be expected in 80 to 90 per cent of such samples.

A greater concentration of "not applicable" cases is found for mechanical patents in comparison with chemical and electrical. This relationship parallels that found for assignee returns. The percentages are 28 for mechanical and 23 for chemical and electrical patents.

The percentage of patents with only one reason for non-use also differs for the different classes of patents but these differences do not follow the same pattern observed with respect to replies received from assignees. For assignees the highest percentage with multiple reasons was for mechanical patents and the lowest for electrical. The converse is the case for inventor returns.

#### *Leading Reasons for Non-Use by Class of Patent*

For mechanical patents the highest percentage of reasons for non-use is (e) *development of the art has taken a different course* (27%). Item (e) combined with (b) *rapid obsolescence* is 40 per cent. The next most frequently given reason is item (a) *lack of market demand* (20%). This is followed by (c) *competitively at a disadvantage* (11%). These reasons account for 71 per cent of the reasons for non-use given for mechanical patents.

The highest concentration of the chemical patents occurs with respect to item (e) *development of the art has taken a different course* (23%). Combined with (b) *rapid obsolescence*, item (e), which in effect amounts to obsolescence, accounts

<sup>37</sup> The distribution of questionnaires, after eliminating those for which both assignee and inventor returns were received, is as follows:

CLASS	PATENTS WITH ASSIGNEE RETURNS	PATENTS WITH INVENTOR RETURNS
Mechanical	127	150
Chemical	43	46
Electrical	46	59
Total	216	255

for 36 per cent. The next most frequent reason is (c) *competitively at a disadvantage* (22%) and this is followed by (a) *lack of market demand* (18%). These leading reasons account for 86 per cent of the reasons for non-use given for chemical patents.

For electrical patents the items which in effect are equivalent to obsolescence account for 38 per cent; these are (e) *development of the art has taken a different course* (24%) and (b) *rapid obsolescence* (14%). The next most frequently given reason is (a) *lack of market demand* (20%). Items (c) *competitively at a disadvantage* and (j) *don't know the reason* are about 10 per cent each. Table 21 summarizes the percentages for leading reasons by class of patent.

TABLE 21

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY CLASS OF PATENTS		
	Mechanical	Chemical	Electrical
(e) development of the art has taken a different course . . . .	27.3	23.1	24.2
(e) and (b) rapid obsolescence . . . . .	40.2	36.3	37.9
(a) lack of market demand . . . . .	19.9	18.2	20.0
(c) competitively at a disadvantage . . . . .	10.8	21.5	10.5
(j) don't know the reason . . . . .	9.5	9.9	10.5
Total . . . . .	80.4	85.9	78.9

This summary brings out clearly the general homogeneity of reasons for non-use for the three classes, with the exception of reason (c) for chemical patents.

#### REASONS FOR CURRENT NON-USE OF UNASSIGNED PATENTS BY CLASS

##### *Patents by Class*

In comparison with assigned patents, unassigned patents are quite different with respect to their distribution in the three broad classes, assuming that this is a representative sample of unassigned patents.<sup>38</sup> The distribution of the unassigned patents, derived from Table XIV, in the three classes is shown in Table 22.

TABLE 22

CLASS OF PATENT	NUMBER	PER CENT
Total . . . . .	198	100.0
Mechanical . . . . .	169	85.4
Chemical . . . . .	8	4.0
Electrical . . . . .	21	10.6

<sup>38</sup> Suggests the possibility that the decline in the inventive contribution of individual inventors may be in part due to a shift in types of inventions over the years, from mechanical to chemical and electrical. This shift, brought about by the progress of science and the arts, may have much more to do with the declining role of the individual inventor than seems to be attributed to it by many writers on this subject.

It would seem that patents of individual inventors are largely limited to mechanical inventions; only 4 per cent of the patents are chemical and 11 per cent electrical.<sup>39</sup>

### *Leading Reasons for Non-Use by Class of Patents*

Among mechanical patents the reason for non-use with the highest frequency is (d) *shortage or lack of venture capital* (30%), followed by item (i) *neglect to exploit it* (27%) and by item (a) *lack of market demand* (16%). The three leading reasons constitute 73 per cent.

Of the eight chemical patents, reasons for non-use were given for four. With respect to electrical patents the relative frequency of leading reasons is the reverse of that given for mechanical patents. These are (a) *lack of market demand* (28%), (i) *neglect to exploit it* (20%) and (d) *shortage or lack of venture capital* (16%). The three leading reasons account for 64 per cent.

The summary percentages in terms of the frequency with which different reasons were mentioned are given in Table 23.

TABLE 23

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY CLASS OF PATENTS	
	Mechanical	Electrical
(d) shortage or lack of venture capital.....	30.1	16.0
(i) neglect to exploit it.....	27.1	20.0
(a) lack of market demand.....	15.7	28.1
Total.....	72.9	64.1

The patterns for the reasons for non-use of the assignee and the inventor of assigned patents are quite different from those for unassigned patents. The leading reason common to all three is item (a) *lack of market demand*. A comparison among the three groups also confirms the greater diffusion of the reasons given by independent inventors in comparison to the other two.

### REASONS FOR THE CURRENT NON-USE OF ASSIGNED PATENTS REPORTED BY INVENTORS OF PRE-TESTED PATENTS AND PATENTS NOT PRE-TESTED

Another characteristic of the patent about which information was sought from the inventor was whether the sampled invention had been tested in a laboratory, or otherwise. Question 14 reads as follows: "Was your sampled invention actually produced (in the laboratory or otherwise) to test its feasibility? (check) yes, no, other (specify)."<sup>40</sup>

It is assumed that inventions which have been tested are less likely to remain

<sup>39</sup> The probability sample (i.e., the initial 2% sample) definitely confirms this difference in classification between the assigned and unassigned patents. The percentages for the unassigned patents, derived from the probability sample, are 88.2, 4.6 and 7.2, for mechanical, chemical and electrical patents, respectively.

<sup>40</sup> PTCJRE, I, (June, 1957), p. 105, question 14.

paper patents, and reasons for their non-use may be different in comparison with those which were not tested.

In this section consideration is given to the replies to question 14 of inventors of assigned patents and its relationship to question 32. Summary Table 24 gives the distribution of inventor replies to question 14, that is, whether the patent was pre-tested. This breakdown is shown for all returns, and separately for returns which were classified with respect to reasons for current non-use as "not applicable," and for other returns not so classified.

TABLE 24

PRE-TESTING	TOTAL		NOT APPLICABLE		BALANCE	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Total.....	567	100.0	147	100.0	420	100.0
Pre-tested.....	458	80.8	135	91.8	323	76.9
Not pre-tested.....	63	11.1	6	4.1	57	13.6
Answered "other".....	6	1.1	1	.7	5	1.2
Not answered or unknown.....	16	2.8	5	3.4	11	2.6
Not asked.....	24	4.2	...	...	24	5.7

Of the 567 assigned patents for which inventor questionnaires were received, about 81 per cent were pre-tested. About 11 per cent stated that the patent was not pre-tested. The balance (8%) are questionnaires in which question 14 was not asked, the inventor failed to reply, or the answer was "don't know." If these returns represent an unbiased sample, they indicate that about 88 per cent of the assigned patents are pre-tested. The table also shows a markedly higher proportion of the pre-tested patents is classified as "not applicable" with respect to question 32, which suggests that a higher percentage of these patents are in current use. This is also true of the patents for which question 14 is either not answered, or is answered "unknown." Thus, of the 458 patents for which the answer to question 14 was "yes" with respect to question 32, 135 or more than 29 per cent, were classed as "not applicable." The corresponding percentage for patents with an answer of "no" to question 14 was less than 10. This difference is statistically significant at the 1 per cent level.

#### *Leading Reasons for Non-Use*

The analysis of reasons for non-use of patents is limited to those pre-tested and those not pre-tested. The remaining groups are too small, and for most of them the question with respect to the reason for non-use is not answered.

There are marked differences in the reasons of pre-tested and not pre-tested patents, despite the fact that obsolescence, items (e) *development of the art has taken a different course* and (b) *rapid obsolescence*, constitutes a major reason in both, 40 and 35 per cent, respectively.

In diminishing order of frequency, following the combination of (e) and (b), the reasons for non-use of pre-test patents are (a) *lack of market demand* (20%), (c) *competitively at a disadvantage* (15%) and (j) *don't know the reason* (8%).

For patents not pre-tested these are (i) *neglect to exploit it* (17%), (a) *lack of market demand* (15%), (c) *competitively at a disadvantage* (11%) and (h) *insufficient protection* (11%). The high proportion of items (i) and (h), characteristic of reasons given by inventors of unassigned patents, suggests that many of the assigned patents that were not pre-tested were unassigned when issued.

These relationships between leading reasons for non-use and the pre-test status of patents are summarized in Table 25.

TABLE 25

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY PRE-TEST STATUS	
	Pre-tested	Not Pre-tested
(e) development of the art has taken a different course.....	26.2	23.1
(e) and (b) rapid obsolescence.....	40.1	35.4
(a) lack of market demand.....	20.3	15.4
(c) competitively at a disadvantage.....	14.6	10.8
(j) don't know the reason.....	7.8	6.2
(i) neglect to exploit it.....	6.8	16.9
(h) insufficient protection.....	1.1	10.8
Total.....	90.7	95.5

REASONS FOR CURRENT NON-USE OF UNASSIGNED PATENTS REPORTED BY  
INVENTORS FOR PRE-TESTED PATENTS AND PATENTS NOT PRE-TESTED

The distribution of replies to question 14 by inventors of unassigned patents in the sample is given in Table 26 (derived from Table XVI).

TABLE 26

PRE-TESTING	TOTAL		NOT APPLICABLE		BALANCE	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Total.....	198	100.0	20	100.0	178	100.0
Pre-tested.....	130	65.7	15	75.0	115	64.6
Not pre-tested.....	41	20.7	2	10.0	39	21.9
Answered "other".....	5	2.5	1	5.0	4	2.2
Unanswered or unknown.....	8	4.0	2	10.0	6	3.4
Not asked.....	14	7.1	...	...	14	7.9

About two-thirds of the inventors of unassigned patents stated that their patent was pre-tested. About 21 per cent stated that it was not. The balance either were not asked the question, made an entry under "other," said they did not know, or failed to answer. If it is assumed that this residual group is no different from the 86 per cent that gave specific answers with respect to pre-testing, it would mean that some 75 per cent of the unassigned patents are pre-tested and 25 per cent are not. The corresponding percentages for the inventors of assigned patents were 88 and 12 for the pre-tested and not pre-tested, respectively.

The percentage of patents which are classified as "not applicable" with respect

to question 32 is higher for patents that were pre-tested. This conforms with what was found for assigned patents. The association suggests that a higher proportion of pre-tested patents is in current use. This is probably true, despite the fact that for almost two-thirds of the unassigned patents reported in current use, since the inventor gave reasons for current non-use, the patents could not be classed as "not applicable."

#### *Leading Reasons for Non-Use*

For pre-tested patents, (i) *neglect to exploit it* is the most frequent reason for current non-use. For patents not pre-tested, the leading reason for non-use is (d) *shortage or lack of venture capital*. There is a greater significance with respect to external factors (i.e., *lack of market demand* and *shortage or lack of venture capital* given as the reasons for non-use of not pre-tested patents). These differences may not be statistically significant. Even if they were, we would not be certain whether to attribute the differences to the quality of the patents or possibly the temperamental differences among the inventors. These relationships are summarized in Table 27.

TABLE 27

REASONS FOR NON-USE	PERCENTAGES OF REASONS FOR NON-USE BY PRE-TESTING	
	Pre-tested	Not Pre-tested
(i) neglect to exploit it.....	29.4	22.0
(d) shortage or lack of venture capital.....	26.6	29.3
(a) lack of market demand.....	15.4	22.0
Total.....	71.4	73.3

There appears to be some qualitative superiority (e.g., a higher proportion in current use, acceptance of personal responsibility for non-use, etc.) revealed both for assigned and unassigned patents that have been pre-tested.

#### REASONS FOR NON-USE OF ASSIGNED PATENTS BY INVENTORS WITH DIFFERENT EMPLOYMENT STATUS

The foregoing analysis of reasons for non-use of mechanical and electrical patents and the sharp demarcation in reasons for non-use of pre-tested and not pre-tested patents suggests the possibility that inventors' reasons for non-use may be affected by their personal characteristics. With this possibility in mind the association between the employment status of the inventors of assigned patents and the reasons for non-use of the patent are considered in this section of the report.

The inventor questionnaire seeks information on a number of characteristics of the inventor, such as his age, education, place of birth, occupation, industry and employment status. In this interim report on the reasons for non-use only one of the characteristics is being considered: employment status of the inventor at the time the sampled invention was made. This is obtained from question 9 of the inventor questionnaire.



*Employment Status of the Inventor*

Question 9 reads as follows: "At the time when you made your sampled invention were you: (check) (a) self-employed; (b) employer; (c) other (specify):"

Of the 567 assigned patents considered in this analysis (counting as one, multiple questionnaires received for a single patent) replies to question 9 were received for 563 patents. The distribution of these by employment status of the inventor is given in Table 28 (derived from Table XVII).

TABLE 28

EMPLOYMENT STATUS	TOTAL		NOT APPLICABLE		BALANCE	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Total.....	563	100.0	146	100.0	417	100.0
Self-employed.....	48	8.5	13	8.9	35	8.4
Employee.....	509	90.4	131	89.7	378	90.6
Other.....	6	1.1	2	1.4	4	1.0

About 90 per cent of inventors of assigned patents were employees at the time of their sampled invention. Less than 9 per cent were self-employed, and about 1 per cent were military personnel, students, housewives, etc. The percentage of patents in current use (i.e., patents classified "not applicable" with respect to question 32) is about evenly distributed among the different groups. In other words, Table 28 gives no indication that the employment status of the inventor at the time of the invention of the assigned patent influences the chances of its subsequent utilization.

*Leading Reasons For Non-Use Given By Self-Employed and Employee Inventors*

The reasons given by inventors who were self-employed at the time they made the sampled invention were: (e) *development of the art has taken a different course* (26%); obsolescence as a unit, item (e) and item (b) *rapid obsolescence* constitutes 34 per cent. Next in order are (i) *neglect to exploit it* (18%), (a) *lack of market demand* (13%), (d) *shortage or lack of venture capital* (10%). These leading reasons account for 76 per cent of all reasons given by self-employed inventors.

Reasons given by inventors who were employees at the time of making the sampled invention are considerably different. As was the case with respect to the self-employed the reason with the highest frequency is (e) *development of the art has taken a different course* (26%). Obsolescence as a unit, that is (e) combined with (b) *rapid obsolescence* is 40 per cent, higher than the corresponding percentage given by the self-employed. These are followed by (a) *lack of market demand* (20%) again higher than the corresponding percentage given by the self-employed; (j) *don't know the reason* (10%) and (i) *neglect to exploit it* (6%). These leading reasons account for 77 per cent of the reasons given for non-use.

The outstanding differential features in reasons for non-use between self-employed and employee inventors is that the former give reasons for non-use characteristic of inventors of unassigned patents.

The relationship between leading reasons for non-use and employment status of the inventor at the time of inventing the sampled patent is summarized in Table 29.

TABLE 29

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY EMPLOYMENT STATUS OF THE INVENTOR	
	Self-employed	Employee
(e) development of the art has taken a different course.....	26.3	25.9
(e) and (b) rapid obsolescence.....	34.2	39.8
(i) neglect to exploit it.....	18.4	6.2
(a) lack of market demand.....	13.4	19.9
(d) shortage or lack of venture capital.....	10.5	1.2
(j) don't know the reason.....	2.6	10.2
Total.....	79.1	77.3

REASONS FOR NON-USE OF UNASSIGNED PATENTS BY INVENTORS  
WITH DIFFERENT EMPLOYMENT STATUS

The distribution of unassigned patents, according to the reasons for current non-use, of inventors with different employment status was also analyzed (Table XVIII). The relative frequencies for different employment status for inventors of unassigned patents at the time of the sampled invention are shown in Table 30.

TABLE 30

EMPLOYMENT STATUS	TOTAL		NOT APPLICABLE		BALANCE	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Total.....	193*	100.0	19	100.0	174	100.0
Self-employed.....	91	47.1	10	52.6	81	46.6
Employee.....	86	44.6	8	42.1	78	44.8
Other.....	16	8.3	1	5.3	15	8.6

\*Of the total responding (exclusive of multiple inventors) five failed to answer question 9 with respect to employment status.

Among inventors of unassigned patents the self-employed and the employees are almost balanced. The "other" group constitutes less than 10 per cent.<sup>41</sup> Table 30 gives no indication of any undue concentration of "not applicables" in one group of inventors compared with others with respect to employment status. The differences observed are not large enough to be significant.

*Leading Reasons for Non-Use Given by Inventors of Unassigned Patents*

Reasons for non-use given by self-employed inventors in order of frequency are: (i) *neglect to exploit it* (29%), (d) *shortage or lack of venture capital* (29%), (a) *lack of market demand* (12%), and (c) *competitively at a disadvantage* (8%). These four reasons account for 78 per cent of the total.

<sup>41</sup> In the labor force in the United States the self-employed constitute less than 15%; they are predominantly males.

Almost the same order of priority is found in reasons given for non-use by inventors who were employees, though there are percentage differences. In order of frequency the leading reasons are: (d) *shortage or lack of venture capital* (28%), (i) *neglect to exploit it* (25%), (a) *lack of market demand* (19%). These three leading reasons account for 71 per cent of the total.

Among the group of inventors who were neither self-employed nor employees the reasons for non-use are still more distinctive when compared with those for the other two groups. Leading reasons given are: (a) *lack of market demand* (33%), (i) *neglect to exploit it* (28%), and (d) *shortage or lack of venture capital* (22%). The three leading reasons account for 83 per cent of the reasons given for non-use.

These percentages of leading reasons for non-use for the three types of inventors are summarized in Table 31.

The sharpest difference in percentages between the three groups is with respect to item (a) *lack of market demand*. The percentage of employee inventors giving this reason is considerably higher. A similar difference was also observed among self-employed inventors of assigned patents as compared with the employees. This repetition in the pattern could suggest some basic difference. In other respects the employee group of inventors of unassigned patents is unlike the employee group among inventors of assigned patents.

TABLE 31

REASONS FOR NON-USE	PERCENTAGES OF REASONS BY EMPLOYMENT STATUS OF THE INVENTOR		
	Self-employed	Employee	Other
(i) neglect to exploit it.....	28.7	25.0	27.8
(d) shortage or lack of venture capital.....	28.7	27.5	22.2
(a) lack of market demand.....	11.7	18.8	33.3
(c) competitively at a disadvantage.....	8.5	5.0	...
Total.....	77.6	76.3	83.3

This report has been primarily descriptive. Extensive tests of significance were not made since the representativeness of the working sample was not tested. Significance tests would not be too conclusive unless the sample is a reasonably good approximation of a random sample of the population studied. It should be re-emphasized that conclusive evidence as to the quality of the sample will not be available until we have had an opportunity to compare the information obtained from a sub-sample of non-responding inventors and assignees with that from those who have responded to the mail questionnaire. Until this is done internal consistency checks as are readily available can be made to assess the quality of the working sample. In Appendix B this evidence is examined in some detail.

## APPENDIX A

TABLE I

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF REPLIES OF ASSIGNEES WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS AND ALSO THE FREQUENCY DISTRIBUTIONS OF THESE REASONS WHETHER GIVEN SINGLY OR IN COMBINATION, FOR EACH YEAR AND FOR THE THREE YEARS COMBINED, BASED ON ALL RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR THE CURRENT NON-USE	YEAR IN WHICH THE PATENT WAS GRANTED												THREE YEARS COMBINED													
	1938						1948						1952													
	PATENTS			REASONS FOR NON-USE			PATENTS			REASONS FOR NON-USE			PATENTS			REASONS FOR NON-USE			PATENTS			REASONS FOR NON-USE				
	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†	No.	Per Cent	Per Cent†		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)		
Total: Number.....	165	165	114	114	132	132	144	144	103	103	117	117	219	219	131	131	140	140	528	528	348	348	389	389	100.0	
Per Cent.....	..	100.0	100.0	115.9	..	100.0	..	100.0	100.0	113.5	..	100.0	..	100.0	100.0	106.9	..	100.0	..	100.0	100.0	111.9	..	100.0	..	
a. Lack of market demand.....	28	17.0	24.6	34.2	39	29.5	26	18.1	25.2	34.0	35	29.9	38	17.4	29.0	34.4	45	32.1	92	17.4	26.4	34.2	119	30.6	a.	
b. Rapid obsolescence.....	21	12.7	18.4	23.7	27	20.5	12	8.3	11.7	15.5	16	13.7	15	6.8	11.5	13.0	17	12.1	48	9.1	13.8	17.2	60	15.4	b.	
c. Competitively at a disadvantage.....	40	24.2	38.5	45.6	52	39.4	39	27.1	37.9	48.5	50	42.7	51	23.3	38.9	43.5	57	40.7	130	24.6	37.4	45.7	159	40.9	c.	
d. Shortage or lack of venture capital.....	1	.6	.9	.9	1	.8	..	..	..	..	..	..	2	.9	1.5	1.5	2	1.4	3	.6	.9	.9	3	.8	d.	
e. Development of the art has taken a different course*.....	1	.6	.9	3.5	4	3.0	..	..	..	1.0	1	.9	4	1.8	3.1	3.1	4	2.9	5	.9	1.4	2.6	9	2.3	e.	
f. Foreign competition.....	..	..	..	..	..	..	..	..	..	1.0	1	.9	..	..	..	..	..	..	..	..	..	.3	1	.3	f.	
g. Supporting arts have not developed sufficiently*.....	..	..	..	..	1	.8	1	.7	1.0	1.0	1	.9	1	.5	.8	.8	1	.7	2	.4	.6	.9	3	.8	g.	
h. Patent does not provide sufficient protection.....	..	..	..	..	..	..	1	.7	1.0	1.0	1	.9	1	.5	.8	1.5	2	1.4	2	.4	.6	.9	3	.8	h.	
i. Neglect to exploit it.....	1	.6	.9	1.8	2	1.5	..	..	..	..	..	..	..	..	..	..	1.5	2	1.4	1	.2	.3	1.2	4	1.0	i.
j. Don't know the reason*.....	1	.6	.9	.9	1	.8	2	1.4	1.9	1.9	2	1.7	1	.5	.8	.8	1	.7	4	.8	1.2	1.2	4	1.0	j.	
k. Other (residual)¹.....	1	.6	..	.9	.9	.8	3	2.1	2.9	2.9	3	2.6	4	1.8	3.1	3.1	4	2.9	8	1.5	2.3	2.3	8	2.1	k.	

1. Outside line of business*	4	2.4	3.5	3.5	4	3.0	5	3.5	4.9	5.8	6	5.1	4	1.8	3.1	3.1	4	2.9	13	2.5	3.7	4.0	14	3.6
m. Sold or licensed*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
a. and b.	2	1.2	1.8	..	..	..	1	1	1.0	1.0	1	.9	1	.5	.8	.8	1	.7	2	.4	.6	.6	2	.5
a. and c.	5	3.0	4.4	..	..	..	7	4.9	6.8	..	..	..	4	1.8	3.1	..	..	..	16	3.0	4.6	..	..	a. and b.
a. and e.	1	.6	.9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	a. and c.
a. and g.	1	.6	.9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	a. and e.
a. and i.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	a. and g.
b. and c.	4	2.4	3.5	..	..	..	2	1.4	1.9	..	..	2	1	.5	.8	..	..	..	2	.4	.6	..	..	a. and i.
c. and e.	1	.6	.9	..	..	..	1	.7	1.0	..	..	..	1	.5	.8	..	..	..	7	1.3	2.0	..	..	b. and c.
c. and h.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	c. and e.
c. and i.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	c. and h.
a., b., and f.	..	..	..	..	..	..	1	.7	1.0	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	c. and i.
a., c., and e.	1	.6	.9	..	..	..	1	.7	1.0	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	a., b., and f.
a., c., and i.	1	.6	.9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	.2	.3	..	..	a., c., and e.
Not applicable*	37	22.4	..	..	..	..	38	26.4	..	..	..	..	81	37.0	..	..	..	..	156	29.5	..	..	..	Not applicable*
Not asked	14	8.5	..	..	..	..	3	2.1	..	..	..	..	7	3.2	..	..	..	..	24	4.5	..	..	..	Not asked

\* Construed exclusively from the entries recorded under "other."

† Percentage of patents exclusive of those with no reasons for non-use.

‡ Percentage of patents with specified reasons whether the reason was given singly or in combination.

1 Where the reason specified under "other" seemed no different from one of the reasons listed for checking, the listed reason was used in tabulating. In some instances new categories of reasons were formulated from the wordings specified under "other."

2 Where the assignee made no entry under question 12 and he had indicated the patent was in current use, it was assumed any specific answer was unnecessary, so these returns were grouped under "not applicable."

TABLE IIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS BY YEAR OF ISSUE AND FOR THE THREE YEARS COMBINED, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES			
	1938	1948	1952	Three Years Combined
(1)	(2)	(3)	(4)	(5)
Total: Number.....	114	120	211	445
Per Cent.....	100.0	100.0	100.0	100.0
a. Lack of market demand.....	16.7.	17.5	22.3	19.5
b. Rapid obsolescence.....	21.1	14.2	8.6	13.3
c. Competitively at a disadvantage.....	10.5	13.3	14.7	13.3
d. Shortage or lack of venture capital.....	...	2.5	3.3	2.2
e. Development of the art has taken a different course.....	31.6	20.8	24.6	25.4
f. Foreign competition.....	...	...	...	...
g. Supporting arts have not developed sufficiently.....	...	7.5	4.7	4.3
h. Insufficient protection.....	3.5	...	...	.9
i. Neglect to exploit it.....	3.5	10.8	7.6	7.4
j. Don't know the reason.....	10.5	10.0	9.5	9.9
k. Other, specify.....	2.6	1.7	4.3	3.1
l. Outside of line of business.....	...	1.7	...	.4
m. Sold or licensed.....	...	...	...	...

TABLE IIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS BY YEAR OF ISSUE AND FOR THE THREE YEARS COMBINED, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES			
	1938	1948	1952	Three Years Combined
(1)	(2)	(3)	(4)	(5)
Total: Number.....	30	50	115	195
Per Cent.....	100.0	100.0	100.0	100.0
a. Lack of market demand.....	23.3	10.0	18.3	16.9
b. Rapid obsolescence.....	6.7	...	.9	1.5
c. Competitively at a disadvantage.....	6.7	8.0	5.2	6.2
d. Shortage or lack of venture capital.....	9.9	28.0	33.1	28.2
e. Development of the art has taken a different course.....	13.3	8.0	2.6	5.6
f. Foreign competition.....	6.7	...	...	1.0
g. Supporting arts have not developed sufficiently.....	...	10.0	3.5	4.6
h. Insufficient protection.....	3.3	4.0	...	1.5
i. Neglect to exploit it.....	23.3	26.0	27.8	26.7
j. Don't know the reason.....	3.3	...	3.5	2.6
k. Other, specify.....	3.3	6.0	5.2	5.1
l. Outside of line of business.....	...	...	...	...
m. Sold or licensed.....	...	...	...	...

TABLE IV

PERCENTAGE DISTRIBUTION OF REASONS FOR THE CURRENT NON-USE OF PATENTS FROM ASSIGNEES, INVENTORS OF ASSIGNED PATENTS AND INVENTORS OF UNASSIGNED PATENTS—BY YEAR OF ISSUE AND FOR THE THREE YEARS COMBINED. INCLUDES ALL REASONS WHETHER GIVEN SINGLY OR IN COMBINATION, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR THE CURRENT NON-USE	1938			1948			1952			THREE YEARS COMBINED		
	REASONS FOR CURRENT NON-USE BY INVENTOR			REASONS FOR CURRENT NON-USE BY INVENTOR			REASONS FOR CURRENT NON-USE BY INVENTOR			REASONS FOR CURRENT NON-USE BY INVENTOR		
	Assigned	Un-assigned		Assigned	Un-assigned		Assigned	Un-assigned		Assigned	Un-assigned	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	132	114	30	117	120	50	140	211	115	389	445	195
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	29.5	16.7	23.3	29.9	17.5	10.0	32.1	22.3	18.3	30.6	19.5	16.9 a.
b. Rapid obsolescence.....	20.5	21.1	6.7	13.7	14.2	..	12.1	8.6	..9	15.4	13.3	1.5 b.
c. Competitively at a disadvantage.....	39.4	10.5	6.7	42.7	13.3	8.0	40.7	14.7	5.2	40.9	13.3	6.2 c.
d. Shortage or lack of venture capital.....	.8	..	9.9	..	2.5	28.0	1.4	3.3	33.1	.8	2.2	28.2 d.
e. Development of the art has taken a different course.....	3.0*	31.6	13.3	.9*	20.8	8.0	2.9*	24.6	2.6	2.3*	25.4	5.6 e.
f. Foreign competition.....	..	..	6.7	.9	..	..	..	..	..	.3	..	1.0 f.
g. Supporting arts have not developed sufficiently.....	.8*	..	..	.9*	7.5	10.0	.7*	4.7	3.5	.8*	4.3	4.6 g.
h. Patent does not provide sufficient protection.....	..	3.5	3.3	.9	..	4.0	1.4	..	..	.8	.9	1.5 h.
i. Neglect to exploit it.....	1.5	3.5	23.3	..	10.8	26.0	1.4	7.6	27.8	1.0	7.4	26.7 i.
j. Don't know the reason.....	.8*	10.5	3.3	1.7*	10.0	..	.7*	9.5	3.5	1.0*	9.9	2.6 j.
k. Other (residual) <sup>1</sup> .....	.8	2.6	3.3	2.6	1.7	6.0	2.9	4.3	5.2	2.1	3.1	5.1 k.
l. Outside line of business*	3.0	..	..	5.1	1.7	..	2.9	..	..	3.6	.4	.. l.
m. Sold or licensed*	..	..	..	.9	..	..	.7	..	..	.5	..	.. m.
b. and e. summed together.....	23.5	52.7	20.0	14.6	35.0	8.0	15.0	33.2	3.5	17.7	38.5	7.1

\* Construed exclusively from the entries recorded under "other."

<sup>1</sup> Where the reason specified under "other" seemed no different from one of the reasons listed for checking, the listed reason was used in tabulating. In other instances new categories of reasons were formulated from the wordings specified under "other."

TABLE Va

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF ASSIGNEES WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS FOR PATENTS WITH SPECIFIED UTILIZATION STATUS, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES			
	Past Use	Future Use	No Use	All Categories*
(1)	(2)	(3)	(4)	(5)
Total: Number.....	109	50	230	392
Per Cent.....	100.0	100.0	100.0	100.0
a. Lack of market demand.....	26.6	48.0	28.7	30.4
b. Rapid obsolescence.....	34.9	2.0	8.3	15.4
c. Competitively at a disadvantage.....	20.2	38.0	53.0	41.7
d. Shortage or lack of venture capital.....	...	...	1.3	.8
e. Development of the art has taken a different course.....	5.5	...	.9	2.0
f. Foreign competition.....	.9	...	...	.3
g. Supporting arts have not developed sufficiently.....	...	4.0	.4	.8
h. Insufficient protection.....	.9	...	.9	.8
i. Neglect to exploit it.....	.9	4.0	.4	1.0
j. Don't know the reason.....	1.8	...	.4	1.0
k. Other, specify.....	1.8	2.0	2.2	2.0
l. Outside of line of business.....	4.6	2.0	3.5	3.6
m. Sold or licensed.....	1.8	...	...	.5

\* This column includes one "current use" and two "don't know" cases.

TABLE VIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS FOR PATENTS WITH SPECIFIED UTILIZATION STATUS, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES						
	Current Use	Past Use	Future Use	No Use	Don't Know	Unanswered	All Categories
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total: Number.....	97	112	11	158	62	7	447
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	32.0	14.3	9.1	18.4	12.9	28.6	19.5
b. Rapid obsolescence.....	14.4	20.5	...	11.4	4.8	14.3	13.2
c. Competitively at a disadvantage.....	9.3	11.6	9.1	21.5	8.1	...	13.6
d. Shortage or lack of venture capital.....	4.1	2.7	9.1	1.3	...	...	2.2
e. Development of the art has taken a different course.....	16.5	34.8	...	28.5	16.1	42.9	25.5
f. Foreign competition.....	...	...	...	...	...	...	...
g. Supporting arts have not developed sufficiently.....	5.2	1.8	27.3	5.7	...	...	4.2
h. Insufficient protection.....	1.0	.9	...	.6	...	14.3	.9
i. Neglect to exploit it.....	12.4	4.5	27.3	5.7	6.5	...	7.4
j. Don't know the reason.....	1.0	6.3	...	3.8	48.4	...	9.8
k. Other, specify.....	4.1	2.7	18.2	3.2	1.6	...	3.1
l. Outside of line of business.....	...	...	...	...	1.6	...	.4
m. Sold or licensed.....	...	...	...	...	...	...	...



TABLE VIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS FOR PATENTS WITH SPECIFIED UTILIZATION STATUS, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES						All Categories
	Current Use	Past Use	Future Use	No Use	Don't Know	Unanswered	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total: Number.....	47	27	15	66	31	9	195
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	14.9	18.5	13.3	18.2	16.1	22.2	16.9
b. Rapid obsolescence.....	...	...	...	3.0	...	11.1	1.5
c. Competitively at a disadvantage.....	8.5	7.4	...	9.1	...	...	6.2
d. Shortage or lack of venture capital.....	29.6	18.5	53.4	27.3	19.4	44.4	28.2
e. Development of the art has taken a different course.....	4.3	7.4	...	6.1	9.7	...	5.6
f. Foreign competition.....	...	3.7	...	...	...	11.1	1.0
g. Supporting arts have not developed sufficiently.....	8.5	3.7	6.7	1.5	6.5	...	4.6
h. Insufficient protection.....	4.3	3.7	...	...	...	...	1.5
i. Neglect to exploit it.....	25.5	29.6	26.7	22.7	38.7	11.1	26.7
j. Don't know the reason.....	...	...	...	4.5	6.4	...	2.6
k. Other, specify.....	4.3	7.4	...	7.6	3.2	...	5.1
l. Outside of line of business.....	...	...	...	...	...	...	...
m. Sold or licensed.....	...	...	...	...	...	...	...

TABLE VIII

PERCENTAGE DISTRIBUTIONS OF REASONS FOR THE CURRENT NON-USE OF PATENTS FROM ASSIGNEES, INVENTORS OF ASSIGNED PATENTS AND INVENTORS OF UNASSIGNED PATENTS BY THE REPORTED UTILIZATION STATUS OF EACH RESPONSE GROUP. INCLUDES ALL REASONS WHETHER GIVEN SINGLY OR IN COMBINATION, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

PRELIMINARY

REASONS FOR THE CURRENT NON-USE	CURRENT USE <sup>1</sup>			PAST USE			FUTURE USE			NO USE			DON'T KNOW <sup>2</sup>			UNANSWERED <sup>3</sup>		
	INVENTOR		As- signed	INVENTOR		As- signed	INVENTOR		As- signed	INVENTOR		As- signed	INVENTOR		As- signed	INVENTOR		As- signed
	As- signed	Unas- signed		As- signed	Unas- signed		As- signed	Unas- signed		As- signed	Unas- signed		As- signed	Unas- signed		As- signed	Unas- signed	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)			
Total: Number	97	47	109	112	27	50	11	15	230	158	66	62	31	7	9			
Per Cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0			
a. Lack of market demand	32.0	14.9	26.6	14.3	18.5	48.0	9.1	13.3	28.7	18.4	18.2	12.9	16.1	28.6	22.2	a.		
b. Rapid obsolescence	14.4	...	34.9	20.5	...	2.0	...	...	8.3	11.4	3.0	4.8	...	14.3	11.1	b.		
c. Competitively at a disadvantage	9.3	8.5	20.2	11.6	7.4	38.0	9.1	...	53.0	21.5	9.1	8.1	...	...	...	c.		
d. Shortage or lack of venture capital	4.1	29.6	...	2.7	18.5	...	9.1	53.4	1.3	1.3	27.3	...	19.4	...	44.4	d.		
e. Development of the art has taken a different course	16.5	4.3	5.5*	34.8	7.4	...	...	...	9*	28.5	6.1	16.1	9.7	42.9	...	e.		
f. Foreign competition	...	...	9	...	3.7	...	...	...	...	...	...	...	...	...	11.1	f.		
g. Supporting arts have not developed sufficiently	5.2	8.5	...	1.8	3.7	4.0*	27.3	6.7	4*	5.7	1.5	...	6.5	...	...	g.		
h. Patent does not provide sufficient protection	1.0	4.3	9	9	3.7	...	...	...	9	...	...	...	...	14.3	...	h.		
i. Neglect to exploit it	12.4	25.5	9	4.5	29.6	4.0	27.3	26.7	.4	5.7	22.7	6.5	38.7	...	11.1	i.		
j. Don't know the reason	1.0	...	1.8*	6.3	...	...	...	...	4*	3.8	4.5	48.4	6.4	...	...	j.		
k. Other (residual) <sup>4</sup>	4.1	4.3	1.8	2.7	7.4	2.0	18.2	...	2.2	3.2	7.6	1.6	3.2	...	...	k.		
l. Outside line of business*	...	...	4.6	...	...	2.0	...	...	3.5	...	...	1.6	...	...	...	l.		
m. Sold or licensed*	...	...	1.8	...	...	...	...	...	...	...	...	...	...	...	...	m.		
b. and e. summed together	30.9	4.3	40.4	55.3	7.4	2.0	...	...	9.2	39.9	9.1	20.9	9.7	57.2	11.1			

\* Construed exclusively from the entries recorded under "other."

1 Only 1 assignee gave reason for non-use.

2 Only 3 assignees said they did not know whether the patent was used.

3 Only 3 assignees failed to answer whether the patent was used or not.

4 Where the reason specified under "other" seemed no different from one of the reasons listed for checking, the listed reason was used in tabulating. In other instances new categories of reasons were formulated from the wordings specified under "other."

TABLE IXa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF ASSIGNEES OF SAMPLED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF PATENTS CLASSIFIED ACCORDING TO LICENSING STATUS, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES					
	Licensed	Will License	Will Not License	Might License	Not Licensed	No Information
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total: Number.....	90	184	15	59	32	12
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	27.8	31.0	26.7	33.9	31.3	25.0
b. Rapid obsolescence.....	15.6	15.8	6.7	13.6	21.9	8.3
c. Competitively at a disadvantage..	43.3	40.2	53.3	40.7	37.5	50.0
d. Shortage or lack of venture capital.	...	1.6	...	...	...	...
e. Development of the art has taken a different course.....	2.2	2.2	...	1.7	...	8.3
f. Foreign competition.....	...	.5	...	...	...	...
g. Supporting arts have not developed sufficiently.....	1.1	.5	...	1.7	...	...
h. Insufficient protection.....	1.1	...	...	3.4	...	...
i. Neglect to exploit it.....	1.1	.5	6.7	1.7	...	...
j. Don't know the reason.....	2.2	...	...	...	3.1	8.3
k. Other, specify.....	2.2	2.2	...	1.7	3.1	...
l. Outside of line of business.....	1.1	5.4	6.7	1.7	3.1	...
m. Sold or licensed.....	2.2	...	...	...	...	...

TABLE Xa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED SAMPLED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF PATENTS CLASSIFIED ACCORDING TO LICENSING STATUS, BASED ON RETURNS RECEIVED ON OR PRIOR TO 9/20/57.

PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES						
	Licensed	Will License	Will Not License	Might License	No License	Unknown	No Information
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total: Number.....	56	18	107	82	36	135	13
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	19.6	16.7	21.5	23.2	27.8	14.8	7.7
b. Rapid obsolescence.....	16.1	...	11.2	11.0	19.4	12.6	38.5
c. Competitively at a disadvantage..	12.5	33.4	17.7	17.0	11.1	6.6	15.4
d. Shortage or lack of venture capital.	3.6	5.6	3.7	...	...	2.2	...
e. Development of the art has taken a different course.....	26.8	16.7	27.1	28.0	25.0	23.7	23.1
f. Foreign competition.....	...	...	...	...	...	...	...
g. Supporting arts have not developed sufficiently.....	5.4	5.6	8.4	2.4	2.8	2.2	...
h. Insufficient protection.....	1.8	...	1.9	1.2	...	...	...
i. Neglect to exploit it.....	3.6	22.2	4.7	6.1	2.8	11.1	7.7
j. Don't know the reason.....	7.1	...	.9	4.9	8.3	23.0	...
k. Other, specify.....	3.6	...	1.9	...	2.8	3.0	7.7
l. Outside of line of business.....	...	...	.9	...	...	...	...
m. Sold or licensed.....	...	...	...	...	...	...	...

TABLE XIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED SAMPLED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF PATENTS CLASSIFIED ACCORDING TO LICENSING STATUS, BASED ON RETURNS RECEIVED ON OR PRIOR TO 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES					
	Licensed	Will License	Will Not License	Might License	Unknown	No Information
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total: Number.....	8	32	48	57	33	15
Per Cent.....	100.0	100.0	100.0	100.0	100.0	100.0
a. Lack of market demand.....	12.5	15.6	20.8	19.3	12.1	13.3
b. Rapid obsolescence.....	...	3.1	2.1	...	...	6.7
c. Competitively at a disadvantage.....	...	3.1	6.3	8.8	6.1	6.7
d. Shortage or lack of venture capital.....	25.0	43.8	18.7	28.1	27.3	26.7
e. Development of the art has taken a different course.....	...	3.1	6.3	3.5	9.1	13.3
f. Foreign competition.....	...	...	2.1	...	...	6.7
g. Supporting arts have not developed sufficiently.....	12.5	3.1	8.3	3.5	3.0	...
h. Insufficient protection.....	...	...	2.1	1.8	3.0	...
i. Neglect to exploit it.....	37.5	15.6	25.0	28.1	33.3	26.7
j. Don't know the reason.....	12.5	3.1	2.1	1.8	3.0	...
k. Other, specify.....	...	9.4	6.3	5.3	3.0	...
l. Outside of line of business.....	...	...	...	...	...	...
m. Sold or licensed.....	...	...	...	...	...	...

TABLE XIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF ASSIGNEES WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS IN SPECIFIED BROAD CLASSES, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Mechanical	Chemical	Electrical
(1)	(2)	(3)	(4)
Total: Number.....	195	110	87
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	31.8	26.4	32.2
b. Rapid obsolescence.....	16.9	12.7	14.9
c. Competitively at a disadvantage.....	36.9	50.0	41.4
d. Shortage or lack of venture capital.....	1.5	...	...
e. Development of the art has taken a different course.....	2.6	.9	2.3
f. Foreign competition.....	...	...	1.1
g. Supporting arts have not developed sufficiently.....	...	.9	2.3
h. Insufficient protection.....	1.5	...	...
i. Neglect to exploit it.....	1.5	.9	...
j. Don't know the reason.....	.5	1.8	1.1
k. Other, specify.....	2.1	2.7	1.1
l. Outside of line of business.....	4.1	2.7	3.4
m. Sold or licensed.....	.5	.9	...

TABLE XIIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS IN SPECIFIED BROAD CLASSES, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Mechanical	Chemical	Electrical
(1)	(2)	(3)	(4)
Total: Number.....	231	121	95
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	19.9	18.2	20.0
b. Rapid obsolescence.....	12.9	13.2	13.7
c. Competitively at a disadvantage.....	10.8	21.5	10.5
d. Shortage or lack of venture capital.....	3.0	...	3.2
e. Development of the art has taken a different course....	27.3	23.1	24.2
f. Foreign competition.....	...	...	...
g. Supporting arts have not developed sufficiently.....	3.9	5.8	3.2
h. Insufficient protection.....	.9	.8	1.1
i. Neglect to exploit it.....	7.8	6.6	7.4
j. Don't know the reason.....	9.5	9.9	10.5
k. Other, specify.....	3.5	...	6.3
l. Outside of line of business.....	.4	.8	...
m. Sold or licensed.....	...	...	...

TABLE XIVa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS IN SPECIFIED BROAD CLASSES, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Mechanical	Chemical	Electrical
(1)	(2)	(3)	(4)
Total: Number.....	166	4	25
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	15.7	...	28.0
b. Rapid obsolescence.....	1.8	...	...
c. Competitively at a disadvantage.....	6.6	...	4.0
d. Shortage or lack of venture capital.....	30.1	75.0	16.0
e. Development of the art has taken a different course....	5.4	...	8.0
f. Foreign competition.....	1.2	...	...
g. Supporting arts have not developed sufficiently.....	4.8	...	4.0
h. Insufficient protection.....	1.2	...	4.0
i. Neglect to exploit it.....	27.1	...	20.0
j. Don't know the reason.....	1.2	25.0	8.0
k. Other, specify.....	4.8	...	8.0
l. Outside of line of business.....	...	...	...
m. Sold or licensed.....	...	...	...

TABLE XVa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS THAT WERE SPECIALLY PRE-TESTED BEFORE APPLICATION AND THOSE THAT WERE NOT, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Pre-tested	Not Pre-tested	Combined*
(1)	(2)	(3)	(4)
Total: Number.....	370	65	447
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	20.3	15.4	19.5
b. Rapid obsolescence.....	13.9	12.3	13.2
c. Competitively at a disadvantage.....	14.6	10.8	13.6
d. Shortage or lack of venture capital.....	2.4	...	2.2
e. Development of the art has taken a different course....	26.2	23.1	25.5
f. Foreign competition.....	...	...	...
g. Supporting arts have not developed sufficiently.....	4.6	3.1	4.3
h. Insufficient protection.....	1.1	10.8	.9
i. Neglect to exploit it.....	6.8	16.9	7.4
j. Don't know the reason.....	7.8	6.2	9.8
k. Other, specify.....	2.4	1.5	3.1
l. Outside of line of business.....	...	...	.5
m. Sold or licensed.....	...	...	...

\* This total includes 12 reasons for non-use not shown on this table. These are from questionnaires in which the response to question 14 was "Other," "Don't Know," or "Unanswered."

TABLE XVIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE FOR THE SAMPLED PATENTS THAT WERE SPECIFICALLY PRE-TESTED BEFORE APPLICATION AND THOSE THAT WERE NOT, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Pre-tested	Not Pre-tested	Combined*
(1)	(2)	(3)	(4)
Total: Number.....	143	41	195
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	15.4	22.0	16.9
b. Rapid obsolescence.....	1.4	2.4	1.5
c. Competitively at a disadvantage.....	6.3	7.3	6.2
d. Shortage or lack of venture capital.....	26.6	29.3	28.2
e. Development of the art has taken a different course....	6.3	2.4	5.6
f. Foreign competition.....	...	4.8	1.0
g. Supporting arts have not developed sufficiently.....	6.3	...	4.6
h. Insufficient protection.....	2.1	...	1.5
i. Neglect to exploit it.....	29.4	22.0	26.7
j. Don't know the reason.....	1.4	4.8	2.6
k. Other, specify.....	4.9	4.8	5.1
l. Outside of line of business.....	...	...	...
m. Sold or licensed.....	...	...	...

\* This total includes 11 reasons for non-use not shown on this table. These are from questionnaires in which the response to question 14 was "Other," "Don't Know," or "Unanswered."

TABLE XVIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF ASSIGNED PATENTS (EXCLUDING MULTIPLE INVENTORS) WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS RELATED TO THE EMPLOYMENT STATUS OF THE INVENTOR AT THE TIME OF THE SAMPLED INVENTION, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES	
	Self-Employed	Employee
(1)	(2)	(3)
Total: Number.....	38	402
Per Cent.....	100.0	100.0
a. Lack of market demand.....	13.4	19.9
b. Rapid obsolescence.....	7.9	13.9
c. Competitively at a disadvantage.....	10.5	14.2
d. Shortage or lack of venture capital.....	10.5	1.2
e. Development of the art has taken a different course.....	26.3	25.9
f. Foreign competition.....	...	...
g. Supporting arts have not developed sufficiently.....	5.3	4.2
h. Insufficient protection.....	...	1.0
i. Neglect to exploit it.....	18.4	6.2
j. Don't know the reason.....	2.6	10.2
k. Other, specify.....	2.6	3.2
l. Outside of line of business.....	2.6	.2
m. Sold or licensed.....	...	...

TABLE XVIIIa

TOTAL NUMBER AND PERCENTAGE DISTRIBUTION OF REPLIES OF INVENTORS OF UNASSIGNED PATENTS WITH RESPECT TO REASONS FOR THE CURRENT NON-USE OF THE SAMPLED PATENTS RELATED TO THE EMPLOYMENT STATUS OF THE INVENTOR AT THE TIME OF THE SAMPLED INVENTION, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57.

## PRELIMINARY

REASONS FOR NON-USE	PERCENTAGES		
	Self-Employed	Employee	Other
(1)	(2)	(3)	(4)
Total: Number.....	94	80	18
Per Cent.....	100.0	100.0	100.0
a. Lack of market demand.....	11.7	18.8	33.3
b. Rapid obsolescence.....	1.1	2.5	...
c. Competitively at a disadvantage.....	8.5	5.0	...
d. Shortage or lack of venture capital.....	28.7	27.5	22.2
e. Development of the art has taken a different course.....	5.3	5.0	11.1
f. Foreign competition.....	1.1	1.3	...
g. Supporting arts have not developed sufficiently.....	5.3	3.8	5.6
h. Insufficient protection.....	1.1	2.5	...
i. Neglect to exploit it.....	28.7	25.0	27.8
j. Don't know the reason.....	2.1	3.8	...
k. Other, specify.....	6.4	5.0	...
l. Outside of line of business.....	...	...	...
m. Sold or licensed.....	...	...	...

## APPENDIX B

## QUALITY OF THE SAMPLE OF RETURNS

Prior interim reports have indicated that by internal analysis it is possible to determine with some confidence the quality of the sample. In this report also, such an analysis was made with respect to the percentage distribution of patents by broad classes where it was shown that the distribution derived from assignee returns coincided with the distribution derived from the returns of inventors of assigned patents. This agreement suggests a valid sample (i.e., a sample from which can be inferred within known limits of certainty the characteristics of the population from which the samples are drawn). Stronger evidence of validity would arise from a comparison of the percentages of certain characteristics derived from the samples analyzed in this report (the working samples) with the 2 per cent probability samples selected for this study. This comparison for assigned and unassigned patents is given in Table A.

TABLE A

## PRELIMINARY

CLASSIFICATION	NUMBER AND PERCENTAGE DISTRIBUTIONS					
	ASSIGNED PATENTS			UNASSIGNED PATENTS		
	PROBABILITY SAMPLE	ASSIGNEE RETURNS	INVENTOR RETURNS	PROBABILITY SAMPLE	INVENTOR RETURNS	
	No. Per Cent	No. Per Cent	No. Per Cent	No. Per Cent	No. Per Cent	
Total.....	1237* 100.0	528 100.0	567 100.0	612 100.0	198 100.0	
Mechanical.....	757 61.2	288 54.6	306 54.0	540 88.2	169 85.4	
Chemical.....	240 19.4	131 24.8	137 24.2	28 4.6	8 4.0	
Electrical.....	240 19.4	109 20.6	124 21.9	44 7.2	21 10.6	

\* This number is higher than 1,218 assigned patents, given in the first report (Appendix Table 1, in the *Journal*, vol. 1, no. 1, June, 1957, p. 100). This difference indicates assignment of initially unassigned patents since the date of the search in the Patent Office assignment files. There is also the possibility that some assignments may not have been recorded. This matter will be pursued further, by going back to the assignment records when the field work is completed. In all probability, the number of assigned patents is likely to increase as returns are received from additional inventors. If the assignment records are incomplete then the estimates that 6 per cent of patents not assigned initially are assigned subsequently may have to be adjusted upward.

The frequency distribution of the probability sample and the working sample show appreciable differences in the percentages among broad classifications of patents, despite the fact that the comparative frequencies in the different classes are almost the same for patents represented by completed assignee questionnaires and those represented by completed inventor questionnaires. As noted in the report, the test showing that these two samples (assignees and inventors of assigned patents) could have come from a common population was satisfied even when identical patents with respect to which both the inventor and assignee had returned completed questionnaires were withdrawn. This indicates that the same or similar selective factors are operative among assignees and inventors who respond.

In the above comparison between the working sample, based on assignee returns, and the probability sample, statistically significant differences are found. The chi-square resulting from this comparison is 21.64, with 2 degrees of freedom. In view of the fact that the tabular value of chi-square with a "p" of .01 is only 9.21, it is extremely improbable that a random sample drawn from the probability sample will deviate from it by as much as the working sample does. Therefore, the working sample is biased. This bias, however, may result from the fact that there is a much smaller representation of patents issued in 1938, and a relatively larger representation of those issued in 1952. In the previous reports this has been demonstrated. Failure to locate the assignee or dissolution of an assignee corporation, and perhaps the loss of records, or difficulty in getting at them, more often affects patents issued in 1938, and, therefore, there is an underrepresentation of these in the working sample. If between 1938 and 1952 there has been a diminution of mechanical patents, this could account for the discrepancy between the working sample, received from assignees, and the probability sample.



Comparing the working sample, based on returns of inventors of assigned patents, we find there are similar differences. In fact, the chi-square obtained from this comparison is larger, 24.94. It is extremely improbable that the working sample could be a random sub-sample drawn from the 2 per cent probability sample.

Reasons which affect the returns of assignee questionnaires affect even more the inventor questionnaire returns. A larger proportion of the inventors of 1938 patents are deceased, disabled, or difficult to locate in comparison to inventors of 1952 patents. Therefore, the sample of inventor returns is markedly deficient for 1938 patents.<sup>1</sup> If there has been a reduction in the percentage of mechanical patents and an increase in chemical patents between 1938 and 1952, it would be expected that this type of bias would be reflected in the working sample.<sup>2</sup>

The same test of significance of the difference was applied to unassigned patents in comparing the distribution of the class of patents represented by completed questionnaires with the distribution in the probability sample. The chi-square resulting from this comparison is 5.39, with 2 degrees of freedom. This working sample could be considered a random sample of the 2 per

TABLE AA

COMPARISON OF THE NUMBER AND PER CENT OF PATENTS IN THE 2 PER CENT PROBABILITY SAMPLE IN TERMS OF THE BROAD PATENT OFFICE CLASSIFICATION FOR EACH YEAR WITH  
(1) SUCH PATENTS FOR WHICH ASSIGNEE AND/OR INVENTOR QUESTIONNAIRES HAD BEEN RECEIVED AS OF 9/20/57, AND (2) FOR ASSIGNED AND UNASSIGNED PATENTS

## PRELIMINARY

CLASS	TWO PER CENT PROBABILITY SAMPLE											
	ASSIGNED PATENTS						UNASSIGNED PATENTS					
	1938		1948		1952		1938		1948		1952	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total.....	438	100.0	292	100.0	506	100.0	198	100.0	148	100.0	266	100.0
Mechanical.....	299	68.3	146	50.3	312	61.7	173	87.4	132	89.2	235	89.6
Chemical.....	57	13.0	74	25.3	109	21.5	16	8.1	4	2.7	8	4.8
Electrical.....	82	18.7	72	24.7	85	16.8	9	4.5	12	8.1	23	5.6
PATENTS REPRESENTED BY COMPLETED INVENTOR QUESTIONNAIRES												
Total.....	142	100.0	147	100.0	278	100.0	32	100.0	49	100.0	117	100.0
Mechanical.....	83	58.4	65	44.2	158	56.8	26	81.2	43	87.8	100	85.5
Chemical.....	21	14.8	45	30.6	71	25.5	4	12.5	2	4.0	2	1.7
Electrical.....	38	26.8	37	25.2	49	17.7	2	6.3	4	8.2	15	12.8
PATENTS REPRESENTED BY COMPLETED ASSIGNEE QUESTIONNAIRES												
Total.....	164	100.0	144	100.0	220	100.0						
Mechanical.....	98	59.8	65	45.1	125	56.8						
Chemical.....	31	18.9	40	27.8	60	27.3						
Electrical.....	35	21.3	39	27.1	35	15.9						

<sup>1</sup> For assignee returns the percentage is about 37 for 1938, and nearly 44 for 1952. The disparity for inventor returns between the two years is even greater—32 and 55, for 1938 and 1952, respectively. For unassigned patents the returns for 1938 constitute 16% and for 1952, 44%.

<sup>2</sup> Were this fact fully to account for the bias in the working sample, it could be remedied by considering our working sample a stratified sample with different sampling ratios for the three years. By doing this the bias would be eliminated by the use of different inflation coefficients for patents issued in the three years.

cent probability sample. The probability of getting a random sample from the same population which differs as much as the working sample, is less than 10 per cent but more than 5 per cent. Even in this case it is not unreasonable to assume that some distortion has occurred as a result of differential representation of inventors from the three years in the working sample.<sup>3</sup>

The strong bias indicated by the comparison of assigned patents for which questionnaires have been returned has prompted the analysis and a comparison of the classification of patents in the working sample with the probability sample for each of the three years separately as shown in Table AA.

The result of this analysis in terms of chi-square and the probability zone for such a sample to have arisen from the 2 per cent probability sample is summarized in Table B below. The tests are a comparison of the distribution of patents in terms of the three broad groups between those represented by no questionnaires, as of 9/20/57, and those represented by questionnaires, separately for assignees, inventors of assigned patents and inventors of unassigned patents.

TABLE B

GROUPS COMPARED	YEARS					
	1938		1948		1952	
	Chi-square	p	Chi-square	p	Chi-square	p
Assigned patents:						
Assignee returns						
vs. non-returns.....	10.68	p < .01	5.25 .10 > p > .05		7.15 .05 > p > .02	
Inventor returns						
vs. non-returns.....	10.52	p < .01	2.68 .50 > p > .30		7.53 .05 > p > .02	
Unassigned patents:						
Inventor returns						
vs. non-returns.....	1.48 .50 > p > .30		.06 .98 > p > .95		6.13 .05 > p > .02	

This analysis indicates that the working sample could be regarded as representative of the probability sample for all three groups as far as 1948 patents are concerned, but not so with respect to assigned patents issued in 1938, with respect to both inventor and assignee responses. For 1952, the three working samples are on the borderline. They are not representative if the 5 per cent level is adopted as the limit, but they would be at the 2 per cent level.

Over the period 1938-1952, the percentage of assigned mechanical patents has fluctuated widely (see Table AA). They constituted 68 per cent of the total in 1938, dropped to 50 per cent in 1948, and rose to almost 62 per cent in 1952. If a downward trend in mechanical patents is assumed, with a sharp down-turn during the war, it is reasonable to infer that on the average, inventors of mechanical patents are older. Therefore, they would be less likely to be in our working sample, even considering the sample separately for each year. For assigned chemical patents, the percentages are 13, 25, and almost 22, for 1938, 1948, and 1952, respectively. The percentages for assigned electrical patents are 19, 25, and 17, respectively, for these years.

The variation among unassigned patents with respect to class is much smaller, as may be seen from Table AA. For unassigned patents the deviation between the working sample and the probability sample is close to the borderline of statistical significance for the 1952 sub-sample only.

Probing further into the disparities between the working and the probability samples, it appears that the marked variation in mechanical patents is responsible for these differences. This is suggested by the percentage differences between those portions of the samples for which questionnaires have been returned and those portions for which there are no questionnaires. These differences are shown in Table C.

<sup>3</sup> Although there is a larger percentage of inventors of unassigned patents in the 1938 sample who have not returned questionnaires, in comparison to 1952, the proportion of mechanical, chemical, and electrical patents issued to inventors of unassigned patents has not changed much.

TABLE C

MECHANICAL PATENTS—PERCENTAGE EXCESSES IN MECHANICAL PATENTS IN THAT PORTION  
OF THE SAMPLE FOR WHICH NO QUESTIONNAIRES HAVE BEEN RECEIVED

## PRELIMINARY

YEAR	ASSIGNEE	INVENTOR	
		Assigned	Unassigned
1938.....	13.6	14.6	7.4
1948.....	9.7	11.6	2.2
1952.....	8.6	10.7	5.1
Three years.....	11.6	13.4	4.2

The table suggests for assigned patents a slight reduction in the disparity for more recent periods, perhaps because the proportion not making returns diminishes. (See Table AA.) There is also some suggestion that the disparity is somewhat greater for inventors of assigned patents than for assignees. It is believed these disparities between the working and the probability samples are due to a greater elimination from the working sample, of the oldest inventors. With respect to assignees these differences appear to be the result of a greater elimination of old firms that have been dissolved, have not been reached, or may be hesitant or slow in participating in the study.<sup>4</sup>

TABLE D

CHEMICAL PATENTS—PERCENTAGE DEFICITS IN CHEMICAL PATENTS IN THAT PORTION OF  
THE PROBABILITY SAMPLE FOR WHICH NO QUESTIONNAIRES HAVE BEEN RECEIVED

## PRELIMINARY

YEAR	ASSIGNEE	INVENTOR	
		Assigned	Unassigned
1938.....	9.4	2.6	5.3
1948.....	4.9	10.6	2.0
1952.....	10.2	8.8	-2.3
Three years.....	9.4	8.8	-0.8

ELECTRICAL PATENTS—PERCENTAGE DEFICITS IN ELECTRICAL PATENTS IN THAT PORTION  
OF THE PROBABILITY SAMPLE FOR WHICH NO QUESTIONNAIRES HAVE BEEN RECEIVED

YEAR	ASSIGNEE	INVENTOR	
		Assigned	Unassigned
1938.....	4.2	12.0	2.1
1948.....	4.8	1.0	.2
1952.....	-1.6	1.9	7.4
Three years.....	2.2	4.6	5.0

<sup>4</sup> The parallelism of factors militating against returns of 1938 assignee and inventor questionnaires is further evidenced by the fact that the sample for which only the assignee questionnaires have been returned is homogeneous with the sample for which inventor questionnaires alone have been returned.

The distortions introduced by mechanical patents cause reciprocal distortions in the other components. These are shown for chemical and electrical patents in Table D.

An examination of these three sets of percentage differences indicates that they are much more regular for mechanical patents. Therefore, mechanical patents are more likely to be the underlying factor of distortion between the working and the probability samples. A plausible hypothesis is that the bias in the working samples results from the fact that aged persons and older firms are less likely to make returns. Accordingly, any patent characteristics under study correlated with the age of the inventor and, in a general sense, the interest and record keeping of the assignee, would be biased.<sup>5</sup> This necessitates greater caution and more multidimensional analysis before arriving at definitive conclusions based on the working samples.

#### A FURTHER TEST OF THE REPRESENTATIVENESS OF THE WORKING SAMPLE WITH RESPECT TO REASONS FOR CURRENT NON-USE OF THE PATENT

In previous reports three different approaches were used to test the presence of bias in the working sample, affecting the utilization status. These were: (1) homogeneity of the returns from different mailings; (2) homogeneity of the characteristics under consideration between patents for which returns from both inventors and assignees have been received, with those for which the inventor of assigned patents alone has responded, and those for which the assignee alone has responded; and (3) between patents with two or more inventors, divided into those with complete returns and those with partial returns. These three avenues are also open to us in testing the presence or absence of bias in the working sample, with respect to reasons for non-use.

In this report a more conclusive test is used. This test consists of a comparison of the characteristics of patents for which no response has been received with those for which there has been a response. This test shows that the working sample is distorted in certain respects. More intensive analysis is needed to determine the extent this bias affects the various conclusions derived from the sample. In earlier reports it was pointed out that this avenue was open, but time did not permit classification of the sample in terms of the current Patent Office classification. There are other external characteristics of the patents in the probability and the working samples which can be compared. Geographic distribution of inventors and assignees responding compared with the group not responding would be an example. Another example would be the industrial classification of assignees (limited to assigned patents and assignee returns).

#### TESTING THE SAMPLE IN TERMS OF SUB-SEGMENTS

In previous reports, for inventor returns, we compared the responses from different mailings. There were four groups of completed questionnaires as follows: (a) initial interviews; (b) those in the 10 per cent pre-pilot sub-sample; (c) those in the October 1956 mailing; and (d) those in the January 1957 mailing.<sup>6</sup> In the present analysis of returns the following groupings have been used: (a) questionnaires in the pre-pilot sub-sample; (b) questionnaires in the October and January mailings combined, which were returned in response to the initial request; (c) those in the October and January mailings returned in response to the first follow-up letter; (d) those in the October and January mailings returned in response to the second follow-up letter; and (e) those received in response to individual telephone calls or some other special effort. The distribution of these respective groups of patents by reasons for current non-use on the basis of replies of inventors of assigned patents has been analyzed paralleling the pattern indicated in Table I, Appendix A (Table XVIII). In testing the homogeneity of the different segments of the sample with respect to the distribution, use could be made of all the returns; only those with a specific reply to question 32, in terms of patents; or the distribution of reasons for non-use (whether given singly or in combination). The tests of homogeneity have been limited to reasons for non-use (i.e., it is believed that essentially the same results would be obtained if the other two distributions were to be used). In testing the homogeneity of the different segments as the sub-samples of the total group for which usable replies have been returned, the chi-square test has been used.<sup>7</sup> Partly for reasons already discussed, that certain reasons for

<sup>5</sup> If it were possible to determine what introduces the bias, then it would be possible to make appropriate allowance for it.

<sup>6</sup> The Proceedings of the First Public Conference of the Patent, Trademark and Copyright Foundation, *Conference Supplement of the Journal*, Tables A and B, pp. 150-151.

<sup>7</sup> Wilfrid J. Dixon and Frank J. Massey, Jr., *Introduction to Statistical Analysis*, c. 13.

non-use are essentially identical, (b) *rapid obsolescence* and (c) *development of the art has taken a different course* have been combined. Other items have been combined where the frequencies were too small. The test of homogeneity was applied to the following groups for which both the working sample frequencies and the expected frequencies are shown in Table E, based on returns of inventors of assigned patents.<sup>8</sup>

TABLE E

COMPARATIVE DISTRIBUTION OF THE NUMBER OF ACTUAL AND "EXPECTED" REASONS FOR THE CURRENT NON-USE OF ASSIGNED PATENTS, BASED ON INVENTOR REPLIES FOR PATENTS GROUPED ACCORDING TO TYPE OF RETURN, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57

## PRELIMINARY

REASONS FOR NON-USE	INITIAL MAILING		FIRST FOLLOW-UP		SECOND FOLLOW-UP		SPECIAL		PRE-PILOT SUB-SAMPLE		TOTAL	
	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total.....	230	230.0	58	58.0	47	47.0	30	30.0	62	62.0	427	100.0
a.....	47	46.9	10	11.8	8	9.6	9	6.1	13	12.6	87	20.4
b, e.....	84	83.0	25	20.9	21	17.0	6	10.9	18	22.4	154	36.1
c.....	39	32.5	6	8.2	3	6.6	2	4.2	10	8.7	60	14.1
d, g, h.....	16	17.7	5	4.5	4	3.6	2	2.3	6	4.8	33	7.7
i.....	15	17.7	5	4.5	4	3.6	4	2.3	5	4.8	33	7.7
j.....	25	23.7	5	6.0	5	4.9	3	3.1	6	6.4	44	10.3
k, l, m.....	4	8.5	2	2.1	2	1.7	4	1.1	4	2.3	16	3.7

TABLE F

COMPARATIVE DISTRIBUTION OF THE NUMBER OF ACTUAL AND "EXPECTED" REASONS FOR THE CURRENT NON-USE OF UNASSIGNED PATENTS, BASED ON INVENTOR REPLIES FOR PATENTS GROUPED ACCORDING TO TYPE OF RETURN, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57

## PRELIMINARY

REASONS FOR NON-USE	INITIAL MAILING		FIRST FOLLOW-UP		SECOND FOLLOW-UP		SPECIAL		PRE-PILOT SUB-SAMPLE		TOTAL	
	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total.....	104	104.0	19	19.0	26	26.0	24	24.0	22	22.0	195	100.0
a.....	19	17.6	4	3.2	2	4.4	4	4.1	4	3.7	33	16.9
b, e.....	9	7.5	1	1.3	2	1.9	1	1.7	1	1.6	14	7.2
c.....	5	6.3	1	1.2	2	1.6	4	1.5	..	1.3	12	6.1
d.....	28	29.3	7	5.4	5	7.3	7	6.8	8	6.2	55	28.2
f, g, h.....	6	7.5	1	1.3	5	1.9	2	1.7	..	1.6	14	7.2
i.....	30	27.8	4	5.1	6	6.9	4	6.4	8	5.9	52	26.7
j, k.....	7	8.0	1	1.5	4	2.0	2	1.8	1	1.7	15	7.7

<sup>8</sup> The frequency of reasons for non-use in Table E differs from that shown in Table II because separate reasons combined on the theory that they were the same were no longer counted as multiple reasons considered separately.

In summarizing these, where two or more reasons were combined because they were thought to be the same, they were not counted as multiple reasons. No such adjustment was made, however, when reasons were merely grouped, because they occurred infrequently.

The chi-square test shows that these different segments of the completed questionnaires are homogeneous and could have come from a common population of reasons for current non-use like that shown by the total in column 12 of Table E.

The value of the chi-square derived from this analysis is 25.90, with 24 degrees of freedom. This indicates that samples as divergent from column 12 as the sub-groups are could be expected with a probability of less than .5 and more than .3. In other words, the frequencies in the different sub-groups are homogeneous and they all can be considered as samples from the same population. This proves merely that inventors who respond after one or more follow-up letters or as a result of telephone calls or other direct appeals, with respect to reasons for non-use of assigned patents, are no different from those who respond initially.

Essentially the same procedure as that described for testing homogeneity of returns of responses of inventors of assigned patents was used in testing the returns of inventors of unassigned patents. This is shown in Table F. Because of a different pattern of frequencies, the grouping of reasons occurring less frequently is somewhat different from that used for inventors of assigned patents. These differences may be noted by comparing Table F with Table E.

Table F gives the reasons for the current non-use of the patents as given by inventors of unassigned patents (both the actual and the expected frequencies).<sup>9</sup> The expected frequencies are based on the assumption that each group came from a common population having the distribution of reasons shown by combined returns, column 12 of Table-F. The grouping of patents parallels those that were discussed in considering the inventor returns for assigned patents.

The chi-square resulting from Table F, with 24 degrees of freedom, is 22.03. This signifies that samples with as large variations as found in the different groups of patents in Table F in comparison with column 12 could occur in random samples drawn from such a population with a probability less than .7 but more than .5. There is thus no significant difference in reasons for non-use among inventors who responded initially to the questionnaire and those who did so after they were urged by follow-up letters. Moreover, there is no difference in the returns from inventors in the pre-pilot sub-sample and those from subsequent mailings.

A similar test of homogeneity is applied to reasons for the current non-use of patents represented by questionnaires returned by assignees. The test of homogeneity of the responses of assignees regarding reasons for the current non-use of patents is also restricted to the frequency with which these reasons were mentioned singly or in combination. With respect to assignee questionnaires, second follow-up letters were mailed to the pre-pilot sub-sample in July 1957 and to the remaining assignees in the 2 per cent sample in late November and early December 1957. Furthermore, the practice of telephoning assignees, or interviewing them personally has not seemed profitable (except for the initial interviews). In testing the homogeneity of assignee returns with respect to reasons for the current non-use of the patent, the returns have been divided into three groups, as follows: (a) those assignees who responded to the initial mailing, regardless of whether this was in connection with the pre-pilot sub-sample or the December 1956 mailing; (b) those who returned a completed questionnaire in response to the first follow-up letter, again combining the pre-pilot sub-sample replies with those for which the initial mailing occurred in December; (c) miscellaneous small groups consisting of interviewees, second follow-up cases from the pre-pilot sub-sample and special contact cases. These were combined since there were only a few of each type. The frequency of reasons for non-use for the different groups is summarized in Table G. For this purpose reasons that were considered identical were grouped together and were not counted as multiple reasons.<sup>10</sup> Other reasons were grouped together merely because of the small frequencies of cases for each. This latter grouping varies from table to table since it depends on the items with small frequencies which are not the same for the different classes of respondents. The groupings for assignee replies in testing homogeneity may be seen in Table G.

<sup>9</sup> See footnote 8 for an explanation of the difference in the frequency of the reasons for non-use between Table E and Table II, which is the same for Table F and Table III.

<sup>10</sup> The difference between Table G and Table I is comparable to that between Table E and Table II. See footnote 8.

TABLE G

COMPARATIVE DISTRIBUTION OF THE NUMBER OF ACTUAL AND "EXPECTED" REASONS FOR THE CURRENT NON-USE OF ASSIGNED PATENTS, BASED ON ASSIGNEE REPLIES, FOR PATENTS GROUPED ACCORDING TO THE TYPE OF RETURN, RECEIVED ON OR BEFORE 9/20/57

## PRELIMINARY

REASONS FOR NON-USE	INITIAL MAILING		FIRST FOLLOW-UP		ALL OTHER CATEGORIES		TOTAL	
	Ac-tual	Ex-pected	Ac-tual	Ex-pected	Ac-tual	Ex-pected	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total .....	292	292.0	80	80.0	14	14.0	386	100.0
a. ....	93	89.9	20	24.6	6	4.3	119	30.8
b, e. ....	47	51.4	18	14.1	3	2.5	68	17.6
c. ....	118	118.9	35	32.6	4	5.7	157	40.7
d, f, g, h. ....	7	7.6	3	2.1	..	.3	10	2.6
i, j. ....	7	6.1	1	1.7	..	.3	8	2.1
k, l, m. ....	20	18.1	3	4.9	1	.9	24	6.2

Table G, like the previous two tables, shows the observed frequencies of reasons for each group as well as the expected frequencies conforming with the distribution of all the returns, columns 8 and 9. The chi-square obtained from these frequencies is 6.31, with 10 degrees of freedom. The tabular value of chi-square, with 10 degrees of freedom, is 6.179 for a p value of .80, and 7.267 for a p value of .70. In other words, if samples were drawn randomly of the size of the sub-samples from a population having the same relative frequencies as the total working sample, in more than 70 per cent of such samples the variations from the parent population will be as large or larger than those observed in the sub-samples.

This ends this phase of the analysis. As was explained in the earlier reports, concerned with utilization status, this type of evidence is at best inferential, on the assumption that if no difference is found between respondents requiring no persuasion and those needing it, it would strengthen the presumption that there may be no difference between respondents and non-respondents with respect to the patent characteristics under consideration. A large part of the non-respondents are inventors or assignees who cannot be reached, who are deceased, or who are too old or incapacitated. There are also those who have received the questionnaire, are in a position to respond, but have not done so to date for one reason or other.

COMPARATIVE CHARACTERISTICS OF PATENTS WITH RETURNS FROM BOTH ASSIGNEES AND INVENTORS WITH THOSE WITH INVENTOR OR ASSIGNEE RETURNS ONLY

In an earlier report, it was indicated that the evidence derived from a comparison of characteristics of assigned patents for which only the inventor has replied, with those for which both the inventor and assignee have replied is, in a sense, a comparison between patents of assignees that have responded with those that have not. The same is true with regard to comparative characteristics of patents represented by assignee replies only and those represented by both assignee and inventor replies. Here patents of inventors who have responded are compared with those of inventors who have not.

In the present analysis there are assignee returns for 528 patents, and returns from inventors for 567 assigned patents. Some of these are for the same patent. This is true with respect to 312 patents. In the previous two reports patents were considered for which both inventors and assignees have responded, to test the validity of the response with respect to utilization. Concerning utilization, the reply was relatively objective and it was assumed that both inventors and assignees should respond the same way. This is not the case with respect to reasons for non-use. Reasons for non-use are given more as an opinion or attitude than as a statement of fact. Identical replies should not be expected from assignees and inventors for the same patent. Nevertheless, considerable similarity of reasons for non-use given by assignees and inventors with respect to identical patents is found.

Table BB presents the cross classification of the 312 patents for which there are completed questionnaires both from inventors of assigned patents and assignees.

The horizontal distribution of the patents shows assignee responses to question 12. Thus, there are 54 patents for which the assignee indicated (a) *lack of market demand* as the reason for current non-use. For 16 of these, the horizontal distribution, the inventor also gave (a) as the reason for non-use. For one, the inventor gave (b) *rapid obsolescence* as the reason, and so on.

The vertical distribution indicates reasons for non-use given by the inventor. Thus, for 16 patents the reason for non-use given by the inventor was (b) *rapid obsolescence*. For six of these the assignee gave the same reason; for two, the assignee reason was item (c) *competitively at a disadvantage*, and so on.

It should be noted that sole and multiple reasons are shown specifically, including "not applicable" patents for which the question on the reasons for non-use was not answered, those in preliminary interviews who were not asked question 32, and those for which the answer was (j) *do not know the reason*. Consequently, the number and percentage in the diagonal—representing patents with identical reasons from inventors and assignees—are small. There are 106 patents in the diagonal, 27 per cent of the total. However, most of these are the "not applicable" patents which are irrelevant to the immediate interest in the correspondence of reasons for non-use given by inventors and assignees.

TABLE BB

CROSS TABULATION OF RETURNS OF ASSIGNEES WITH RESPECT TO REASONS FOR CURRENT NON-USE OF PATENTS, WITH INVENTOR RETURNS, FOR ALL 312 ASSIGNED PATENTS REPRESENTED BY ASSIGNEE AND INVENTOR QUESTIONNAIRES.

PRELIMINARY.

INVENTOR RESPONSE	ASSIGNEE RESPONSE																							Total	
	a	b	c	e	g	h	j	k	l	m	a	a	a	a	a	b	c	c	c	a	a	a	N/Un-ans.		
											b	c	e	g	i	c	e	h	l	f	b	c	c	i	A
Total.....	54	29	77	4	1	1	2	5	3	2	2	9	1	1	2	4	1	1	1	1	1	1	96	13	312
a.....	16	..	5	..	..	..	2	..	1	1	..	1	..	..	1	..	..	..	..	..	..	1	3	1	32
b.....	1	6	2	1	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	3	..	..	16
c.....	5	..	11	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	1	..	..	21
d.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
e.....	6	9	12	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	2	..	36
g.....	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	4	
h.....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
i.....	..	3	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	6	
j.....	5	2	9	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	21	
k.....	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	
a, c.....	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	
a, e.....	2	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	
a, g.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	
a, l.....	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	3	
a, k.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	1	
b, c.....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
b, e.....	..	5	2	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	3	..	..	12	
c, e.....	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	
c, g.....	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
e, k.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
g, i.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
i, k.....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
a, b, e.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	
a, h, i.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	
b, c, e.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
e, g, i.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
a, b, c, e.....	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
N/A.....	3	2	4	..	..	..	..	..	1	..	1	..	1	..	..	1	1	..	1	..	66	1	..	80	
Unanswered.....	9	1	18	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	33	
Not Asked.....	2	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	7	..	18	



In Table CC, derived from Table BB, there have been excluded the "not applicable" and other groups that are irrelevant to the extent the inventor and assignee reasons agree as to non-use. The table is, therefore, limited to 132 patents for which both the inventor and assignee gave one or more specific reasons for non-use. Of the 132 patents, 50, or 38 per cent, are in the diagonal; that is, both the inventor and assignee gave the identical reason for non-use. This does indicate a considerable degree of agreement, though not high. More important is the fact that even though reasons given by inventor and assignee may differ, they seem compatible. Even in Table CC some of the dispersion is due to multiple reasons, part of which could be identical. In Table H identical reasons have been combined, whether given singly or in combination.

TABLE CC

CROSS TABULATION OF PATENTS WITH SPECIFIC ASSIGNEE AND INVENTOR REPLIES  
REGARDING REASONS FOR CURRENT NON-USE OF THE SAMPLED PATENT.

## PRELIMINARY

INVENTOR RESPONSE																TOTAL INVENTOR RESPONSE
	a	b	c	h	k	l	m	a	a	a	a	b	c	c	a	
	e							b	c	e	i	c	e	n	e	
Total Assignee Response.	35	25	45	1	2	1	2	2	8	1	2	4	1	1	1	132
a.....	16	..	4	..	..	1	1	..	2	..	1	1	..	..	1	27
b, e.....	7	22	18	..	..	..	..	1	1	1	..	2	..	..	..	52
c.....	5	..	10	..	..	..	..	1	3	..	..	..	..	..	..	19
g.....	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	3
h.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
i.....	..	..	3	..	..	..	..	..	..	..	..	1	..	..	..	4
k.....	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	4
a, c.....	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3
a, e.....	2	..	1	..	1	..	..	..	..	..	..	..	..	..	..	4
a, i.....	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	3
b, c.....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
c, e.....	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	3
c, g.....	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2
e, k.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
g, i.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
l, k.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
a, b, e.....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
c, b, e.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
e, g, i.....	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1

In Table H, 74 of 175 reasons for non-use are identical. Analysis of this table also indicates considerable cross-over between items (a) *lack of market demand*, and (c) *competitively at a disadvantage*. That is, where the assignee gave the reason as (a), in about half of the cases the inventor also gave (a), but in a substantial number of cases gave the reason (b) or (e) *obsolescence*, or (c) *competitively at a disadvantage*. Similarly, where the assignee gave the reason as (c), the inventor dispersed his answers among (a), (b) and (e), and (c), which to us seems not inconsistent.

In Table H the frequencies in the diagonal represent 42 per cent of all the frequencies. If one considers this as a measure of agreement or identity, one could regard it as a coefficient of determination and infer a correlation coefficient which will be .65, which perhaps is not insignificant.

Further inspection of the three reasons with highest frequencies, that is, (a), (b and e) and (c) indicates the highest agreement is for (b and e) and the lowest for (c). This may be clearly seen by the percentages given in Table I.

TABLE H

CROSS CLASSIFICATION OF REASONS FOR CURRENT NON-USE OF PATENTS GIVEN BY ASSIGNEES  
AND INVENTORS FOR IDENTICAL PATENTS—WITH EXPECTED FREQUENCIES OF  
IDENTICAL REPLIES

PRELIMINARY

INVENTORS REASONS	a	b,e	c	g	h	i	k	l	m	TOTAL
Total.....	56	36	69	..	2	3	4	2	3	175
a.....	28	1	10	..	..	2	2	1	2	46
b, e.....	12	27	27	..	1	..	1	..	1	69
c.....	11	3	18	..	1	..	..	..	..	33
g.....	2	1	3	..	..	..	1	1	..	8
h.....	..	..	1	..	..	..	..	..	..	1
i.....	1	2	6	..	..	1	..	..	..	10
k.....	2	2	4	..	..	..	..	..	..	8
l.....	..	..	..	..	..	..	..	..	..	..
m.....	..	..	..	..	..	..	..	..	..	..

TABLE I

PERCENTAGE DISPERSION OF INVENTOR REASONS FOR NON-USE FROM ASSIGNEE REASONS  
FOR IDENTICAL PATENTS

PRELIMINARY

INVENTOR REASONS	a	b,e	c	g	h	i	k	l	m	TOTAL
Total.....	100.0	100.0	100.0	....	100.0	100.0	100.0	100.0	100.0	100.0
a.....	50.0	2.8	14.5	....	..	66.7	50.0	50.0	66.7	26.3
b, e.....	21.4	75.0	39.1	....	50.0	....	25.0	....	33.3	39.4
c.....	19.6	8.3	26.1	....	50.0	....	..	..	..	18.8
g.....	3.6	2.8	4.3	....	..	..	25.0	50.0	....	4.6
h.....	..	..	1.4	....	..	..	..	..	..	.6
i.....	1.8	5.6	8.7	....	..	33.3	..	..	..	5.7
k.....	3.6	5.5	5.8	....	..	..	..	..	..	4.6
l.....	..	..	..	....	..	..	..	..	..	..
m.....	..	..	..	....	..	..	..	..	..	..

The chief interest in this analysis is not so much in the identity of the reasons for non-use given by assignees and inventors, but in the comparison of the characteristics of these patents from questionnaires received from both inventors and assignees, with those for which only one or the other responded.

The chi-square test is employed to test differences between reasons for the current non-use of patents represented by returns both from inventors and assignees in comparison to those represented by assignee returns only. In Table J, column 2 shows the frequency distribution of the reasons given by assignees; column 3 shows the frequency distribution of assignee reasons for non-use for patents represented by both assignee and inventor questionnaires; and column 4 the frequency distribution of assignee reasons for non-use for patents without inventor questionnaires.

The resulting chi-square from a comparison of the distribution of reasons in columns 3 and 4 is 6.60, with 6 degrees of freedom, which yields a p value between .3 and .2. In other words, with respect to reasons for non-use these two groups of patents are homogeneous. Variations as great as these or greater than those found between columns 3 and 4 of Table J will occur in parallel samples drawn randomly from the same population in more than 20 per cent of the cases.

TABLE J

COMPARATIVE HOMOGENEITY OF ASSIGNEE REASONS FOR THE CURRENT NON-USE OF PATENTS FOR PATENTS REPRESENTED BY COMPLETED QUESTIONNAIRES FROM BOTH INVENTORS AND ASSIGNEES AND THOSE REPRESENTED BY COMPLETED ASSIGNEE QUESTIONNAIRES ONLY, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57

## PRELIMINARY

REASONS FOR NON-USE	FREQUENCY OF REASONS FOR THE CURRENT NON-USE OF PATENTS		
	Total	Assignee and Inventor Returns	Assignee Returns Only
(1)	(2)	(3)	(4)
Total.....	392	233	159
a.....	119	71	48
b, e.....	68	41	27
c.....	163	100	63
d, f, g, h.....	10	5	5
i, j, k, l.....	18	12	6
m.....	14	4	10

Table K gives the other side of this coin. It shows the comparative frequency of inventor reasons for the current non-use of patents between patents represented by both inventor and assignee questionnaires and those represented by inventor returns only, columns 3 and 4, respectively.

The chi-square resulting from this comparison is 5.70, with 6 degrees of freedom. It signifies a p value of less than .5 and more than .3. In other words, the two distributions vary from one another less than the variation that will be found in more than 30 per cent of parallel samples drawn randomly from a common population.

It is believed the test applied in Tables J and K provides a strong indication that failure

TABLE K

COMPARATIVE HOMOGENEITY OF INVENTOR REASONS FOR THE CURRENT NON-USE OF PATENTS FOR PATENTS REPRESENTED BY COMPLETED QUESTIONNAIRES FROM BOTH INVENTORS AND ASSIGNEES AND THOSE REPRESENTED BY COMPLETED INVENTOR QUESTIONNAIRES ONLY, BASED ON RETURNS RECEIVED ON OR BEFORE 9/20/57

## PRELIMINARY

REASONS FOR NON-USE	FREQUENCY OF REASONS FOR THE CURRENT NON-USE OF PATENTS		
	Total	Assignee and Inventor Returns	Assignee Returns Only
(1)	(2)	(3)	(4)
Total.....	422	210	212
a.....	87	47	40
b, e.....	149	77	72
c.....	60	33	27
d, g, h.....	34	12	22
i.....	32	13	19
j.....	44	21	23
k, l.....	16	7	9

to receive a completed questionnaire from the assignee, the inventor, or both is largely independent of such patent characteristics as its utilization or the reasons for its current non-use.

The third approach used in testing possible bias when considering the returns with respect to utilization has not been employed at this time, partly because tabulation of reasons for current non-use given by multiple inventors did not seem to affect the pattern, and partly because this is an interim report. Ultimately, every available means at our disposal will be used in testing the reliability of the sample with respect to various patent characteristics analyzed in this study.

# The Concrete Block Making Machine Industry\*

GEORGE E. FROST, Principal Investigator  
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## SUMMARY

ON APRIL 28, 1948, THE GOVERNMENT filed a complaint against Besser Manufacturing Company, Jesse H. Besser, Stearns Manufacturing Company, Hamlin F. Andrus, and Louis Gelbman alleging violations of Sections 1 and 2 of the Sherman Act.<sup>1</sup> The trial court held that the Act had been violated and entered a decree that, *inter alia*, required Besser, Besser Company, Gelbman, and Andrus to grant patent licenses on a reasonable royalty basis on all their patents to concrete block making machines (including patents applied for within the next 10 years).<sup>2</sup> Besser and Besser Company appealed to the Supreme Court which affirmed the judgment of the District Court.<sup>3</sup> On July 29, 1952, a final judgment was entered on remand from the Supreme Court. This judgment differed from that of the trial court primarily in requiring that Stearns as well as the other defendants grant reasonable royalty licenses.<sup>4</sup>

The acts of violation pleaded by the Government and found to have taken place by the courts fall in two broad categories. One category is those acts committed by Besser and Besser Company. The other is those acts involving all of the defendants. The violations alleged as to Besser and Besser Company consisted of monopolization and attempt to monopolize trade in concrete block making machines by the purchase of various competitors, including Stephen Flam (first by license agreement and then by actual purchase), and a majority of the stock of Stearns Manufacturing Company. The violations alleged and found as to the defendants as a group centered about the 1942 agreement among all of the defendants (under which the Gelbman vibration machine patents were licensed to Besser Company and Stearns and each licensee had a veto power as to the issuance of additional licenses), the patent infringement threats made by the defendants, and the refusal to license others to make machines under the patents.<sup>5</sup>

For many years prior to the antitrust action, during the period of that action, and now, Besser Company has been the leading concern in the concrete block making machine business. During the years immediately prior

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\* Mr. Frost prepared this research interim report on *Project 4a, Effects of Certain Antitrust Decrees Involving Patents as a Major Factor*.

<sup>1</sup> 26 STAT. 209.

<sup>2</sup> *United States v. Besser Manufacturing Co.*, 96 F. Supp. 304 (E.D. Mich. 1951).

<sup>3</sup> *United States v. Besser Manufacturing Co.*, 343 U.S. 444 (1952).

<sup>4</sup> For text of modified compulsory license provision, see p. 73, n. 20, *infra*.

<sup>5</sup> For the history and character of the 1942 agreement, see text pp. 128-129 *infra*.

to the action, and since, Stearns has been the second largest concern in the concrete block making machine industry. During the immediate postwar years, Stearns enjoyed its greatest volume of sales vis-a-vis Besser—reaching its peak of about half the Besser volume in 1947.

The Government pointed to a number of concerns and individuals as being the subjects of the coercive and exclusionary patent tactics of the defendants. Most of these are not now in the business, and display no signs of entering into the business.<sup>6</sup> There are, however, some concerns now in the business—especially Lith-I-Bar and GoCorp—that were the subject of the activities forming the core of the government patent charges.

Since 1942 Besser has confined its activities to machines of large size—that is, in excess of 1,000 blocks per hour. Four other concerns now make machines of equivalent size. These are Stearns, GoCorp, Bergen, and Oswalt. Available information indicates that Besser makes about 60 to 70 per cent of the machines in this size range, Stearns makes about 20 per cent of the machines, and GoCorp and Bergen have essentially all of the remaining business in about equal shares.

The concrete block machine antitrust judgment is a clear case where the availability of compulsory patent licenses has led to the entry of concerns into the field. Both Bergen and Oswalt attribute their entry into the business to the availability of such licenses.<sup>7</sup> Each of these concerns initially made a machine essentially like the machine then being made by Besser and—even if the only valid Besser-owned patents were very narrow—they would have faced a very troublesome patent infringement problem. In the subsequent years, the Bergen and Oswalt machines have been modified in some respects in ways departing from the Besser design, but no general machine redesign has been made by either company.

The effects of the compulsory license decree provisions have nevertheless been very mild. The Scott and the important Gelbman vibration machine patents which were relied upon by the defendants were held invalid and not infringed as to their significant claims while the government action was pending in the Supreme Court.<sup>8</sup> Once this patent decision was rendered, competitors could make machines similar to those involved in the suit with a practical (although not a theoretical) immunity. Moreover—while the defendants have received no commercially significant license fees since the patent decision—Besser and Stearns have continued their product improvement efforts at about the same pace as they would have in the absence of the compulsory licensing decree provisions.

It is doubtful that patent infringement threats made by the defendants in the antitrust action were as effective in excluding competitors as was contended by the Government. In the immediate postwar period there was

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<sup>6</sup> See p. 76, Table 15, *infra*.

<sup>7</sup> See pp. 98-99 and 99-101 *infra*, respectively.

<sup>8</sup> *Whitman v. Andrus*, 93 F. Supp. 383 (E.D. Mich. 1950), 194 F.2d 270 (6th Cir. 1952), *cert. denied* 344 U.S. 817 (1952).

a tremendous demand for machines and a sellers' market in which almost any operating machine could be sold. In this atmosphere a great many companies entered the field. That market collapsed after about 1947, and it was very difficult for even an established concern such as Stearns to sell machines. As the Court concluded in the Darden treble damage action,<sup>9</sup> nearly all of the newcomers during the lush immediate postwar period would have disappeared within the next few years in any event. It is further felt that any company—such as GoCorp or Columbia—sufficiently robust to have survived the business decline would have also overcome the patent infringement threats (as these companies did) and would not have lost any substantial business because of such threats.

In other respects the decree has had a marked effect. The patent infringement threats found to have been made by Defendants—such as those made against the supplier of machines to Roy Darden—were found to have been of a kind not contemplated by the patent law and contrary to the antitrust laws. The same may be said of the purchases of competitors by Besser—with assignments of present and future patent rights. There are no indications that tactics of this kind have been repeated. In bringing them to an end the antitrust action appears to have been entirely effective and to have accomplished a useful purpose.

In one respect it is felt that the antitrust action was ill advised. The Government joined Stearns as a defendant and—after Besser argued in the Supreme Court that the initial decree was discriminatory—the Government sought and obtained compulsory licensing relief as against Stearns in the same respect as against the other defendants. Study of the industry indicates that as a practical matter the most important competition to Besser is most likely to come—and has come—from Stearns. It is considered more than a matter of historical accident that it was Stearns—not Besser or any smaller competitor—that worked with Gelbman prior to World War II to make and commercialize the first successful vibration type machine. It is also considered more than happenstance that Stearns has been the only concern to make a complete new machine design since about 1949 and that it is Stearns that remains the major competitor to Besser. Had the Stearns competition vis-a-vis Besser been more effective in the period here reviewed it is felt that the industry as a whole would have been more competitive. As it was, the antitrust proceedings had the effect of accenting the business decline experienced by Stearns after 1948, and the decree has rendered the Stearns patent rights essentially valueless. Moreover, the participation of Stearns in the conduct found to have violated the Sherman Act was through its president Olsen, who resigned prior to the filing of the complaint and was never himself made a party to the action.

To be sure, the practical effect of naming Stearns as a defendant and the entry of the decree against it is limited. The company would have

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<sup>9</sup> *Darden v. Besser*, 147 F. Supp. 376 (E.D. Mich. 1957).

experienced a sales decline in any event. Nevertheless, its business vitality was in significant measure affected by its status as a defendant—especially in relation to Besser—and the objectives of the antitrust action would probably have been better served if Stearns had never been made a defendant.

The significance of GoCorp, Bergen, and Oswalt as competitors to Besser is limited. To be sure, the prices they charge—substantially below the Besser price—place a limit on what Besser can charge. However, at the present time none of these concerns has a sufficient share of the market to justify the kind of competitive effort that can rival that of Besser. While each of these concerns has engaged in some machine design activity, none has made any over-all machine redesign, and at the present level of activity it is doubtful that any of them will engage in such design. While the antitrust decree must be credited with the entry of Bergen and Oswalt into the industry at the time they did, it is not felt that either of them, or GoCorp, is of major effect today as a competitor to Besser.

It is felt that some third company may emerge within a reasonable time to join Stearns as a major competitor to Besser. If Columbia Machine Company—now making medium-sized machines—were to enter the large-machine field it would very likely become such a competitor. Bergen is currently taking a more aggressive attitude and may become the third force. Lith-I-Bar, GoCorp, Oswalt, and others have some potentiality of becoming a major competitor. It is the feeling of the authors, however, that before any company can attain this status it will be necessary for it to design and manufacture a wholly new machine (superior to the design of the Besser machine, which has been in many respects static over the past decade) and for this other company to be in a position to invest heavily in the manufacture and promotion of such a machine. At the present writing there are no definite indications of any activities along these lines.

Finally, the study of the concrete block making machine industry suggests that the antitrust difficulties in the postwar period would not have taken place had the 1942 suit filed by Gelbman and Andrus against Besser's customer, Bell, been decided favorably to Gelbman and Andrus. Having won the District Court decision in that case, Besser was able to demand a license agreement assuring its access to Gelbman's future patents (which were substantially more important than the "joltcrete" patent involved in the suit) and protecting Besser against the competition of other concerns making machines covered by the Gelbman patents. The Bell suit played into the hands of the industry leader because it was lost—and conclusions can well be drawn that the entire makeup of the industry today would be otherwise if the suit had turned out differently.

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## INTRODUCTION

CONCRETE BLOCKS ARE THE MOST COMMON FORM of pre-cast concrete used for structural purposes. The blocks are manufactured in standard sizes; the principal



size being 8 by 8 by 16 inches with cavities extending through the block along one of the 8-inch dimensions. In use, the blocks are usually laid over each other in staggered relationship while buttered with mortar to form a unitary wall in the same fashion as brick. Initially, concrete blocks were used primarily for basement walls and similar applications where beauty was a secondary consideration. In recent years, improvements in block construction and application have led to increased usage for interior and exterior walls where beauty is a major consideration. An additional promising new use for concrete blocks is found in prestressed beam construction.

Concrete blocks have been used since at least 1904. In recent years they have become increasingly popular, in part due to more favorable over-all cost relationships as compared with alternatives such as brick, wood, cast concrete, and stone construction. The following tables from the 1947 and 1954 Census of Manufactures give an indication of the significance of the industry both as to blocks and the block machines.

TABLE 1  
PRODUCTION OF CONCRETE BLOCKS  
(numbers in thousands of 8"x8"x16" equivalents, values in thousands of dollars)

	1939		1947		1954	
	Number	Value	Number	Value	Number	Value
Light-weight block.....	406,555	25,515	473,164	79,442	955,584	174,204
Heavy-weight block.....			565,338	94,546	651,520	116,406
Block not specified.....					234,500	41,018

TABLE 2  
PRODUCTION OF CONCRETE BLOCK MAKING MACHINES AND RELATED EQUIPMENT

	1947	1954
Concrete-block machines.....	\$9,514,000	\$11,762,000
Concrete-pipe machines.....	1,399,000	647,000
Other concrete products, machines and equipment.....	7,061,000	10,255,000

During the early years of concrete block manufacture emphasis was placed on the so-called rock face block. This type of block had one side embossed to simulate the appearance of rock, a feature that required a rich cement mix and precluded the use of sliding movement to strip the formed block from the mold.<sup>1</sup> Currently, essentially all blocks are of the flat face variety that can be stripped from the mold. However, by splitting the block in machines designed for the purpose, a rock-simulating face can be obtained, a practice that is enjoying increased popularity today. In addition, improved dimensional accuracy and the use of a wide variety of block shapes, coupled with various architectural techniques, have made concrete blocks highly attractive for both exterior and interior applications.

<sup>1</sup> See, e.g., The Block Industry's Half Century, *Concrete*, July 1955.

Concrete blocks are finding an application of current importance in connection with prestressed concrete beams. Such beams may be constructed by laying especially formed blocks in alignment and pulling them together by steel rods to define a beam. Through this technique the concrete blocks can be used for beams as well as walls and posts.<sup>2</sup>

The technological problems of making concrete blocks arise in large measure from the ever-present need for reduction of costs and improvement of quality. During about the first three decades of the industry development, major emphasis was placed upon increasing the capacity of machines by greater application of power. After about 1935 the main change was to the vibration type machine, which produced a superior block and had other advantages. More recently interest has centered about the development of low cost sources of aggregate for light weight block.

Concrete blocks are manufactured primarily on a local basis, as transportation costs generally preclude shipment over long distances. Cost and quality considerations compel the use of automatic machinery in virtually all commercial operations. Machines of varying capacities up to about 1,000 blocks per hour have been made available for this purpose. These machines, especially the larger sizes, are complex and expensive. Over the years a distinct industry of making these machines has developed, the major manufacturer being Besser Manufacturing Company of Alpena, Michigan. The second largest manufacturer during the period here discussed is Stearns Manufacturing Company of Adrian, Michigan. The following tabulation shows the relation of Besser and Stearns to the remainder of the industry for the years 1946 to 1948:

TABLE 3  
SHARE OF BESSER AND STEARNS IN CONCRETE BLOCK MACHINE SALES  
(Source, Ex. 188, R. 1006,1402)\*

	1946		1947		1948	
Besser Mfg. Co. ....	\$2,692,500	33.9%	\$3,366,500	47.8%	\$2,623,000	52.1%
Stearns Mfg. Co. ....	1,253,043	15.8%	1,363,206	19.4%	651,779	12.9%
Others .....	3,990,943	50.3%	2,306,001	32.8%	1,760,800	35.0%

\* Where exhibit numbers and record pages are indicated as sources herein, the reference is to the printed record before the Supreme Court of the United States in *Besser Mfg. Co. v. United States*, No. 230, October Term 1951. Where exhibit and page numbers also include the legend "pat," the reference is to the printed record before the United States Court of Appeals for the Sixth Circuit in *Whitman v. Andrus* and the cases consolidated therewith, Numbers 11,364, 11,365, and 11,366. The record and exhibits in *Roy W. Darden v. Jesse H. Besser*, No. 11,765, United States District Court of the Eastern District of Michigan are identified as "Darden" record pages and exhibits.

While small block plants continue to be of importance, the trend over the years has been toward concrete block plants of increased size and capacity. Today many such plants involve large investment in quarries or other sources of aggregate, in equipment for cleaning, sintering, or otherwise treating the aggregate, in concrete

<sup>2</sup> See, e.g., "A Round-up of Precast Floor and Roof Systems," *Concrete Products*, June 1957, p. 25.

mixing apparatus, in automatic high production block making machines, in "off bearers" to remove the blocks from the machines, in steaming equipment and buildings for curing the blocks, and in the necessary block storage and delivery equipment. The block making machine is the key component of the complete plant representing a major item of investment. As such it receives major attention in the construction and operation of the complete plant. The machine is also the focus of attention by the machine manufacturers, although they also sell the "off-bearers" and other accessory equipment and to a limited degree also sell block cutters and other tools.

In the manufacture of concrete blocks, the aggregate, cement, sand and water are mixed in a mixer and supplied to the concrete block making machine. The machine also receives—usually through some type of pallet feeder—a supply of flat pallets upon which the blocks are formed. At the conclusion of the molding operation the "green" blocks are discharged from the machine, each group of one to three blocks made on each machine cycle being located on a pallet. The blocks are then removed from the machine by an "off-bearer," and placed on racks supporting a number of pallets and their respective blocks. The racks are transferred, usually by a fork lift truck, to the curing space. Often steam is applied at this point to hasten and improve the curing operation. When cured, the blocks are ready for use.

Figures 1 through 4 (pp. 116-117 *infra*) illustrate current model Besser, Bergen, GoCorp, and Stearns block making machines. Each of the machines shown has a capacity of about 1,000 blocks per hour and is competitive with each of the other machines shown.

The present study is directed to a consideration of the effects of the antitrust decrees entered in 1951 and 1952 in the Government antitrust suit against Besser Company, Stearns, and others. Complete evaluation of these effects requires a background of information relating to both the technological and the business history of the industry prior to the antitrust proceedings. However, since these historical aspects of the study are somewhat collateral to the main body of the report, they are included herein as Appendices A and B.

## CHAPTER 1

### THE GOVERNMENT ANTITRUST PROCEEDINGS

The antitrust complaint was filed by the United States in the United States District Court for the Eastern District of Michigan on April 28, 1949. Besser Manufacturing Company, Jesse H. Besser, Stearns Manufacturing Company, Louis Gelbman, and Hamlin P. Andrus were named as defendants. The complaint was filed under Section 4 of the Sherman Act and alleged violations of Sections 1 and 2 of that Act.<sup>1</sup>

The alleged acts of violation fall in two broad categories, one category being those committed by Besser Manufacturing Company and Jesse H. Besser and the

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<sup>1</sup> No. 9558, Civil, U. S. District Court for the Eastern District of Michigan.

other category alleged to have been committed by all of the defendants. The violations alleged as to Besser Company and Besser consisted of monopolization and attempt to monopolize trade in concrete block machines by the purchase of various competitors, including Consolidated Concrete Machinery Corporation, the concrete block machine assets of Industrial Brownhoist Corporation, Stephen Flam (first by license agreement and then by actual purchase), and a majority of the stock of Stearns Manufacturing Company. The violations as to the defendants as a group centered about the 1942 agreement between all of the defendants under which the Gelbman patents were licensed and Besser Company and Stearns Company each had veto power as to the issuance of additional licenses, the patent infringement threats made by the defendants under the Gelbman patents, and the refusal to license others to make machines under the patents.

Trial took place between May 16 and June 7, 1950. Judge Picard handed down his decision on January 30, 1951.<sup>2</sup> In brief, Judge Picard held that the Consolidated and Brownhoist purchases were not illegal but otherwise sustained the government contentions.

With respect to the Consolidated purchase Judge Picard was impressed by the general economic conditions of 1929 to 1931 when the transactions took place and by the fact that Consolidated was in distress despite its comparatively large volume of sales. It concluded that if "Besser, closely held, efficiently managed, and with its payroll limited in the high brackets, was able to continue business and buy out a competitor at that time we can see no objection."<sup>3</sup> In this respect the decision appears to have followed reasoning along the lines of that in *International Shoe Co. v. Federal Trade Commission*,<sup>4</sup> although that case is not cited in the opinion.

Judge Picard treated the Brownhoist purchase somewhat differently. He noted that the concrete block machine portion of the Brownhoist business was a small part of the total company business and that the company was moving from Cleveland to Bay City, Michigan, where it "could be a thorn in Besser's side right in its own backyard."<sup>5</sup> He further noted that "there can easily develop unfair competition by a company operating a 'sideline' that cripples a legitimate business wherein the 'sideline' is the main object of its existence."<sup>6</sup> Judge Picard pointed to no authorities supporting his conclusion that the Brownhoist purchase was legal. It might be noted that in other cases the courts have refused to allow considerations of unfair competition to excuse conduct otherwise in violation of the antitrust laws.<sup>7</sup>

The court looked upon the Flam license and sale, the Besser-Stearns-Andrus-Gelbman contract, and the Besser purchase of Stearns stock, as violating Sections 1 and 2 of the Sherman Act. As to the Flam matter, Judge Picard found none of the mitigating factors present in the Consolidated and Brownhoist transactions and

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<sup>2</sup> United States v. Besser Mfg. Co., 96 F. Supp. 304 (E.D. Mich. 1951).

<sup>3</sup> *Id.* at 309.

<sup>4</sup> 280 U.S. 291 (1930).

<sup>5</sup> 96 F. Supp. 304, 309 (E.D. Mich. 1951).

<sup>6</sup> *Ibid.*

<sup>7</sup> See *Fashion Originator's Guide v. Federal Trade Commission*, 312 U.S. 457 (1941); but *cf.* *Appalachian Coals v. United States*, 248 U.S. 344 (1933).

pointed with emphasis to Besser's acceptance of Flam's covenant not to compete for eight years.

The Besser-Stearns-Andrus-Gelbman contract was characterized as the "climax." With respect to the contract, the opinion states:<sup>8</sup>

But this contract also contained a provision that not only prohibited the patentees giving anyone else a license, it also prevented either Besser or Stearns from joining Gelbman and Andrus in giving other prospective licensees the right to use any of the patents covered without the others' consent.

The court concluded that "unquestionably" the "purpose was to make certain that these two giants of the industry didn't battle each other over patents any more."<sup>9</sup> With respect to the legality of the agreement in this respect, Judge Picard stated:<sup>10</sup>

We believe that the contract under question goes further than is necessary to protect the patent monopoly of Gelbman and Andrus. It may well be that an exclusive license to one party would be valid, but here the patentees have joined hands with the two largest competitors in the industry and by terms of their agreement have virtually made it impossible for others to obtain rights under those patents. The contract even gives Stearns and Besser the power to restrict competition—present and future—by requiring their joint consent before licensing others. It is this combination requiring collective action that primarily invalidates the agreement. . . .

The court found further indication of an intent to restrain trade in the fact that both the Flam agreement and the Besser-Stearns-Andrus-Gelbman agreement required "granting exclusive rights . . . of all improvements to the existing patents and to inventions still unborn."<sup>11</sup> These, it noted, are "not illegal, per se," but could not be justified "as necessary to the enjoyment of or ancillary to the patent rights conveyed."

Over and above the illegality found in the patent license agreement and the Flam purchase, the court additionally found the following illegal:

1. Besser's purchase of sufficient Stearns stock in 1948 to control Stearns;
2. Pressure brought against Darden, Samuelson, Hanneman, Lagarde, Bernard Flam and others to get out of the business; and
3. The effort to limit Appley to cored pallet type machines.

Finally, the court rejected the argument that the defendants were "a good monopoly" in view of the fact that the cost of blocks had been nearly constant over many years. The court found this argument factually defective because it attributed the price history to the pressure of competition and not to the activities of the defendants, or Besser, as such. Additionally, the court—consistent with the prior cases—held that monopoly violates the Sherman Act, whether "good" or otherwise.<sup>12</sup>

The judgment as finally entered on April 12, 1951 contained the following provisions:

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<sup>8</sup> 96 F. Supp. 304, 310 (E.D. Mich. 1951).

<sup>9</sup> *Ibid.*

<sup>10</sup> *Id.* at 311.

<sup>11</sup> *Ibid.*

<sup>12</sup> See *e.g.*, *United States v. Aluminum Company of America*, 148 F.2d 416, 427 (2d Cir. 1945).

1. That Besser and Besser Company must present, within 60 days, a plan for divesting themselves of all interest in Stearns by July 1, 1951.

2. That Besser and Besser Company be enjoined from acquiring the business or assets of others engaged in the concrete block machine business without first showing to the court, on notice to the Attorney General, that the acquisition would not substantially lessen competition.

3. That the Besser-Stearns-Gelbman-Andrus license agreement be declared to be null and void.

4. That Besser Company, Besser, Gelbman and Andrus be restrained from instituting any new patent infringement suits for infringement prior to the date of the judgment.

5. That Besser, Gelbman and Andrus grant patent licenses under their existing patents, patents issued within the next ten years, or patents issued on applications filed within the next ten years on a reasonable royalty basis.

6. That Besser company give each present machine lessee an option to cancel the lease, buy the machine, or continue the lease.

The arrangement for setting compulsory license royalty rates of the judgment requires special comment. This arrangement—and its operation—is summarized as follows in the Supreme Court opinion:<sup>18</sup>

Appellants further argue that the method adopted by the court below for fixing reasonable royalty rates under their patent licenses deprives them of their property without due process of law. The court directed Besser and the Government each to select two persons to serve as arbitrators on a committee to establish fair royalty rates and the form and contests of royalty contracts. It was also provided that in the event of a stalemate, the four representatives should choose a fifth to vote and break the deadlock. If they could not agree on a fifth representative, the trial judge was to sit as the fifth or appoint another person to serve in his place. After some delay, and under protest, Besser appointed his representatives, the Government having appointed its shortly after the plan had been promulgated by the court. The representatives selected by the Government were taken from the industry, the Government noting to the court that they were serving on their own behalf and as agents of other prospective licensees, and not as agents of the Department of Justice.

When an impasse was reached with regard to royalty rates on certain Besser patents, the judge stepped in as the fifth arbitrator and voted for the rates proposed by the government-appointed representatives. Appellants assail this procedure with the contention that royalties set must be "made in judicial proceedings based on the hearing and evaluation of evidence in the light of approved criteria."

In March 1950, shortly before the antitrust suit was brought to trial, Besser attempted to divest himself of his holdings in Stearns by selling the stock to one Ben Stone, who apparently had no other connections with Besser. The contract provided, among other things, that Stone pay Besser \$10,000 for an option to complete the purchase of the stock for an additional \$270,000 in installments (Ex. 159, R. 660). The agreement included provisions by which Besser would receive back an interest in the stock, provisions that moved Judge Picard to state that "we have some hesitancy in accepting at face value Besser's protestations, that Stone came

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<sup>18</sup> Besser Manufacturing Co. v. United States, 343 U.S. 444, 447 (1952).

into the picture just because he, Stone, 'likes to turn an honest dollar.' . . ."<sup>14</sup> Stone also signed an agreement whereby Stearns would not manufacture three-at-a-time block machines but rather would limit its production to machines of lesser capacity (R. 665). Stone's option was not exercised.

Following the District Court order requiring Besser to divest himself of the Stearns stock by July 1, 1951, the stock was placed in trust with the Detroit Trust Company on July 21, 1952, pending sale to a court-approved buyer. On November 2, 1953, Judge Picard approved the sale of the stock to Wesley J. Peoples of Detroit, Michigan, who represented a Detroit-New York syndicate.

Subsequent to the District Court decree, proceedings were instituted to set royalty rates for licenses. These proceedings are discussed at page 80, *infra*.

Besser and Besser Manufacturing Company appealed to the Supreme Court. The questions presented on the appeal were threefold in character. The first was directed to the finding of violation of the Sherman Act, the second was directed to the provisions of the judgment, and the third was directed to the mechanism provided in the decree for setting the royalty rates. As to the first and third points no further comment need be made here. The second point, however, warrants some discussion.

The attack on the provisions of the judgment was rather sweeping and went to the persons bound, the divestiture provisions as to the Stearns stock, the declarations of patent license invalidity, and other matters. The portion of particular present importance is that directed to the compulsory licensing provisions. The question as framed in the brief filed by Besser and Besser Company, is as follows:<sup>15</sup>

Whether each of the following provisions of the judgment is unnecessary and inappropriate to restrain and prevent antitrust violations, as applied to the facts of this case:

(F) the requirement that the defendants (other than Stearns) issue unrestricted and unconditional licenses to any applicant under all patents and applications presently owned or controlled by them and on all future patents issued or applied for within the next ten years. . . .

The argument of the brief gave some emphasis to the proposition that compulsory licenses were not appropriate as to Besser and Besser Manufacturing Company because no patent rights owned by either of them were involved in the agreements attacked by the Department of Justice, no finding of patent monopoly had been made, "the only 'wrong' of the defendants—if wrong it was—consisted merely in an overzealous effort to prevent infringement of their patent rights."<sup>16</sup> It was argued that a judicial cancellation of the 1942 Besser, Andrus, Gelbman, Stearns license agreement would cure whatever wrong existed.<sup>17</sup> The argument was additionally made that the 10-year period provided in the decree in defining the patents subject to compulsory licenses was unsupportable on any rational basis. The failure of the

<sup>14</sup> 96 F. Supp. at 313.

<sup>15</sup> Brief for Besser, pp. 4-5.

<sup>16</sup> *Id.* at 98.

<sup>17</sup> *Ibid.*

decree to require Stearns to grant compulsory licenses was stressed as unfair and illogical.<sup>18</sup>

In response to these contentions, the Government devoted some emphasis in its brief to the subject of compulsory licensing. The following portions of the government brief justify quotation for their bearing on the purpose and intended effect of the compulsory licensing provisions of the decree, as well as the subsequent treatment of Stearns:<sup>19</sup>

## 2. Compulsory Licensing of Patents.—

Section VII (of the decree) orders appellants and Gelbman and Andrus to grant to any applicant a nonexclusive license at a fair royalty rate under any, some, or all of the patents and applications pertaining to block machinery now owned or controlled by them or which are applied for or issued within 10 years from the date of entry of the judgment. As Besser has shown a propensity for misusing patent rights . . . , any judgment here would fall far short of its purpose if it failed to require such licensing.

This Court has sustained compulsory licensing in every case coming before it in which the district court has ordered that remedy . . . Contrary to appellants' suggestion . . . the remedy is not limited to 'flagrant' cases. As this Court said in *United States v. National Lead Co.*, 332 U.S. 319, 357, of a related provision requiring exchange of technical information:

The fact that the violations of the Antitrust Act may have been more reprehensible in (the *Hartford-Empire* case) than here is not persuasive because this provision is not and should not be punitive. The justification for the compulsory imparting of method and processes rests upon its appropriateness and upon the necessity for it in providing an effective decree.

In any event, appellant's violations of the antitrust laws were deliberate and flagrant.

Appellants' attack upon the compulsory license remedy amounts to a claim that they should not now be disarmed of the weapon they fashioned out of patents. Even after divestiture of the Stearns stock Besser will still be by far the largest manufacturer in the industry and will still have an especially dominant position in respect of the most advanced and efficient machines. In view of Besser's unlawful use of patents, through combination with Stearns to deny licenses and through harassing use of infringement actions, the judgment here would fall far short of its purpose if it failed to disarm Besser of the patent weapon until the effects of its oppressive tactics have been dissipated. The appropriateness of compulsory licensing is especially apparent from the attitude evidenced by representatives of prospective licensees during the proceedings on royalty determination. They there clearly indicated that their desire was not so much to use the technology embodied in Besser's patents, as to obtain freedom for themselves and their customers from any threat of infringement litigation. As Olsen stated, the license being sought "gives the licensee nothing except assurance that he will not be attacked by Besser" (R. 1105).

The determination of the period of time during which future inventions should be subject to the licensing requirement was within the discretion of the trial court. . . .

Appellants complain of discrimination in that the decree fails to direct Stearns to license its patents. Insofar as the record in this case shows, Stearns had no patents relating to block machines other than those transferred to Gelbman and Andrus. . . . Since the latter are required (R. 1066) to license these patents, all known existing

<sup>18</sup> *Id.* at 99.

<sup>19</sup> Brief for Government, pp. 73 *et seq.*



patentable inventions of Stearns are being made available to any manufacturer, including Besser Company. In view of the possibility, however, that Stearns may in the future acquire patent rights we believe that the decree should have required licensing of Stearns' patents on the same terms as Besser's. While we do not believe that it would be appropriate for this Court to remedy the inadvertent omission of Stearns from the licensing provisions, since Stearns is not a party to this appeal, we intend, on demand, to apply to the district court for such relief. Furthermore, appellants clearly cannot object to lawful relief awarded against them because of the failure to award like relief against someone else.

On May 26, 1952, the Supreme Court affirmed the District Court judgment. The Court concluded that there was "not the slightest ground" for concluding that the District Court findings were "clearly erroneous" as required for reversal on the merits. As to the portions of the judgment requiring the grant of compulsory patent licenses, the offering of leased machines for sale, and the like, the Court found the provisions appropriate to necessary relief and within the discretion of the District Court. As to the method provided for establishing royalties for compulsory licenses, the Supreme Court considered the arrangement to be within the range of appropriate discretion of the District Court.

Upon remand to the District Court, the Government sought, and obtained, a new judgment which, *inter alia*, extended the compulsory licensing provisions to apply against Stearns. The new judgment was entered on July 29, 1952.<sup>20</sup>

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<sup>20</sup> "(A) Defendants Gelbman, Andrus, Besser Company, Besser and Stearns are each ordered and directed to grant to any applicant therefor a non-exclusive license to make, use and vend concrete block making machinery under any, some or all patents and patent applications pertaining to concrete block making machinery now owned or controlled by the defendant, or which are issued or applied for within ten years from the entry of this final judgment, and each of said defendants is hereby enjoined and restrained from making any sale or other disposition of any of said patents or patent applications which deprives it of the power or authority to grant such licenses, unless it sells, transfers or assigns such patents and patent applications and requires as a condition of such sale, transfer or assignment that the purchaser, transferee or assignee shall observe the requirements of this Section VII, and the purchaser, transferee or assignee shall file with this court prior to consummation of said transaction, an undertaking to be bound by the provisions of this Section VII. The reference to an 'Undertaking' shall not be construed as requiring the posting of a bond." (Decree, para. VII.)

## CHAPTER 2

### BUSINESS ACTIVITY IN THE CONCRETE BLOCK MAKING MACHINE INDUSTRY SUBSEQUENT TO THE GOVERNMENT ANTITRUST ACTION

#### INTRODUCTION

The first judgment was entered by Judge Picard in the antitrust action on April 12, 1951.<sup>1</sup> Shortly before, on June 28, 1950, Judge Picard had rendered his decision on the patent infringement action, holding Gelbman patent 2,275,676 valid and infringed, Scott patent 2,106,329 invalid and not infringed, and Gelbman patent

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<sup>1</sup> No. 8144, U. S. District Court for the Eastern District of Michigan.

2,366,780 not infringed.<sup>2</sup> Besser and Besser Manufacturing Company appealed from the antitrust judgment, which appeal was decided in favor of the government on May 26, 1952.<sup>3</sup> Appeal was likewise taken from the patent decision, resulting in judgment by the Court of Appeals for the Sixth Circuit on February 19, 1952, holding all the patents to be either invalid or not infringed by the Lith-I-Bar machine.<sup>4</sup>

The consequence of all these decisions was that between April 1951 and the middle of 1952, it was apparent that the Gelbman patents would be subject to compulsory licenses (since Gelbman and Andrus did not appeal the antitrust decision) and thereafter it was apparent that the broadest patents to the vibration type machine were unenforceable at least against the Lith-I-Bar machine.

No exact data are available with respect to the annual sales of concrete blocks or concrete block making machines for each of the years here under study. However, trade estimates, census figures, proofs in the various law suits, and other sources combine to make possible the listing of data in Table 4. As listed, the data are believed to be accurate and to reflect the experience of the industry through 1956.

The most important conclusion to be drawn from Table 4 is that there was a sharp increase in block production in the immediate postwar years. During these years machine capacity was a limiting factor on production, and the demand for machines was correspondingly intense. The following fact finding from the Darden treble damage action reflects this experience:<sup>5</sup>

At the end of World War II, the demand for block machines became too great for the established companies to meet. Besser Company and Stearns were a year to eighteen (18) months behind in deliveries. . . .

This early postwar demand had tapered off by 1947, and by 1948 the industry was definitely in a period of decreased sales volume. As expressed by Judge Lederle in the Darden treble damage action:<sup>6</sup>

. . . By the end of 1946 or early 1947, this abnormal demand was largely filled and the established companies experienced a sharp and steady decline in sales. It became necessary for block machine makers to finance sales of their machines and to take in old machines in trade.

A measure of the extent of the decreased machine sales and production volume is found in the figures on block production. Between 1947 and 1954, block production rose from 1,038 millions to 1,842 millions, an increase of 800 millions, or an average of about 115 millions increase per year. During this period most of the machines in use were postwar machines, so that relatively few replacement installations were made, and the increase in block production each year is a measure of the number of new machine installations. The average annual increase in production of 115

<sup>2</sup> *Whitman v. Andrus*, 93 F. Supp. 383 (E.D. Mich. 1950). On rehearing Judge Picard held the Scott patent valid.

<sup>3</sup> *United States v. Besser Manufacturing Company*, 343 U.S. 444 (1952).

<sup>4</sup> *Whitman v. Andrus*, 194 F.2d 270 (6th Cir. 1952).

<sup>5</sup> *Darden v. Besser*, 147 F. Supp. 376, 378 (E.D. Mich. 1956).

<sup>6</sup> *Ibid.*

million blocks per year during this period should be contrasted with the increase of about four times this figure in 1946—a figure that again reflects the number of block making machines installed.

TABLE 4  
CONCRETE BLOCK AND BLOCK MACHINE PRODUCTION

	TOTAL BLOCK PRODUCTION*		MACHINE PRODUCTION (census)	BESSER COMPANY†	
	U.S. Census	Trade Estimate‡		Number of Machines	Dollar Value
1939.....	400				
1945.....		500			
1946.....		950		174	\$2,692,500
1947.....	1,038	1,000	\$9,514,000	170	3,366,500
1948.....		1,150		76	2,623,000
1949.....		1,200			
1950.....		1,400			
1951.....		1,650			
1952.....		1,750			
1953.....		1,800			
1954.....	1,842	1,900	11,762,000		
1955.....		2,260			
1956.....		2,150			

\* Millions of 8"x8"x16" equivalents.

† Ex. 188 (excluding foreign sales but including value of machines leased).

‡ Based on *Concrete Products*, February 1957, p. 207 and Peck, "Review and Forecast for the Concrete Industries," *Pit & Quarry*, January 1957, p. 336.

All the block making machine manufacturers felt the market change following 1946. Some felt the change much more than the others; Besser company, particularly, maintained its production volume to a surprising extent. In the year ending January 31, 1947, the Besser total sales of all products aggregated about \$6 millions. In the period from February 1, 1947, to May 31, 1952, Besser aggregate sales of all products totalled \$30,616,605.34, or an average of \$5.7 millions per year. By way of contrast, the Stearns gross sales of all products between February 1, 1947, and May 31, 1952, aggregated \$11,110,751.72—an average of about \$2.1 millions per year. This average is only 69 per cent of the gross sales for all Stearns products for the year ending January 31, 1947. All indications are that Besser Company maintained its sales volume throughout the entire period here under review and that from 1946 to 1954 it did so at the expense of other manufacturers, particularly Stearns.

The demand for concrete block making machines has increased somewhat since 1954. Barring a sharp and prolonged decline in block sales, there is every reason to believe that the increase will hold and that the manufacturers will enjoy a period of relatively large sales. As time goes on an increasingly large proportion of machines will be necessary to replace those installed during the immediate postwar years.

Besser Company currently manufactures only the very large-size block making machine. Such machines have a capacity of about 1,000 blocks per hour. There is a rather distinctive market for such machines in the larger and more progressive

block making establishments. Industry statistics and reports from those in the industry indicate a definite trend towards larger block making plants and towards machines of increased capacity. One industry survey reports that the average capacity of block making installations increased from about 777 blocks per hour in 1954 to 808 in 1955, and that the average machine capacity increased from about 522 blocks per hour in 1954 to 578 in 1955.<sup>7</sup> It is estimated that in terms of aggregate block making capacity, about three-fourths of the new machine installations are now the large-sized machines.

Five manufacturers are now making the large-size machines. These are Besser Company, Stearns, GoCorp, Bergen, and Oswalt. No data are available with respect to the number of such machines sold by each of these companies. Opinions of industry members indicate that Besser Company enjoys 60 to 70 per cent of the dollar volume in these machines, a figure that should be compared with about 34 per cent of the sales volume of all types of concrete block making machines sold by Besser in 1946.<sup>8</sup> It is estimated that at the present time the Stearns large machine sales dollar volume is about a third that of Besser Company; GoCorp and Bergen each

TABLE 5  
PRESENT STATUS OF COMPANIES LISTED BY GOVERNMENT AS IN  
CONCRETE BLOCK MACHINE BUSINESS IN 1946-1948

	IN BUSINESS	OUT OF BUSINESS	MACHINE SIZES
Besser Mfg. Co. ....	X		Large only
Columbia Machine Works. ....	X		Medium & small
Roy W. Darden Industries. ....		X (see text)	
W. E. Dunn Mfg. Co. ....	X		Medium & small
Stephan Flam. ....		X	
Ford Cement Block Machine Co. ....		X	
F. C. George Machine Co. ....	X		Medium & small
GoCorp. ....	X		Large & medium
Bob Graveley Industries. ....		X	
E. B. Kelly Co. ....		X	
The Kent Machine Co. ....	X		Medium
Lith-I-Bar Co. ....	X		Medium
Miles Mfg. Co. ....		X	
Multiplex Machinery Co. ....	X		Medium
Praschak Machine Co. ....	X		Medium
Scripps Pearson Machine Wks., Inc. ....		X	
Stearns Mfg. Co. ....	X		Large & medium
Universal Concrete Machinery Co. ....		X	
Universal Tampers, Inc. ....		X	
Van Orman Co. ....		X	
Vibra-Tamp Machine Co. ....		X	
C. M. Wooten Co. ....		X	

<sup>7</sup> See Peck, "Review and Forecast for the Concrete Industries," *Pit & Quarry*, Jan. 1956, p. 286. In his 1956 survey, published in *Pit & Quarry*, Jan. 1957, p. 336, Mr. Peck took a different sampling to obtain a figure of 623 blocks per hour average plant capacity for 1956 in contrast to 582 for 1955, and an average machine capacity of 476 blocks per hour in 1956 as compared with 448 in 1955. While the absolute values of the figures compiled appear unreliable, they do show a consistent trend with respect to increased capacities—a trend confirmed by others in the industry.

<sup>8</sup> Besser Company unquestionably enjoyed more than 34% of the large machine dollar volume in 1946.

have about half the dollar volume of Stearns; and the Oswalt sales volumes is less than half that of either GoCorp or Bergen.

The Government listed 22 companies as being in the concrete block machine business during the 1946-1948 period. Of the companies so listed, 12 are no longer in the business. One company previously out of the business, Roy W. Darden Industries, is now attempting to re-enter. Nine of the companies have been in business during the entire period since 1946. Table 5 gives the status of the respective companies.

In addition to the companies mentioned by the Government in the antitrust action as having been in the concrete block machine business in the 1946-1948 period, a total of nine new concerns are known to have entered the industry since that time. These are:

1. Anchor Concrete Machinery Company
2. Bergen Machine Tool Company
3. Concrete Equipment Company
4. Concrete Machinery Company
5. Concrete Transport Mixer Company
6. Holland Machinery Company
7. Hydro-Forged Stone Associates, Inc.
8. Oswalt Engineering Service Corp.
9. John J. Yellin

Only two of the above are significant competitive entities in the large machine field today. These are Bergen Machine Tool Company, discussed at pages 98-99, *infra*, and Oswalt Company, discussed at pages 99-101, *infra*.

At the present writing patent rights to concrete block making machines as such are of very little importance in the concrete block making machine industry. Only a few licenses have been issued under the antitrust decree. Bergen, Oswalt, Praschak, and Darden have obtained such licenses from one or more of the antitrust defendants. The royalties paid have been insignificant in all instances. So far as can be ascertained, GoCorp, Stearns, Besser, Lith-I-Bar, and Columbia pay no royalties to anyone in connection with their standard machine manufacture. No companies other than Besser Company and Stearns are known to have any significant patent rights to the machine as such, and the importance of the rights to each of these companies is very limited. This is primarily because of the availability of alternative techniques and secondarily because of the compulsory licensing decree. Management of both companies has expressed the opinion that the effect of the compulsory licensing decrees has been to make patent enforcement unworthy of the effort.

Nevertheless Stearns has emphasized technical development and—since 1949—has placed on the market a number of machines based on major redesign. In the case of the other manufacturers of large machines, there appears to be an interest in making only such machine improvements as are compatible with existing

*The following tabulation summarizes the status of the major concrete block machine manufacturers in 1956:*

COMPANY	COMMENT	MACHINE SIZE
Bergen Machine Tool Company	Principal business is sale of parts for Besser machines for repair purposes. Began manufacture of machines similar to Besser machines in 1951. Has substantial production plant. Manufacture includes hoists and accessories.	800-1000 blocks/hour
Besser Company	Complete line of large block making machines and accessories.	800-1000 blocks/hour
Columbia Machine Works	Very active manufacturer of small and medium sized machines and accessories. Has substantial plant and sales organization.	500-700 blocks/hour Under 500 blocks/hour
Roy W. Darden Industries	Now in process of re-entering the industry. Has no plant.	
W. E. Dunn Mfg. Co.	Principal business is in manufacture of drain tile, brick facings, and brick making machines. Concrete block machines about 5 per cent of business	Under 500 blocks/hour
F. C. George Machine Co.	Small manufacturer of small machines.	Under 500 blocks/hour
GoCorp	Started by Olsen in 1948 on leaving Stearns. Machine uses many Besser-type parts purchased from Bergen but is distinctive in use of hydraulic mechanism in lieu of cams.	800-1000 blocks/hour 500-700 blocks/hour
Kent Machine Co.	Small manufacturer of small machines.	Under 500 blocks/hour
Lith-I-Bar Co.	Very active manufacturer in immediate postwar years when machine capacity was relatively great. Less active in recent years. Company has recently been taken over by new management.	500-700 blocks/hour Under 500 blocks/hour
Oswalt Engineering Service Corp.	Activity with machines began in early postwar years when service program was offered to increase the capacity of existing Besser machines. Began manufacture of machines similar to Besser machines after antitrust decree. Has small production facility devoted to machine assembly and buys parts from others, especially Bergen.	800-1000 blocks/hour
Praschak Machine Company	Small manufacturer of small machines.	Under 500 blocks/hour
Stearns Manufacturing Co.	Manufacturers "Model 50" series of cam operated machines and "Electromatic" electrically controlled machines. Also has complete line of concrete mixers, skip hoists, and similar products.	720-1000 blocks/hour 480-720 blocks/hour

machine designs and no inclination to undertake any major redesign. While all manufacturers claim that their machines incorporate the latest improvements—and that they maintain engineering staffs for this purpose—Stearns places the greatest emphasis upon this phase of competition and directs substantial advertising and sales emphasis to it.

The machine currently manufactured by Besser Company is the same in every major respect as the machine made prior to 1950. The Bergen and Oswalt machines, initially substantially like the Besser machine, are still in their major respects like the Besser machine. The GoCorp machine is designed to use a considerable number of the Besser-type parts purchased from Bergen.

There is considerably more present emphasis upon patents in connection with

accessories for use with concrete block making machines. The Ladwig off bearer hoist patent, for example, has been offered for license at substantial royalties, has been respected by the industry, and royalties are currently being paid on it by Bergen.

#### BESSER COMPANY

Besser Company is the major manufacturer of concrete block machines and, as such, is discussed at various points in this study. It is nevertheless appropriate at this point to state specifically the experience of Besser Company since the Government antitrust action. The information of this discussion has been derived from the antitrust suit record in the Supreme Court, the patent infringement suit record, the Darden treble damage suit documents, trade magazine articles, opinions of the firms in the industry that have been interviewed, and finally, interviews with officials of Besser Company.

Besser Company has been situated in Alpena, Michigan, since the turn of the century. Mr. Jesse H. Besser is president and owns, with Mrs. Besser, all of the stock. The company was founded by Mr. Besser's father and has been managed by Mr. Besser since 1926.

The Besser plant has 120,000 square feet of manufacturing and office space.<sup>9</sup> The firm manufactures concrete block making machines, together with related equipment such as block splitters. Concrete mixers are also manufactured. The Besser machine sells for approximately \$55,000, \$15,000 more than the most expensive competitive machine (the Bergen machine). Besser has recently invested in excess of \$1,000,000 in an 8,000 square foot heat-treating department for parts. Besser manufactures all parts for the machine.

Besser stresses its experience and engineering, repair, and similar services with respect to machines. The company seeks the opportunity to investigate specific plant conditions and to assist in the design of the complete block making plant. With a large and well-trained field force and a wealth of experience, the Besser services in this respect are valuable to operators. The company maintains district offices in 12 cities, in addition to the home office and plant at Alpena, Michigan. Besser created and now operates a maintenance school for prospective and past purchasers and users of the machines in order to acquaint the block manufacturers with the mechanical operation and maintenance of the machines.

Besser Company now makes only the large "Vibrapac" machine, having a capacity of about 1,000 blocks per hour. This machine is a rather large, liberally designed machine using cam action to sequence the operations. Smaller size machines are considered uneconomical and are not manufactured.

The outstanding experience of Besser Company, since the antitrust decrees, is that the company has grown in relative size and market position since the decrees. Exact annual sales and production figures are not available. Besser Company—partially because it adopted a policy of leasing machines—did not experience the precipitous sales drop after 1947 that characterized the experience of other concerns,

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<sup>9</sup> A picture of the plant appears in *Concrete Products*, Oct. 1956, p. 251.

especially Stearns. Estimates of the Besser Company dollar sales volume in block making machines obtained from a number of sources indicate that the current dollar volume is between 60 and 70 per cent of the large-size machines made today.<sup>10</sup> Total company sales are estimated to be in excess of \$6 million annually. Stearns, GoCorp, Bergen, and Oswalt share the remaining production of large machines, in approximately the order named.

No one factor accounts for the continued success of the Besser Company. All indications are that it is due to the combination of good will built up over a long period of years, a well-built, well-designed and efficient machine, established maintenance and repair services and facilities, and various services to present and prospective machine users with respect to the design of plants and the use of the machines.

An additional factor of some importance to the continued maintenance of the Besser Company market position is found in the "Vibrapac Agreement." Unlike competitors, Besser Company places many machines in use under this standard agreement, which amounts to a lease. In brief, the agreement provides that title to the equipment remain in Besser Company; that the user make a minimum monthly payment (initially \$500 per month) or a rental based on block production, whichever is larger; that Besser Company will provide periodic engineering inspections; and that the agreement has an initial six-year term, with option to the user to renew for additional six-year terms. The user makes a deposit with Besser Company that for most of the lease term is in the amount of \$2,000.

The practice of leasing machines was instituted by Besser Company in 1947, two years before the Government antitrust proceedings commenced. The various judgments in these proceedings, including the final judgment of July 29, 1952, each directed Besser Company to notify existing lessees that they had the option to (1) terminate their respective leases, (2) to continue the lease, or (3) to purchase the machines.<sup>11</sup> Many of the lessees elected to purchase the machines. Since this portion of the decree applied in terms only to the existing leases, Besser Company has resumed the leasing practice since that date.

Since payments to Besser Company for machines under lease are determined in part by production of blocks, the company has a monetary interest in assuring that

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<sup>10</sup> Some industry members regard this 60% to 70% figure as too high and as reflecting the accumulation of sales (and leases) over a period of years rather than solely the current sales (and lease) rate. There is general agreement that in recent years the Besser sales volume has been at least twice that of Stearns, the second largest manufacturer.

<sup>11</sup> "(A) Defendant Besser Company is hereby ordered and directed, within thirty (30) days from the entry of this final judgment to notify each person presently leasing a concrete block making machine from said defendant that the lessee may, at its option,

(1) terminate the said lease agreement at any time prior to March 1, 1954; or

(2) continue under the terms of the lease, or

(3) enter into an agreement to purchase the machine or machines leased, and the accessory equipment used, as mutually satisfactory to the parties concerned;

provided, however, that the provisions of sub-sections 1 and 2 of this sub-paragraph (A) shall be contingent upon said lessee making his election in writing on or before December 1, 1953.

"(B) Defendant Besser Company is hereby ordered and directed to sell to any existing lessee or purchaser under this Section VIII, of concrete block making machinery and accessory equipment of said defendant, repair parts upon reasonable, uniform and non-discriminatory prices, terms and conditions of sale." (Decrees, para. VIII.)



the respective machines are used to maximum capacity. For this reason it is the practice of the company not to sell or lease additional machines for use where the effect of such transaction will, in the judgment of Besser Company, reduce the over-all company income.

Besser Company has continued to be interested in technical development and in obtaining patents to such developments as are patentable.<sup>12</sup> Current expenditures for developmental activity are at the same rate that would be maintained in the absence of the compulsory licensing decrees. The company management considers this action in order because of the need for the company to make the most modern machine possible, together with the fact that the compulsory licensing provisions of the decree are effective only as to patents applied for prior to July 29, 1962.

Besser Company considers itself free to obtain exclusive patent license rights from others. The company accordingly is interested in obtaining exclusive licenses to the patent rights to the inventions of outsiders.

Pursuant to Section VII, subparagraph B of the judgment of April 12, 1951,<sup>13</sup> Besser Manufacturing Company and Jesse H. Besser designated John Stark and M. P. Rosenthaler as their representatives on the royalty committee to determine the terms under which licenses should be granted to the patents owned by Besser Manufacturing Company and Jesse H. Besser. The Government designated Eugene F. Olsen and Roy W. Darden as representatives. On May 21, 1951, the committee thus designated met in Detroit to discuss the royalty rates and other terms for the compulsory licenses to be granted under the Scott and Wellnitz patents (R. 1119-1120). Olsen and Darden proposed a royalty of \$25 per mold opening per machine for either, or both patents; that is, \$75 for a three-at-a-time machine, and \$25 for a one-at-a-time machine. Rosenthaler and Stark took the position that because of the heavy investment of Besser Company in these patents and limited life of the patents a reasonable royalty for the Wellnitz patent would be \$600 per machine, a reasonable royalty for the Scott patent would be \$100 per opening, and a reasonable royalty for Besser patent 2,319,291 would be \$25 per opening (R. 1120).

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<sup>12</sup> Besser has been issued or owns the following patents since 1948: patent 2,566,787 filed April 22, 1949, and entitled "Stripping Mechanism for Block Molding Machines"; and patent 2,692,418, filed June 2, 1948, and entitled "Pallet Handling Apparatus." So far as can be determined, Besser has not applied for nor been issued any other block machine patents since the antitrust decree.

<sup>13</sup> "(1) Said plaintiff government and said defendants Gelbman and Andrus, shall on or before April 21, 1951, each select two persons, which said four persons so selected shall act as a committee to determine such fair royalty prices and the form and contents of the royalty contracts; provided, however, that if they are unable to so agree on or before May 5, 1951, then said four persons so selected may then select and appoint a fifth person to act with them as the fifth member of said committee; and provided further that if said four are unable to agree upon the fifth member by at least a three to one vote, on or before May 12, 1951, then such questions and points not agreed upon shall forthwith be referred to this court which shall then have the right to act as the fifth member himself or select another person in his stead to aid in making the final decision; and

"(2) It is further ordered that the same method and manner shall be used in arriving at a fair royalty price and the form and contents of the royalty contracts covering the patents, present and future, as above enumerated, owned and/or controlled by defendants Besser Manufacturing Company and Jesse H. Besser and when arrived at shall be filed as provided in subparagraph (C) following."

The committee met again on May 22, 1951. Olsen and Darden adhered to their \$25 per opening per machine royalty figure, but proposed that this figure apply to all three patents instead of just the Scott and the Wellnitz patents (R. 1120). Olsen later testified that the other Besser patents were not in use and, therefore, could not be evaluated (R. 1090). At this second meeting Rosenthaler pointed out that the 1938 patent agreements covering the Gelbman patents stipulated a royalty of \$225 for a three-at-a-time machine selling for \$12,000, and that the corresponding royalty for the machines of 1951 (which sold for \$36,000) would be \$675. Rosenthaler then offered a compromise royalty rate of \$450 per machine for the Wellnitz patent, \$75 per opening for the Scott patent and \$25 per opening for the Besser patent (R. 1120).

At the royalty meetings, Darden and Olsen were represented by counsel. At the second meeting the counsel for Darden and Olsen observed that the Besser investment in the patents was irrelevant in any event because a nominal royalty rate was all that could be expected in view of the violation of the antitrust laws (R. 1121). Rosenthaler disagreed, stating that the function of the committee was to arrive at a fair royalty rate and not a penalty rate (R. 1121). Rosenthaler has reported that at this time Olsen and Darden and their counsel said "That they were going to see Judge Picard" (R. 1121). Rosenthaler reports that he then informed Darden and Olsen and their counsel that the Besser representatives had no counsel present and requested that no appearance be made before Judge Picard until Besser counsel could be present and a formal report could be drawn up (R. 1121). This request was refused by the government representatives (R. 1121). Stark then left for Alpena (R. 1121).

Rosenthaler stated that Olsen telephoned him to state that he (Olsen) had contacted Judge Picard who had informed Olsen that the committee would meet on May 23 and that he (Judge Picard) would become the fifth member of the committee to fix the royalty rates and license terms whether or not the Besser and Besser Company representatives and their counsel were present (R. 1121-1122).

On the morning of May 23, 1951, Rosenthaler went to the chambers of Judge Picard to deliver a telegram from John W. Babcock and Carl R. Henry, attorneys for Besser and Besser Company. These attorneys were then in New York. In the telegram they protested the presence of counsel for the government representatives at the committee meetings and the opinion of these counsel that only a nominal royalty was appropriate. They further objected to any meeting on May 23 on the ground that Besser and Besser Company should have the opportunity to present evidence to the full committee of five and that a formal record should be kept (R. 1122-1123). Judge Picard proceeded to hold the meeting on May 23. He stated that the judgment did not contemplate counsel at the committee sessions (R. 1123-1124) and that the royalty rates set should be fair and not merely nominal rates (R. 1124). Judge Picard then instructed the committee to discuss royalty rates further and report to him in the afternoon (R. 1096).

Rosenthaler, Olsen, and Darden conferred again in the morning of May 23. With respect to this meeting, Rosenthaler has reported:

. . . Mr. Rosenthaler asked that the Committee adjourn until some later date to give him time and opportunity to present proofs and accounting records to support

the reasonable character of the royalties which he and Mr. Stark had recommended. Thereupon, Mr. Olsen stated in substance that such further time and opportunity was not necessary because while he, Mr. Olsen, was confident that if he and Mr. Besser could confer privately they could come to an agreement which would be completely satisfactory to both of them and in Mr. Olsen's opinion fair, but that after all he and Mr. Darden were obligated to consider both the industry and their private instructions from the Department of Justice who wanted fixed a very low royalty. Thereupon, Mr. Darden confirmed Mr. Olsen's statement, and expressed the thought that by conference with Mr. Besser he too could arrange satisfactory terms but that he too was hampered in accomplishing such mutually satisfactory result by the desires of others in the industry and the instructions received from the Department of Justice. Thereupon, Mr. Rosenthaler offered to arrange such conference with Mr. Besser, but Mr. Olsen and Mr. Darden insisted that upon proceeding because of their assumed obligation to follow the desires of others in the industry and the Department of Justice (R. 1124).

In the afternoon of May 23 a meeting was held in the chambers of Judge Picard, attended by Rosenthaler, Olsen, and Darden. At that time Rosenthaler was asked to state what Besser had paid for the development represented by the Wellnitz patent (R. 1098). Rosenthaler stated that the Wellnitz-Meeker patent rights cost \$75,000 as an outright purchase price; that approximately \$200,000 had been spent working on the development and engineering of them; that machines had been modified in the field to incorporate the Wellnitz feature at a charge of about \$6,500 per machine, and that the \$425 per machine royalty figure was based on "an attempt to recover our costs based on the expected production of machines with this attachment, which, in our opinion, is not great, and probably may not exceed 150 to 200 a year (R. 1098-1100). Olsen reported to Judge Picard that Meeker had paid Wellnitz \$100 per machine paid up royalty for an exclusive license and that in 1949 and 1950 Wellnitz was receiving about \$1,800 per year on his exclusive rights (R. 1101-2).

At the afternoon meeting of May 23 Olsen also stated for record purposes the following factors that he considered should be weighed in deciding the fair royalty:

1. That the royalties that a manufacturer of machines might be required to pay must not be so great as to preclude him competing with patent owners.
2. Cost of said patents to Besser and remaining life of patents.
3. Relationship of Besser royalties to those already agreed upon with Gelbman Group. Gelbman principal patents cover entire machine and method and Gelbman royalty covers nine patents.
4. Wellnitz patent was, as late as 1949, under exclusive license to Meeker for \$100 per machine.  
 . . . . .
5. I believe the Scott patent was never licensed, but believe it has been in rather general use by many for as long as 12 years. I know of no action ever taken against anyone by patent owners prior to 1950.
6. Cost of parts necessary to convert a non-infringing machine to one that infringes both the Scott and Wellnitz need not exceed \$25.
7. A non-exclusive license now being discussed gives the licensee nothing except assurance that he will not be attacked by Besser (R. 1104-5).

Judge Picard accepted the proposal of Olsen and Darden, stating as follows:

I will tell you what I am going to do. I am going to accept the recommendation of you two gentlemen, and the main reason for that is that I think they could have had the information, if they wanted to, if they wanted to present it in proper form, that right from the beginning of this—not from the beginning, but especially from the rendition of judgment, there has been a surprising lack of cooperation between the defendants, their counsel and this Court, so that to me, to the Court, it appears as though it is but another attempt to delay matters and not get the judgment complete.

The Court hopes he is mistaken . . . (R. 1109).

The form of patent license agreement proposed by Olsen and Darden, and accepted by Judge Picard, includes the same terms (other than royalty rates) as that agreed upon by the committee set up to determine the compulsory license terms to the Gelbman patents (R. 1093-1097). A minimum royalty rate of \$300 per year was set, and an earned royalty rate of \$25 per mold compartment per machine<sup>14</sup> (R. 1112-7).

The compulsory licenses granted under the antitrust decrees provide for royalty payments in the amount of \$25 per mold compartment. With machines selling at prices of \$25,000 to \$40,000, this figure is nominal, and royalties are of very little importance to Besser Company. In terms of percentage royalties, the royalties paid on a \$25,000 "two-at-a-time" machine are only 0.2 per cent. The \$50 figure should be compared with the maximum royalty of \$225 provided for in the 1942 license agreement between Gelbman, Andrus, Stearns and Besser.<sup>15</sup>

The \$25 per mold compartment royalty figure set by Judge Picard for licenses under the Besser-owned patents should be also compared with the royalties arrived at by the committee to fix reasonable license terms under the patents owned by Gelbman and Andrus (R. 1093-1097). Royalties varied from \$50 per mold compartment to \$62.50 per mold compartment with a \$625 yearly minimum royalty.

Besser Company has received a number of requests for patent licenses pursuant to the antitrust judgment. These include requests from Bergen and Oswalt, both of which are making machines based on the Besser machine, and a request from Roy Darden. Licenses have been granted upon all these requests, as well as several others. The amount received in license royalties has been inconsequential to the Besser management.

As discussed above, paragraph VIII<sup>16</sup> of the antitrust decrees required Besser Company to notify "each person presently leasing a concrete block machine from said defendant" that such lessee may (1) terminate the lease agreement prior to March 1, 1954, (2) continue under the lease terms, or (3) enter into an agreement to purchase the leased machine "as mutually satisfactory to the parties concerned." The decree specified no standards as to the price to be charged for the machines by Besser Company. Since Besser Company had commenced to lease machines in

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<sup>14</sup> It is not entirely clear from the record whether this royalty rate covered all of the three patents in question (Scott, Besser, and Wellnitz patents). Olsen and Darden apparently so intended (R. 1120). The number of mold compartments determined the number of blocks made per machine cycle. High production machines use three mold compartments and make three blocks per cycle.

<sup>15</sup> See p. 128-129 *infra*.

<sup>16</sup> *Supra* note 11.

1947, and nothing in the antitrust judgments expressly precluded any practice of leasing machines in the future, this provision of the judgment was necessarily one of limited effect. Some members of the industry have expressed the opinion that this paragraph of the judgment actually helped Besser Company by giving the company a graceful way to free the considerable capital tied up in the many machines distributed on a lease basis in the 1947-9 period. While it is difficult analytically to see how Besser Company could have made any more favorable arrangements to sell the machines under the decree than would have been possible without the decree, there were a considerable number of machines sold after notices were sent out under the decrees. As a result of these sales Besser Company did obtain cash which could be, and was, invested in plant expansion.<sup>17</sup>

Members of the industry have additionally expressed the thought that too much emphasis was placed on compulsory patent licensing as an antitrust relief measure with respect to Besser Company and too much emphasis was placed on the apparent effects of threats of patent infringement suit in limiting the activities of competitors. Certainly the patent litigation against Whitman, respecting the Lith-I-Bar machine, showed that the "basic" Scott and Gelbman patents were invalid to the extent they were broadly construed. There also can be no doubt that once the seller's market of the immediate postwar years disappeared the opportunities for new enterprise in the block machine field sharply decreased. It has been said that Roy Darden would have left the business without the patent infringement threats.<sup>18</sup>

There is some feeling in the industry that a substantial change will take place when Jesse Besser retires. Mr. Besser's present age is 75. For many years he has been the active manager of the company and has maintained such close control over company activity that subordinates are delegated little real responsibility. Some industry members feel that once the driving force of Mr. Besser is lost to the company there is bound to be a considerable period during which the competitive efforts of the company will be less effective and the opportunity for competitors correspondingly increased. Other industry members believe that Besser Company will retain its present industry status after Mr. Besser's retirement.

Finally, a word should be said about the Besser machine. The basic design is the same today as it was in the immediate postwar period. The machine is constructed on the principle that a large heavy machine is most suitable for concrete block manufacture, and that cam action is the most effective way to actuate the various parts in sequence. Improvements have been made over the years, notably in the

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<sup>17</sup> The experience with the decree in the concrete block machine industry with respect to leasing machines should be compared with that under the United Shoe Machinery decree of 1953. *United States v. United Shoe Machinery Corp.*, 110 F. Supp. 295 (D. Mass. 1953) (*aff'd* per curiam at 347 U.S. 521, 1954). The first few years after the decree became effective were characterized by substantial increments of income arising from the sale of machines pursuant to the decree, the net income for the fiscal year ending February 28, 1957, *e.g.*, being almost half due to such income. Current predictions are that the number of customers choosing to purchase rather than lease machines will decline and that considerable numbers of new machines will be placed out on lease, with a net increase in lease income. See *Wall Street Journal*, June 14, 1957. On one controversy that arose under the leasing provisions of the Besser decree, see *Bowden Concrete Products, Inc. v. Besser Company*, 249 F.2d 52 (6th Cir. 1957).

<sup>18</sup> See p. 95, *infra*, for discussion of the Darden treble damage litigation.

block height control mechanism and in the pallet feed arrangements. There is, however, no apparent disposition to undertake any over-all redesign of the machine.

#### STEARNS MANUFACTURING COMPANY

Stearns Manufacturing Company is located in Adrian, Michigan, and is housed in a recently constructed manufacturing plant consisting of 65,000 square feet of manufacturing space and 8,000 square feet of office space. Tooling and assembly of the machines takes place upon plant premises. There are 208,646½ shares of \$1 par value common stock outstanding. There is no preferred stock. Stock is traded on the over-the-counter market.

It will be recalled that Besser had purchased sufficient stock to control Stearns by March 1948, and then appointed three out of the five-man board of directors (R. 933). It was at this time that Olsen resigned as president. Myron Hultmark, a former Besser Company salesman, was appointed president to replace Olsen. Hultmark testified in the Darden treble damage action that Besser never made any attempt to direct any policy of Stearns.

Stearns filed a declaratory judgment proceeding against Besser Company on June 30, 1950.<sup>19</sup> This filing date was six weeks after the Government antitrust suit was filed and two days after Judge Picard had decided *Besser v. Whitman*.<sup>20</sup> Stearns sought a declaration that Scott patent 2,106,329 was invalid and not infringed. On November 17, 1952, a stipulation and judgment was filed in the case, providing that claims 1 and 6 of the Scott patent were invalid, claims 2-5, inclusive, and 7 had not been infringed by Stearns, and dismissing the counterclaim of Besser without prejudice. This disposition was consistent with the intervening decision of the Court of Appeals in *Besser v. Whitman*.<sup>21</sup>

After the 1952 antitrust judgment, Besser was required to place his Stearns stock in the hands of a trustee—the Detroit Trust Company. The dividends were paid to the bank and the voting rights were held by it. The bank appointed one member of the Stearns board, Mr. Tom Darnton. Mr. Hultmark remained as president and still holds that position.

In November 1953 the trust stock was sold to Wesley J. Peoples who represented a syndicate of Detroit and New York investors. Mr. Peoples then became chairman of the board of directors.

After the Besser purchase and Olsen's resignation, Stearns had a period of low sales and earnings. It has not yet reached the income figures for 1947. In that year, Stearns enjoyed a sales dollar volume of close to 20 per cent of the entire industry and about 30 per cent of Besser's sales volume. The low point was reached in 1949, with sales volume of less than one-third the 1947 figure and profits less than 5 per cent of the 1947 figure. The following data are taken from a Fitch Unlisted Securities Bulletin:

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<sup>19</sup> No. 9558, Civil, U.S. District Court for the Eastern District of Michigan.

<sup>20</sup> 93 F. Supp. 383 (E.D. Mich. 1950).

<sup>21</sup> 194 F.2d 270 (6th Cir. 1952).

YEAR	STEARNS <i>Gross Income</i>	STEARNS <i>Net Income</i>
1946.....	620,911	200,657
1947.....	951,124	422,852
1948.....	493,172	130,572
1949.....	297,595	17,630
1950.....	526,032	128,897
1951.....	773,490	183,202
1952.....	601,764	107,708
1953.....	578,280	75,353
1954.....	582,439	101,409
1955.....	668,470	105,698
1956.....	695,116	78,142

A number of factors account for the sales decline of Stearns after the 1947 peak. The present management of Stearns emphasizes the failure of the company to keep abreast of machine developments during the years preceding 1947, with the result that at that time the company was able to enjoy substantial sales volume only because of the seller's market. There is evidence that at least until 1950 the inadequacies of the machines under sale by Stearns retarded sales volume and caused a sharper reaction to the disappearance of the postwar seller's market than otherwise would have been the case. Stearns undertook the development of new machines and, in 1950, after a two-and-one-half-year developmental period, the company came out with an entirely new line of machines. The increased sales during 1950 and 1951 are said to be the result of the improvements of these machines. Because of the new machines, Stearns has been said to have been in a better competitive position in 1951 than 1947.

The changes in market demand doubtless are a major reason for the Stearns sales experience. The following fact finding of Judge Lederle in the Darden treble damage action fairly states the change that took place.<sup>22</sup>

7.—At the end of World War II, the demand for block machines became too great for the established companies to meet. Besser Company and Stearns were a year to eighteen (18) months behind in deliveries. By the end of 1946 or early 1947, this abnormal demand was largely filled and the established companies experienced a sharp and steady decline in sales. It became necessary for block machine makers to finance sales of their machines and to take in old machines in trade.

This change is also reflected in the Besser Company machine production figures, for Besser sold 184 machines in 1946, 208 machines in 1947, and in 1948 a total of 16 machines were sold and 63 were leased (Ex. 1; R. 1179).

Since 1949 Stearns has been considerably hampered by the antitrust litigation. The Government antitrust suit involved unfavorable publicity, a heavy drain on the financial resources of the company, a drain on management time, and doubts as to the outcome. The trust period extending to late 1953 was an additional unfavorable influence. The trustees did work harmoniously with management to preserve the worth of the company, but policies were necessarily more conservative than otherwise would have been the case. Finally the Darden treble damage action placed a

<sup>22</sup> Roy W. Darden v. Besser, 147 F. Supp. 376, 378 (E.D. Mich. 1956).

further drain on the management and financial resources of Stearns, and introduced a new element of risk and doubt that still persists because of the pending appeal in that action.<sup>23</sup>

An indication of the Stearns experience vis-à-vis Besser since the antitrust decree can be obtained by comparing the performance of Stearns and Besser for the period just prior to the Besser purchase and the later period reflecting their experience since the antitrust decree. The following tabulations, taken from Exhibits 163 and 164 in the Darden treble damage suit, provide one such comparison.

	BESSER <i>Net Income</i>	STEARNS <i>Net Income</i>	RATIO STEARNS TO BESSER
Feb. 1, 1946 to Jan. 31, 1947	\$1,586,911.68	\$ 528,498.87	.33
Feb. 1, 1947 to Jan. 31, 1948	3,067,923.92	517,213.91	.17
Feb. 1, 1948 to May 31, 1952	6,674,176.63	1,371,283.19	.21

	<i>Gross Sales</i>	STEARNS <i>Gross Sales</i>	RATIO STEARNS TO BESSER
Feb. 1, 1946 to Jan. 31, 1947	6,354,401.79	2,981,617.04	.47
Feb. 1, 1947 to Jan. 31, 1948	9,850,952.26	3,065,599.10	.31
Feb. 1, 1948 to May 31, 1952	30,616,605.34	11,110,751.72	.36

Stearns now manufactures the so-called '50 series' block making machines. These are made in three sizes using essentially the same operating mechanism and with one, two, and three mold compartments. The machines are capable of operating at from four to six cycles per minute. Production capacities range from about 1,000 blocks per hour down to about 500 blocks per hour. Major production and sales emphasis is placed on the larger machine, which is directly competitive with machines made by Besser. In addition, Stearns manufactures cement mixers, block splitters, and skip hoists, and maintains an inventory of and distribution organization for parts for its machines. While these additional items are looked upon as sidelines, they provide a single source of supply for all the equipment relating to the block making machine and assure that Stearns customers have effective repair service in the event of a machine breakdown.

The most recent Stearns block making machine is the "Electromatic." A distinctive feature of this machine lies in the use of an electrically operated programming mechanism in lieu of the cam operation characteristic of the Besser and earlier Stearns machines. The electrical programming mechanism provides advantages of reliability, flexibility, and ease of operation not present in a cam actuated machine. The "Electromatic" has been operated by users at about 1,000 blocks per hour.

Stearns gives great emphasis to the activities of its engineering improvement department. The management looks upon machine development and the patents obtained as a means of protecting and enhancing its competitive standing. Patent

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<sup>23</sup> Under the various theories of damages proposed by Darden, the total judgment for treble damages and attorney fees would be of the order of one million dollars. Even if this sum were apportioned in a manner requiring Besser Company to carry most of the burden, Stearns' share would still be very large in relation to the current annual net income of Stearns, which is of the order of \$100,000.



rights and technical features are stressed in sales effort.<sup>24</sup> There is some feeling in the industry that competitors, including Besser, are infringing the Stearns patent rights. The Stearns' management considers that in view of the opportunity to design around the patents and the limited possible monetary recoveries because of the compulsory licensing requirement, an infringement suit is not justified. Nevertheless, investment in research and development is carried on in the interest of providing an improved product.

From 1946 to 1956 Stearns has been issued nine patents relating to concrete block machines and related equipment. This is many times more patents than have been issued to Besser.<sup>25</sup>

An indication of the rather aggressive attitude of the Stearns management towards patent rights is found in the effort to obtain the broadest possible patent claims in Schutt patent 2,685,116. This patent is regarded by the management as covering a structure used in the current Stearns '50 series' machines. The patent issued on August 3, 1954, on an application filed January 14, 1948. The invention of the application seeks to increase the productive capacity of a vibration type machine while at the same time permitting accommodation of various types of aggregate and cement. It does this by providing two dwell periods and two separate vibration periods. The timing of the dwell periods is adjustable to suit the conditions encountered and thereby obtain the correct heights of the block at the close of the second period of vibration. Not satisfied with the claims allowed by the examiner and the Board of Appeals, Stearns (in the name of the inventor, Schutt) filed appeal to the Court of Customs and Patent Appeals.<sup>26</sup> On February 3, 1954, that court held that some of the claims sought were allowable and represented an inventive concept. The rejection of other claims was affirmed. These rather extensive and costly proceedings in connection with the Schutt application can only be justified

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<sup>24</sup> A current Stearns brochure on the '50 series' states:

"3 Great Stearns Block Machines . . . with Stearns' Innovations

Every block plant can improve quality and profits with a *fully automatic machine* of the Stearns '50' Series. This carefully designed series includes all the latest engineering features known—plus many design exclusives. There is the Stearns patented feed drawer agitator—Stearns patented stop-cycle principle—Stearns patented compressed air strip release in cores—Stearns patent applied for Dual Shaft Uni-Directional Vibrating Unit—Stearns patented pallet return and conditioner. These features combine to give the highest production rate with any aggregate."

<sup>25</sup> The recorded assignments in the Patent Office indicate that the following patents are owned by Stearns: Patent 2,397,695, filed June 7, 1944, and entitled "Mold Packing"; patent 2,535,961, filed Aug. 26, 1948, and entitled "Off-Bearer"; patent 2,545,051, filed Dec. 4, 1947, and entitled "Power Control for Fluid Motors"; patent 2,565,001, filed April 3, 1948, and entitled "Concrete Block Machine Ejector Mechanism"; patent 2,614,525, filed April 26, 1947, and entitled "Apparatus for Oiling and Cleaning Pallets"; patent 2,640,579, filed April 3, 1948, and entitled "Conveyor"; patent 2,646,607, filed June 26, 1948, and entitled "Means for Preventing Collapse of Molded Concrete Products when Core is Withdrawn"; patent 2,685,116, filed Jan. 14, 1948, and entitled "Machine and Method for Molding Concrete Blocks or Other Products"; and patent 2,730,251, filed April 3, 1948, and entitled "Hoist or Off-Bearer for Use in Concrete Block Molding Machines." For a list of patents that were assigned to Besser during this period, see p. 81, n. 12 *supra*. Five of the above patents are considered by the management to cover features used in the current machines.

<sup>26</sup> *In re Schutt*. 210 F.2d 293 (C.C.P.A. 1954).

on the basis that Stearns considered the rights to be valuable notwithstanding the decree.

Stearns has received requests for licenses under the compulsory licensing decree provisions from Bergen and Praschak. In the case of Praschak, no license was consummated. Bergen has permitted its license to expire.

Stearns Manufacturing Company is currently displaying a considerable degree of aggressiveness. At the present time it is making particular progress in the sale of equipment to entirely new concrete block manufacturing ventures. Management considers that the company has sold to three-fourths of such ventures that have been initiated within the last five years. The company has put machines in plants formerly using Besser machines, and looks upon the replacement market for Besser machines manufactured in 1946 and 1947 as a particularly good market. Stearns has 17 salaried salesmen and six commission salesmen covering the entire United States.

Recently Stearns acquired Shawnee Manufacturing Company of Topeka, Kansas. Shawnee is the manufacturer of a line of light earth-moving tools. This acquisition doubled the earning power of Stearns. Stearns is also looking for other new businesses to acquire.

The Stearns management does not consider the Besser practice of leasing machines to be particularly troublesome. When customers point to the Besser leasing practice, Stearns' answer is a deferred payment plan for the sale of machines, which permits payment over a three-year period and involves payments of the same order of magnitude as those required by the Besser leases. By way of advantages over the Besser lease arrangement, Stearns emphasizes the limited term and complete ownership of the machine by the customer. Three years ago Stearns set up a one million dollar revolving fund to finance deferred purchases, a system that worked well. However, at the present time financing is handled through financing companies rather than Stearns company funds. Other machine manufacturers, such as Columbia and Bergen offer similar financing plans.

In the period just prior to the Government antitrust action Stearns was the leading competitor of Besser Company. It has remained in that position. Events since 1948, however, have reduced the strength of Stearns as a competitive entity vis-à-vis Besser Company. To a major extent these events have been due to matters unrelated to the antitrust actions, notably the decreased machine demand and the necessity of redesigning the Stearns machine. In addition, the problem of divesting Besser of ownership of Stearns stock necessitated the trust period which—however harmonious—did Stearns no good. Over and above these difficulties, however, the antitrust actions retarded Stearns in ways that appear to have been unnecessary and during a period when the viability of this concern as a competitive entity was most important. In this respect it is doubtful that the antitrust actions have served their basic purpose of promoting competition. In the light of succeeding events, the writers cannot repress the opinion that competition in the concrete block making machine industry would be greater today if Stearns had never been a party to

the antitrust action.<sup>27</sup> At the present writing there is considerable evidence that Stearns has recovered its competitive vigor and, indeed, may be in a stronger competitive position than prior to the antitrust proceedings.

LOUIS GELBMAN

Louis Gelbman was the co-owner, with Hamlin F. Andrus,<sup>28</sup> of the patents forming the subject matter of the Bell settlement license agreement of 1942 with Stearns and Besser Company. This license was one focal point of the Government antitrust charges. The effect of the Government charges of violation of the Sherman Act, and the subsequent holding that there was a violation, was one of bitter disillusionment to Louis Gelbman. The later decisions in *Andrus v. Whitman*<sup>29</sup> holding the principal patents invalid accented this feeling.

In the years following the antitrust and patent decisions Gelbman's health failed. By 1955 he was bedridden and totally blind, and in early 1957 he passed on.

At the time of the antitrust trial Gelbman had a considerable interest in the development of light-weight aggregate materials, for which he obtained a series of patents.<sup>30</sup> He did little in connection with these developments after the decision holding the Gelbman patents invalid and not infringed in 1952.

After the 1951 judgment in the Government antitrust suit, Gelbman became a member of the committee appointed to fix the royalties and other terms of licenses to be granted under the patents owned by Gelbman and Andrus (R. 1072). Edward F. McGee was the other member to represent the Gelbman-Andrus interests. Eugene F. Olsen and Roy W. Darden were the government appointees to the committee. The committee reported to the court on May 3, 1951, stating:

The designees were successful in arriving at a fair royalty price and the form and contents of a royalty contract which would be applicable to prospective licensees desiring a license under nine (9) patents owned by defendants Louis Gelbman and

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<sup>27</sup> It was necessary for the Government to name Stearns as a defendant in the antitrust proceedings since relief was sought with respect to the Andrus, Gelbman, Besser, Stearns 1942 patent license agreement. This did not, however, inevitably require the case to go to trial as to Stearns or otherwise substantially affect the Stearns competitive position. One solution to the problem, *e.g.*, would have been a consent decree providing for essentially the relief as against Stearns as was granted by Judge Picard in the 1951 judgment. The effect of such decree could be contingent upon the outcome of the proceedings as to the other defendants. In a number of cases consent decrees effective as to certain defendants have been entered. See, *e.g.*, *United States v. General Electric*, 82 F. Supp. 753, 764 (D.N.J. 1949). To be sure, past history, as well as an understandably critical attitude towards accused antitrust law violators, indicate that the prosecuting authorities are not likely to encourage arrangements of this kind. In this connection, however, it should be noted that Olsen, president of Stearns during the period in question, was the main Government witness, was not named as a defendant, and was in no way made subject to the provisions of any of the decrees.

<sup>28</sup> Since Mr. Andrus participated in the activities here under review only in the capacity of a financier, it is unnecessary to consider his experience beyond noting that he appears to have had no particular interest in the concrete block industry and that the investment was motivated solely by the prospect of a financial return from the Gelbman patent rights. Mr. Andrus died on July 9, 1957, at the age of 72. *New York Times*, July 11, 1957.

<sup>29</sup> 93 F. Supp. 383 (E.D. Mich. 1951); 194 F.2d 270 (6th Cir. 1952); *cert. denied* 344 U.S. 817 (1952).

<sup>30</sup> See p. 126 *infra*.

Hamlin F. Andrus and relating to block making machines. Those nine patents are enumerated in Schedule A attached to the form of license agreement. The royalty prices and form and contents of the royalty contract are set forth in the attached form license agreement.

The designees found it impossible to arrive at a fair royalty price or terms or conditions of a royalty contract which would be applicable to prospective licensees desiring a license of less than all of the nine patents enumerated in Schedule A in the form of license agreement. The possible combinations or permutations of patents within that group are so great as to preclude the designees from arriving at any terms or conditions which would be applicable to licenses of less than all of the nine patents.

The designees feel and recommend that prospective licensee (sic) desiring a license of less than all of the nine (9) patents enumerated in Schedule A be permitted to negotiate with the defendants Louis Gelbman and Hamlin F. Andrus for the desired License.

The designees found it impossible to arrive at a fair royalty price or terms and conditions for a license agreement involving Gelbman's patent No. 2,467,203 of April 12, 1949, relating to "Pallet Charging," and Gelbman's patent No. 2,502,940 of April 4, 1950, relating to "Auto Clave." These two patents relate to equipment which has never been built or operated. Tremendous investments would be required to build such equipment and there is no present basis for ascertaining whether such equipment would be practical or operative (R. 1072-3).

The license agreement arrived at by the committee on the Gelbman-Andrus patents provides for a minimum annual royalty of \$625 and earned royalties in the amount of \$50 for a one-at-a-time machine, \$112.50 for a two-at-a-time machine, \$187.50 for a three-at-a-time machine, and \$50 for each additional block mold per machine (R. 1075).

In the period since the decree Gelbman has received a number of requests for licenses under the compulsory license provisions of the decree, including requests from Prashchak Machine Company, Bergen, and Darden. All licensees other than Bergen and Darden have discontinued paying royalties and making reports under the compulsory licenses granted to them. Bergen has been consistently paying royalties. Darden, a recent licensee, has been paying the minimum royalties.

Louis Gelbman felt that he was an unfortunate and entirely innocent victim of circumstances in connection with the antitrust proceedings. He looked upon himself as a person who had—by considerable sacrifice and effort—made possible the commercialization of the vibration type machine. Gelbman was not alone in this opinion for Besser attributed his own introduction to effective vibration to Gelbman's efforts.<sup>81</sup> From the viewpoint of Mr. Gelbman the license veto power provision of the 1942 agreement was for the benefit of the licensees only, and of no benefit to him. Also Gelbman had no prior indication that the veto provision of the patent agreement would be considered illegal in any respect.

Gelbman is generally credited in the industry with having been a man of ideas who pursued them to useful conclusions despite obstacles. His activity with the vibration technique is his major contribution. Regardless of varying opinions respecting the presence of "invention" in what he did, it is clear that he substantially hastened the advent of successful vibration machines. Besser's testimony in the

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<sup>81</sup> *Whitman v. Andrus*, 194 F.2d 270, 272 (6th Cir. 1952).

*Whitman* case was that he learned all he knew about effective vibration from Gelbman.<sup>32</sup> In retrospect it is apparent that Gelbman was indeed the unfortunate victim of circumstance. His earliest important patent was to the joltcrete machine,<sup>33</sup> which can only be classified as a step towards effective vibration and certainly not as a refined vibration machine. More important, it differed only slightly from the machine of the prior art Williams patent.<sup>34</sup> The result was that Besser enjoyed a strong defensive position in the Bell suit<sup>35</sup> and—when the district court held the joltcrete patent invalid—Besser was able to make the agreement that gave it rights as to the far more important true vibration machines (which were then in being and were the subject of patent applications by Gelbman), together with the veto provision that became the focus of the antitrust proceedings. From the weak position Gelbman, Andrus, and Stearns were then in, they made the best bargain they could in connection with this license. Had the first patent litigation been on the later Gelbman vibration patents there is reason to believe that events would have taken an entirely different course.<sup>36</sup>

The experience of Gelbman invites inquiry into the role of the patent system in his activities and the effect of the antitrust litigation on those activities. The patent rights seem clearly to have been important to Gelbman and to have stimulated his efforts. The investment of \$165,000 in the development by Gelbman and Andrus was a very substantial sum, particularly in the early thirties when business conditions were generally depressed and the building industry was particularly slow. It is difficult to see how Andrus would have had any incentive to finance his part of that investment in the absence of the prospective Gelbman patent rights. Later, when an exclusive license agreement was made with Stearns, the existing and prospective future patent rights formed the principal basis for payment by Stearns to Gelbman and Andrus. The same may be said of the 1942 agreement with Besser, where the prospective patent rights to the later machines formed the main basis for payment.

It would be surprising to find a history of payments by the industry to Gelbman or Andrus in the absence of the patent rights. In any event the actual experience was that all payments by the major concerns in the industry—Besser Company and Stearns—were promptly and completely cut off after the patent and antitrust decisions. A few other concerns—apparently out of abundance of caution—took licenses under the first antitrust decree, but in most instances these payments were discontinued and in all cases the amounts paid have been relatively small.

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<sup>32</sup> See p. 120 *infra*.

<sup>33</sup> See p. 120 *infra*.

<sup>34</sup> See p. 119, n. 3 *infra*.

<sup>35</sup> See p. 128 *infra*.

<sup>36</sup> It is true that the important later Gelbman patents were ultimately held invalid and not infringed by the Lith-I-Bar machine. However, this holding is a great deal more debatable than that in the *Bell* case. There was no prior art patent as similar to the later Gelbman machines as the Williams patent was to the joltcrete machine. The fact that Judge Picard held one of the Gelbman patents valid and infringed by the Lith-I-Bar machine lends confirmation to this conclusion. See p. 122 *infra*. Also, it is possible to point to other judicial decisions upholding patents rather analogous to the later Gelbman vibration patents. See p. 123, n. 23 *infra*.

The experience of Gelbman is one where the patent rights induced the investment made by Andrus in the early days of his efforts, they were the source of the later income to Gelbman and Andrus, and when they became ineffective after 1950 all significant income from the vibration development promptly ended.

#### GOCORP

Until the Besser purchase of the Stearns stock in 1948, Eugene Olsen was the president of Stearns. Upon leaving Stearns he formed GoCorp. The incentive to form this company was in considerable measure increased by the April 1948 meeting at the offices of the National Concrete Masonry Association (R. 110-113). At that time a group of operators discussed with Olsen the matter of Besser's purchase of the Stearns stock and the possibility of their creating a new competing manufacturing organization to obtain an additional source of block machines. They gave up this idea on Olsen's representation that he would form a new company competing with Besser. GoCorp is that company and was formed in June 1948, shortly after the meeting.

GoCorp is located in Adrian, Michigan. The offices and manufacturing plant cover approximately 50,000 square feet. In terms of sales volume and competitive activity in the block making machine field, GoCorp is substantially smaller than Stearns. The company did not commence operations until after the seller's market for machines had disappeared. Aside from a few areas of relatively strong activity, such as Ohio, GoCorp does not presently give Besser and Stearns particularly strong competition.

GoCorp requested a license on the Gelbman patents in 1948, but was refused. Later Besser made a limited license offer to GoCorp.<sup>37</sup> Olsen testified in the antitrust case that his counsel advised that the GoCorp machine did not infringe (R. 118-9). GoCorp produced no machines in 1948. In March 1949 it delivered its first machine, which was returned. The second machine was delivered in June 1949.

From 1948 until the Government antitrust suit Besser made a number of offers to GoCorp and Olsen with respect to business matters. The first was an offer by a Besser representative to buy GoCorp (R. 132,133), which was refused by Olsen (R. 133). Thereafter Stone on behalf of himself and Besser proposed that Olsen, Stone and Besser construct a sintering plant for the manufacture of a light-weight aggregate (R. 326-328). This proposal was likewise refused by Olsen. Later Besser accused GoCorp of patent infringement which accusation was ignored by GoCorp.

Olsen testified in the antitrust proceedings that the GoCorp machine used the resonant vibration mechanism developed by John O'Connor.<sup>38</sup> At the present time, however, the large GoCorp machine (the "Trustee") is quite similar to the Besser machine construction in general arrangement and, particularly mold, feed drawer, pressure weight, and vibration mechanism construction and operation. This machine

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<sup>37</sup> P. 130 *infra*.

<sup>38</sup> P. 126 *infra*.

differs from the Besser construction primarily in the use of hydraulic cylinders and timed valve mechanism in lieu of the cam operation of the Besser machine. A number of parts on the current large GoCorp machine are interchangeable with those on the Besser, Bergen and Oswalt machines.

Currently GoCorp sells 18 to 20 machines per year. These are of the large (1,100 blocks per hour), and medium (500-800 blocks per hour) sizes. The manufacture of small machines (less than 500 blocks per hour) was discontinued in 1956. GoCorp features in its advertising the fact that the machine is constructed for use with molds manufactured by Besser and other competitors. The large machine sells for \$35,000 to \$40,000, a sum considerably under the Besser price of about \$55,000. GoCorp also manufactures skip hoists, block splitters, and cement mixers.

GoCorp currently employs about 90 people, five of whom are engineers engaged in design activity. The management does not consider patents of any real importance in the industry, with the exception of rare pioneer patents. It regards the Besser patent to the plain pallet machine as an example of such a patent.<sup>39</sup> The GoCorp engineering activity is concentrated on improvements in the machines intended to satisfy customer demands. The management has expressed the feeling that there is a definite possibility in the future of a machine being developed on the basis of some radically new principle to produce 10,000 blocks or more per hour. As to such a machine, GoCorp is apparently ready to invest in terms of extended effort on the part of its engineering staff.

In April 1956 GoCorp announced an automatic machine for loading green blocks from the block making machine to the racks upon which the blocks are cured. In the conventional arrangement a manually controlled "off bearer" is used to transfer blocks from the machine to the racks. GoCorp advertises that it has patents pending to this machine, which it calls "Rackman."

#### ROY DARDEN INDUSTRIES, INC.

It will be recalled that one of the activities emphasized by the Government in the antitrust suit was the threat and accomplishment of Besser and Stearns in cutting off Darden's source of machines, the Link Belt Company. On June 3, 1952, shortly before the Supreme Court decision in the antitrust suit, Roy Darden and Roy Darden Industries, Inc., filed a treble damage suit<sup>40</sup> pursuant to Sections 4 and 5 of the Clayton Act<sup>41</sup> against Besser and Stearns. The case was based on the injury to the business and properties of the plaintiffs (Darden and Darden Industries, Inc.) by reason of the violations involved in the government action. After trial the court found for Darden to the extent of \$15,000 damages (trebled to \$45,000) and \$10,000 attorneys' fees.<sup>42</sup> In the findings of fact accompanying the judgment, the court found that Besser and Stearns had the objective of driving Darden out of the

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<sup>39</sup> See p. 118 *infra*.

<sup>40</sup> Civil Action 11, 765 (E.D. Mich.).

<sup>41</sup> 15 U.S.C. 15, 16 (1954).

<sup>42</sup> Darden v. Besser, 147 F. Supp. 376 (E.D. Mich. 1957).

concrete block machine industry rather than only to protect their rights as patent licensees (FF 15) and that this intent was realized by:

1. Patent infringement suit brought by Gelbman and Andrus against Landis Concrete Products in New Jersey, a customer of Roy Darden, for which Besser Company and Stearns shared the expense (FF 19);

2. Refusal by Besser Company and Stearns to consent to a license under Gelbman patents to Darden (FF 20).

3. Advertisements by Stearns and Besser giving the impression to the trade that Besser and Stearns were licensed under the "basic patents" to vibration machines, and protected against infringement (FF 21, 22);

4. Inducing Link-Belt Company, the fabricator of the Darden machine, to discontinue supplying Darden (FF 24); and

5. Forcing Darden, in February 1947, to agree to a restrictive licensing arrangement permitting the further sale of only a limited number of machines (FF 25).

The pressure brought to bear upon Link-Belt Company by Stearns and Besser was emphasized by Darden in the treble damage action. On February 18, 1947, Besser, Stark (patent attorney for Besser Company) and Olsen (then president of Stearns) called on the president and other officials of Link-Belt in Chicago (FF 24). They notified Link-Belt of the suit against the Darden customer on the Gelbman patents, and of the claim of patent infringement against Darden. The president of Link-Belt decided that Link-Belt should discontinue supplying the Darden machines, and so notified the Atlanta plant, which thereupon notified Darden.

Within a few days of the action of Link-Belt, Darden brought his suit in Chicago against Gelbman, Olsen, and Besser, all of whom were then in Chicago for a trade show.<sup>43</sup> A preliminary agreement giving Darden a limited license was executed in Chicago on February 20, and the final agreement was executed on February 20, 1947.

The Darden license agreement as finally executed authorized the sale of not more than 30 Rockercrrete machines and five Warren 800 machines (FF 28). It also required Darden to dismiss the unfair competition action brought by him against Gelbman, Olsen and Besser. Darden actually sold 16 out of the 30 Rockercrrete machines permitted by the license agreement. The five Warren 800 machines were sold by 1951 (FF 28).

The following tabulations give the net sales and net profits figures for the three concerns involved in the Darden treble damage action:

	NET SALES (DARDEN EX. 163)		
	<i>Darden</i>	<i>Besser</i>	<i>Stearns</i>
Feb. 1, 1946 to Jan. 31, 1947	\$282,756.06	\$ 6,354,401.79	\$ 2,981,617.04
Feb. 1, 1947 to Jan. 31, 1948	144,785.79	9,850,952.26	3,065,599.10
Feb. 1, 1947 to May 31, 1952	515,110.51	30,616,605.34	11,110,751.72

<sup>43</sup> No. 47 S 2844, Superior Court of Cook County, Illinois, filed Feb. 19, 1947.



	NET PROFIT (DARDEN EX. 164)		
	<i>Darden</i>	<i>Besser</i>	<i>Stearns</i>
Feb. 1, 1946 to Jan. 31, 1947	\$ 51,313.22	\$ 1,586,911.68	\$ 528,498.87
Feb. 1, 1947 to Jan. 31, 1948	2,084.71	3,067,923.92	517,213.91
Feb. 1, 1947 to May 31, 1952	6,614.68	6,674,176.63	1,371,283.19

Conflicting conclusions can be drawn from the Darden experience. One is that the effect of the patent infringement threat, the patent suit, and cutting off Darden's supply of machines in early 1947, was to arrest a growth of business that Darden would have otherwise enjoyed. On this theory, the subsequent growth of Besser sales in the years 1947-1952 is a measure of the size that Darden would have reached, had the threats not been made. This theory was applied in effect by Darden in the treble damage suit, for the measure of damages sought was based on several formulas that in effect projected the Darden 1947 sales as a percentage of Besser's sales into the 1947-1952 period and thus reflected the Besser sales experience.

Another and opposed conclusion that can be drawn is that Darden's actual performance showed that factors other than the activities of the defendants were responsible for Darden's loss of sales. With respect to the Rockercrete machines, Darden had the license right to sell 30, and only sold 16. With respect to the Warren 800, Darden had the right to sell five in early 1947, but it was 1951 before all five had been sold. If this sales experience accurately represented Darden's capabilities in terms of sales the conclusion follows that the activities of Besser and Stearns had little effect in reducing Darden's actual sales in the 1947-1952 period. The judgment in the treble damage case—awarding \$15,000 as actual damages<sup>44</sup>—appears to be based on this theory.

It should be noted that a variety of considerations other than the inability to sell machines may account for Darden's failure to sell the Rockercrete and Warren 800 machines more effectively. Once Darden had signed the 1947 license agreement, his customers were on notice that the number of machines available from him would be limited. Thus the customers had every reason to believe that the machines would more or less become "orphans," for which repair parts and service facilities might well become unavailable. The agreement of 1947 reserved to Darden the right to make repairs on machines sold. Nevertheless once Darden's quota was sold Darden's business interest in this direction was necessarily limited. Moreover, Darden was placed in a position where substantial investments of a long-term character in the machines were not sound. Advertising, particularly, was unwarranted when it was evident that once the allotted number of machines was sold it would be impossible to benefit further from advertising.

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<sup>44</sup> Actual damages based on Darden's computations would have been between \$195,593.44 and \$267,028.83.

The experience with the Darden license—where the sales did not reach the numbers permitted by the license—should be compared with the experience with the Sylvania license involved in the *Cellophane* case [United States v. E. I. du Pont de Nemours & Co., 118 F. Supp. 41 (D. Del. 1953), *aff'd* 351 U.S. 377 (1956)]. In the *Cellophane* case Du Pont had licensed Sylvania to manufacture moisture-proof cellophane and—for part of the period in question—the license provided for a steeply rising royalty rate for sales in excess of a fixed proportion of the Du Pont sales. Sylvania never approached the sales figures that would have brought the increased royalty rates into effect.

While there is room for diversity of opinion as to the amount of business Darden would actually have done, absent the tactics of Besser and Stearns, all indications are that within the period here under study it was most unlikely that Darden would become a substantial competitor to Besser Company and Stearns. Darden did successfully sell machines in the period immediately following the war, when Besser Company and Stearns were some 18 months behind in deliveries. There was a shortage of machine production facilities, and the concrete block manufacturers sought machines on nearly any terms. Darden had no manufacturing facilities, and was confined to a single office. To be sure, it is possible that Darden—left alone—could have built up a business rivaling Besser and Stearns from this start. But for him to have done so in a sharply declining market and during a period when numerous other new firms in the industry were unable to survive, is at least highly unlikely. Darden's actual experience, even after taking into account the problem of "orphan" machines and lack of incentive to press sales, lends some support to this conclusion.

BERGEN MACHINE & TOOL COMPANY, INC.

Bergen was founded in 1946 by John Pitha, of Nuttley, New Jersey. Until 1951 Bergen confined its activities to the manufacture and sale of repair parts for Besser machines. In 1951 Bergen began the manufacture of complete block making machines. Currently Bergen also manufactures skip hoists, cement mixers, pallet scrapers, and other auxiliary equipment. In addition, Bergen sells block machine parts to other block machine manufacturers, such as Oswalt and GoCorp.

The Bergen facilities include a 1900 vintage house converted into offices and a rather modern factory building of about 90,000 square feet. Bergen employs about 175 people, of whom about five are engineers devoting time to machine improvement. Bergen employs about 10 salesmen located in various areas in the United States, a number that should be contrasted with about 10 times that number of Besser salesmen. About 25 per cent of the current Bergen business is in block making machines and associated equipment.

Bergen is now selling about 14 machines a year.

The Bergen machine has a capacity of 1,000 blocks per hour, is priced at about \$40,000 (as compared with the Besser price of about \$55,000), and weighs about 13 tons (as compared with the weight of about nine tons for the comparable Stearns machine). As first manufactured in 1951, the Bergen machine was very similar to the Besser machine as then made—a similarity to be expected in view of the availability of the repair parts for the Besser machines. Since that time the Besser and Bergen designs have diverged to some extent, although the basic machine design remains the same in each instance.<sup>45</sup>

The Bergen management considers that its machine now departs substantially from the Besser machine, particularly with respect to the off bearer hoist, the front pallet feeder, and the block height and density control. As to all of these the

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<sup>45</sup> For a comparison of the current-model Besser and Bergen machines see figures 1 and 2, p. 116 *infra*.

management regards them as significant original developments of Bergen. Others in the industry take a contrary view and classify these as items for which Bergen at most did some application engineering to adapt the mechanisms to its machine. A balanced appraisal of the situation supports the view that the Bergen contribution is very limited. In the case of the hoist, Bergen manufactures under license Otto Ladwig & Sons, owner of Ladwig patent 2,397,271. The drawing of the Ladwig patent differs from the construction of the Bergen hoist only with respect to dimensions and details. The Bergen front pallet feeder and the block height and density control each are apparently modeled after other designs on the market, particularly those used by Besser.

The management of Bergen believes that the antitrust decree made possible the entry of the company into the machine business. However, at the present time the company considers itself not dependent on the compulsory license provisions of the decree and believes itself fully capable of resisting any claims of patent infringement that are considered unjustified.

There are indications that Bergen is currently taking an aggressive attitude with respect to its machine manufacture. The off-bearer, front pallet feeder, and block height and density control—even if discounted in terms of original developments—show some willingness to undertake machine design. The company also advertises considerably, and at the February 1957 trade show Bergen had prime display space and a full machine on display. The Bergen management considers the company to be the chief competitor to Besser today.

Inquiries elsewhere in the industry, however, lead to a less expansive evaluation of Bergen than the above paragraph suggests. These sources point to the relatively low volume of production by Bergen, its adherence to the basic Besser machine design, and the limited original design in the new products such as the Bergen off-bearer. To them, the prospect is that Bergen will never rival Besser or Stearns in either sales volume or other activity.

It is doubtful that the position of Bergen is as strong as its management feels, or as weak as the detractors assert. A balanced evaluation of the situation suggests that the Bergen business volume is likely to increase and that from time to time the company will make significant progress. For example, the Ladwig type hoist manufactured by Bergen has some inherent advantages over the Besser hoist, and has replaced the Besser hoist in some installations. Whether Bergen will ever become a significant third force in the industry—rivaling Besser and Stearns—is conjectural. It seems clear, however, that the company definitely has the potential of becoming such a concern and that the company is growing at the present time.

#### OSWALT ENGINEERING SERVICE CORPORATION

George Oswalt, the founder of Oswalt Engineering Service Corporation, has been in the concrete block making business since 1922.<sup>46</sup> He did not, however, engage in block making machine activities until 1948. His activity in this connec-

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<sup>46</sup> For a discussion of Oswalt, see *Pit & Quarry*, Nov. 1952, p. 233.

tion was the result of experiments made in the early 1940's, when he made considerable improvements on the quality and quantity of blocks made in his plant. Oswalt freely gave the information involved to other block manufacturers, but requests were made for him to make the actual machine changes on a service basis rather than simply explain those changes. To meet this demand, Oswalt formed Engineering Services Corporation in 1948. It was composed of a group of field engineers who aided block manufacturers in the planning of plants and the servicing of machines.

One of the features of Engineering Services Corporation was the application of the principle of compaction known as "Synchronized Dual Vibration." This principle was directed towards obviating the problem Oswalt considered to exist in a machine of the Besser type, where vibration is accomplished by two separate motors, each driving weights on its side of the mold. Oswalt sought to provide vibrations of the two sides in unison by releasing the motor brakes prior to each vibration cycle. The principle was said to make possible a 50 per cent increase in production.<sup>47</sup> A patent application was filed by Oswalt, and patent 2,651,827 issued on September 15, 1953.<sup>48</sup> Besser and Bergen used the Oswalt vibration mechanism for a period of time after the antitrust suit but later discontinued.

Oswalt also developed a height density control in 1948, but did not commercialize it because of fear of a patent infringement suit by Besser on the Wellnitz patent.<sup>49</sup> Oswalt considers that he was not infringing but did not feel that he had the money to find out.

After the compulsory licensing decree, Oswalt Engineering Service Corporation proceeded to manufacture machines. This company makes and sells machines as well as components and accessories. The machine is based on the Besser machine design. Initially the machine was essentially the current Besser machine design. Like Bergen's machine, it has been altered from time to time so that at the present time it embodies a greater departure from the Besser construction. The basic design, however, remains the same.<sup>50</sup>

The Oswalt plant is about 100 feet by 46 feet, with offices on the second floor. From 10 to 15 people are employed, of whom four are field engineers who install and service the machines. Oswalt does essentially no parts manufacture, and confines its activity to assembling the parts to form the machine. Many of the parts are purchased from Bergen.

With respect to the height density controls, Oswalt has taken a license from Besser under the compulsory licensing decree. It has manufactured 50 to 60 units for installation on existing block making machines. Oswalt also has a license from Besser under other patents.

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<sup>47</sup> *Ibid.* and *Pit & Quarry*, April 1951, p. 174.

<sup>48</sup> Filed Feb. 27, 1948, entitled "Vibrating Mechanism."

<sup>49</sup> See p. 125 *infra*.

<sup>50</sup> Currently, about \$5,000 worth of parts are purchased from Bergen for each machine. Since these parts are almost all also replacement parts for the Besser machines—and are the parts (such as cams and molds) least suitable for local manufacture, the similarity of the Oswalt operating elements with those of the Besser and Bergen machines is necessarily quite close.

The Oswalt machine has a capacity from 1,000 to 1,250 blocks per hour. It sells for about \$36,500—about \$18,000 under the Besser price. At the present time Oswalt anticipates a production of about 24 machines per year for the next few years. This rate, however, seems unduly optimistic in view of the fact that the 17th machine was being completed on March 19, 1957.

Oswalt points to a number of improvements in the machine which it considers to be based on its efforts. These include a shock-free block ejector, a front pallet feeder, an improved feed drawer control, and a pallet cleaner and oiler. The Oswalt management considers that it is doing too much design improvement in relation to the company size. It considers that the expense of patenting most of its changes is not justified, and as to these relies on the value of being "first in" with the change for its commercial return. The company does patent changes deemed significant.<sup>51</sup>

There is little reason to anticipate that Oswalt will become a major concern in the concrete block machine business in the foreseeable future. The optimistic predictions of its management as to future sales volume seem highly unlikely for an organization without a substantial production plant, no employed salesmen, with limited engineering design facilities, and selling in what is now a limited market.

Although the current situation with Oswalt is not encouraging, rapid changes might take place. One would be an expansion of the Oswalt production facilities and the manufacture by Oswalt of parts now purchased from Bergen and elsewhere. Another—suggested by Oswalt's intense interest in machine improvement—would be an important new development giving the Oswalt machines a substantial competitive advantage over those of Besser and Stearns. Absent some change of this kind, however, it appears very unlikely that Oswalt will become a more substantial competitor.

#### COLUMBIA MACHINE CORPORATION

Columbia considers itself in direct competition with Besser and Stearns. Members of the industry, however, consider Columbia to be only in indirect competition with Besser since it is a producer of small- and medium-size block machines (capacity 2,000 to 6,000 blocks/day). The firm was not an object of the tactics that led to the antitrust suit and has never been involved in patent litigation with any member of the industry. Columbia and Lith-I-Bar are considered to be the leaders in the small and medium machine markets.

Columbia Machine Corporation was formed in 1945 and had previously been an unincorporated business owned solely by Fred Neth, now president of Columbia. He has been in the business since 1937, doing machinery building and general repair work prior to beginning concrete block machinery manufacture in 1945. In approximately 1951 the company moved from 105 Main Street, Vancouver, Washington, to 107 South Grand Street. At this time the company had available about 20,000 square feet of floor space and an announced capacity of 8 to 10 machines a month.<sup>52</sup> Machines manufactured by Columbia are sold throughout the world.

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<sup>51</sup> *E.g.*, patent 2,651,827, filed Feb. 27, 1948, entitled "Vibrating Mechanism"; patent 2,652,142, filed April 4, 1950, entitled "Endless Chain and Means for Making Same"; and patent 2,695,523, filed Mar. 30, 1948, entitled "Vibrating Mechanism."

<sup>52</sup> See *Pit & Quarry*, Oct. 1951, p. 147.

The growth of Columbia Machine Corporation is set forth in the advertisement appearing in the January 1956 *Concrete Manufacturer*. It is also revealed by the depositions of Messrs. Fred Neth, Otto Neth and Walter Neth, on February 27, 1956, in *Darden v. Besser*.<sup>53</sup>

Columbia Machine Corporation manufactures eight types of machines (Model 8, 12" high, automatic; Model 10, 8" high; Model 10, 12" high; Model 12, 8" high; Model 12, 12" high; Model 8, semi-automatic; Model 8 automatic). All use vibration. All but the Model 8, Basic and the Model 8 Semi are fully automatic. The Basic requires an operator to operate the machine and handle the empty pallet after the block is made; the Semi requires an operator for the machine but the pallets are handled automatically; the others are automatic in every respect. The Basic makes two or three pallets a minute; the Semi, about four pallets a minute; and the completely automatic, five pallets a minute. There is a limited market for the Basic, primarily to get plants started. Columbia also manufactures auxiliary equipment to the block machines so as to create a single source of supply for the block manufacturer. These include batch mixers.

Columbia Machine maintains 12 branch offices (Wisconsin, Illinois, South Carolina, Florida, New Jersey, Mississippi, Virginia, California, Massachusetts, Texas, Ontario, and British Columbia). Manufacturer's representatives are used to make sales elsewhere. There are approximately five service personnel in Vancouver; representatives maintain their own service. Sales prices are from \$7,000 to \$30,000. The Semi sells for \$8,000; Model 8 brings from \$10,000-\$13,000; Model 10, \$12,000-\$14,000; and the Model 12 from \$20,000-\$30,000. The prices vary with attachments that accompany the machines.

Four or five years ago Columbia was contacted by Besser and Gelbman with regard to patents. Gelbman and Stark at one time looked over the Columbia machine at a display in Cleveland (Darden R. 34,35). They asked if Columbia had checked the various patents—Columbia did so and concluded it was not infringing and hence continued to operate. Columbia was never sued.

In 1945 Columbia sold two or three machines. Sales have gradually increased since that date to the current sales volume of over 100 machines per year (Darden R. 29). Neth testified that Columbia is among the top three block machine manufacturers in the United States (Darden R. 26). All indications are that in terms of dollar volume this is an entirely accurate statement, although the significance of the company in relation to the large machine market is limited by the fact that it produces only small- and medium-sized machines. Columbia employs approximately 200 people.

Columbia advertizes quite heavily in trade magazines. For example, in the September 1956 issue of *Concrete Products* Columbia placed four pages of advertising and in the October issue of the same year placed three pages. Only Besser surpassed this volume of advertising—and all other firms limited advertising to one page or less. At the February 1957 trade show, however, Columbia had a very modest display.

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<sup>53</sup> 147 F. Supp. 376 (E.D. Mich. 1957).

In September 1956 Presto Block Machine Corporation announced a concrete block known as "Presto Block." This type block consists of a pair of relatively thin concrete slabs spaced by steel ties. In one form of this block, mating tongues and grooves on the top, bottom, and ends of these blocks serve to key them in place to form a cohesive wall without reliance upon mortar. Advantages of this type block are said to lie in the absence of a masonry bond between the inner and outer walls, thus reducing heat conduction and permitting the placement of plumbing and wiring with less difficulty than with conventional block walls. The promoters of this block are a New York group that apparently had no initial connection with any block manufacturer. Columbia Machine Company has manufactured the machines by which the Presto Blocks are formed.<sup>54</sup>

Columbia is a major concern in the concrete block machine business. Its importance to this study is only limited by its failure to make a large-sized machine. Columbia has a substantial manufacturing plant, sales force, and servicing and supply facility. It exercises independence in connection with machine designs. Its sales volume appears adequate to support its activities and to justify an aggressive sales and machine design policy. It is regarded by industry personnel as the coming concern in the industry. It is considered that there is an excellent chance that Columbia will ultimately enter the large machine market to become a direct competitor to Besser and Stearns. When Columbia does this it is probable that the Columbia competition will be much more important to Besser and Stearns than that of the other concerns now making large-sized machines.

Columbia owes its origin to the postwar seller's market in concrete block machines. It was not affected by the activities that were the focus of the antitrust proceedings, and has not relied upon the compulsory licensing decree.

#### LITH-I-BAR

Lith-I-Bar makes machines having a top capacity of about 700 blocks per hour, and hence is not presently in direct competition with Besser, Stearns, Bergen, GoCorp, and Oswalt. Lith-I-Bar is nevertheless of considerable importance to the present study because it was the manufacturer of the machine accused as an infringement of the Gelbman patents and the Scott patent in the *Whitman* case,<sup>55</sup> and was the subject of considerable testimony in the antitrust proceedings.

The Lith-I-Bar Company was incorporated in Michigan in 1930. In the immediate postwar years, the company was run by Frank A. Milewski and manufactured the machine designed by Samuelson.<sup>56</sup> Manufacture of this machine continued during the pendency of the antitrust and the patent suits, the latter of which resulted in a judgment of noninfringement and patent invalidity that vindicated Milewski's position that there was no valid patent claim.

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<sup>54</sup> On Presto Blocks, see *Concrete Products*, Sept. 1956, pp. 159, 166-7, and *Modern Concrete*, June 1957, p. 11.

<sup>55</sup> *Andrus v. Whitman*, 93 F. Supp. 383 (E.D. Mich. 1950); *Whitman v. Andrus*, 194 F.2d 270 (6th Cir. 1952); *cert. denied* 344 U.S. 871 (1952).

<sup>56</sup> See p. 124 *infra*.

Frank Milewski died on August 12, 1951, after which time his son succeeded to the management of the business. The son died shortly thereafter, at which time the business was purchased by a group. Mr. Leonard O. Zick purchased their interests in February 1957 and is now president.

The Lith-I-Bar plant is located in Holland, Michigan. It is a converted sugar factory covering an area of about 90,000 square feet. In 1956 Lith-I-Bar employed about 70 people, of whom six were engineers. Manufacture includes skip hoists, block splitters, cement mixers, a reinforced joist making machine, and block machines.

An assessment of the future prospects for Lith-I-Bar demands a considerable degree of speculation. The present management, while aggressive, has been running the company less than a year and is the fourth management since 1951. Reports have been made of extensive and unsuccessful efforts to sell the company prior to the purchase by the present owners. All that can be said at the present moment is that the company is not now a major competitor to Besser and Stearns and that substantial change will be required before the company will assume a more important position in this respect.

#### W. E. DUNN MANUFACTURING COMPANY

This firm is not and never has been a large factor in the concrete block machine industry.<sup>57</sup> The firm had no relation to the antitrust suit or to the patent infringement suit. Dunn was interviewed during the summer 1956 and is important to this study only to the extent that it is a representative small machine manufacturer.

W. E. Dunn Manufacturing Company has been in the concrete business since 1903 and manufactures drain tile for sewerage purposes, several types of brick facings, brick making machines, and the block making machines. The latter consists of only 5 per cent of Dunn's endeavor. The reason that was given for this is that the market is saturated today for small machines. This company does not consider itself in competition with Besser because its specialty is service to small contractors. The three machines that are produced reflect this policy:

- a) 500-1200 block per day machine for \$2,815
- b) 1600-2900 block per day machine for \$5,910
- c) 3500-5000 block per day machine for \$10,860

The company has directed its energy into the other areas and seems to be quite satisfied in selling a handful of machines a year. It also manufactures the auxiliary equipment for the block machines, again because of consumer demand.

The Dunn management believes that the industry is old as far as the machines go and, consequently, is not devoting any time to patents. Dunn is, however, doing development work to improve the product. The management considers the patent system artificial and that a myth has been built up in the public mind about it. For the latter reason, Dunn does patent. If there were no legal protection, Dunn states that it would still go ahead with development, relying upon the length of time it has

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<sup>57</sup> Frank E. Milewski was sales manager for Dunn prior to becoming president of Lith-I-Bar in 1945.



been in business and the know-how that has been accumulated by the firm to recoup the expense.

Besser Company was given as an example of how patents are unimportant. Even though there was compulsory licensing of patents five years ago, Besser is still the leader of its own peculiar market. The Dunn Company was never bothered by Besser previous to the suit. Neither the compulsory licensing provisions nor the declaration of patent invalidity was of benefit to Dunn because (1) the Dunn machine is not considered to infringe any patents and (2) Dunn could eliminate block machine manufacture at a moment and not be adversely affected, whereas other firms rely heavily upon marketing the machines.

The Dunn plant is of modern construction and quite spacious. It occupies about 100,000 square feet. The offices are extensive, with 25 to 50 office personnel.

#### KENT MACHINE COMPANY<sup>58</sup>

Kent Machine Company is situated in Cuyahoga Falls, Ohio. The firm was founded in 1902 and originally manufactured concrete building units. In 1907 it embarked upon block machinery manufacture, its first production item being a ready-mixed concrete mixer that provided proper proportions of mix automatically. By 1951 the Kent plant encompassed 60,000 square feet of floor space and employed 90 people. The firm produces batch mixers, tamping and vibration block machines, Lintellators<sup>59</sup> and materials handling equipment such as aggregate elevators and aggregate funders.

Kent fabricates two types of block machines. The Kent Standard is an automatic-cycled, push button-controlled combination pressure head-vibrating block machine. Three sizes of blocks can be produced on this machine (4"x8"x16"; 6"x8"x16"; and 8"x8"x16") and the mold boxes can be fitted to any type pallet. One cycle is completed in 10 seconds, two blocks being formed during this time. This amounts to a machine capacity of 3,000 to 5,000 blocks per day.

The other machine is labelled the Kent Stripper and employs a cam and crank mechanism that produces a speed of block ejection much lower during the initial portion of the ejection cycle than at the completion, thus allowing the block to be removed gently from the mold to prevent damage.

Kent was not involved in either the patent or antitrust litigation nor was it threatened with patent infringement suits by any member of the industry. The company operates within the medium block machine market but apparently emphasizes manufacture of auxiliary equipment used in conjunction with the block machines. It is significant that the firm has been in business concurrently with Besser since the turn of the century but never posed a real threat to the economic position of Besser.<sup>60</sup>

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<sup>58</sup> See "Kent Machine Co. Outgrowth of Block Producers' Need for Labor Saving Devices," *Pit & Quarry*, June 1951, p. 143.

<sup>59</sup> A machine that forms lintels from concrete mix.

<sup>60</sup> For further information on Kent, see its advertisements which appear in the April, May, July and Aug. 1956 issues of *Rock Products*.

BERNARD AND STEPHEN FLAM<sup>61</sup>

It will be recalled that Besser bought a number of patents from Stephen Flam of Van Nuys, California, in 1948, and that in 1949 Besser bought the patent interests of Flam's son, Bernard. In each instance a covenant not to compete formed a part of the purchase transaction, and this covenant formed one focus of the government charges relating to attempts to monopolize and monopolization by Besser. Stephen Flam died on April 10, 1951.<sup>62</sup> His son Bernard is living and is presently engaged in the manufacture of concrete blocks under the name of True-Cast Concrete Products Company in Sun Valley, California. The covenant not to compete ends April 1, 1959. Bernard Flam believes that he should live up to his side of the bargain because Besser had paid for the patent assignments and the covenant not to compete. In this respect, the antitrust decree is ineffective because Flam thinks that honor transcends whatever legal rights were created as a result of the antitrust suit.

In anticipation of re-entering the block machine industry Flam is doing considerable research and development, but is not commercializing the results out of respect to the Besser agreement. Before this agreement was entered into, Bernard Flam had been producing block machines of small capacity—2,000 blocks per day—and sold a comparatively small quantity. It is not known what capacity machines Flam is developing nor what market he plans to serve. Competitively, Flam is unimportant today but could become a significant force after 1959.

Flam believes that the building boom in the early and middle 1950's stimulated the block machine industry much more than the antitrust decree. He considers that the decree was primarily effective in facilitating entry into the industry. He makes the latter judgment on the basis of advertisement in the trade journals to which he subscribes and on Besser's earlier policy of patent infringement threats to potential entrants. The Gelbman and Andrus patents on the vibrating block machine were thought by Flam to be invalid before the patent infringement suit. He considered that the cost of defense was prohibitive to one entering the industry. Consequently, even though the patents offered Besser no protection in a strict legal sense, the cost of defending an infringement suit by an entrant was eliminated by the compulsory licensing provision of the decree.

On patents, Flam indicates that a condition to validity of a patent today is that the invention must be basic—considerably more basic than is likely to be developed in the block machine industry with the present saturated prior art. He has filed no patent applications since the covenant not to but thinks that designers and inventors of specific new combinations should be given patent protection for what they have invented, even though the protection is not basic.

Flam today manufactures specialty concrete products—curb stones, stepping stones, ornamental garden blocks, etc. His sales volume is presently about \$500,000 per year and has been steadily increasing since entry into the business in 1949 or 1950.

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<sup>61</sup> The authors are indebted to Warren Jessup, Esq., for much of the information here reported.

<sup>62</sup> *Pit & Quarry*, May 1951, p. 218.

Except for the comment that Besser and Columbia now share the greater portion of the block machine market, Flam had no comments as to the effect of the antitrust decree. He has not been in very close touch with the industry since 1949 and has limited interest in it.

#### BLOCK MANUFACTURERS

A few words should be said about the concrete block manufacturers. At the present time there are block making plants of varying sizes serving the various market areas. A great many of these plants are quite large and represent substantial investments and substantial annual sales dollar volume. To name a few of the large plants picked at random from the recent trade journals, we may list Price Brothers of Dayton, Ohio, (2,500,000 blocks per year);<sup>63</sup> Products Dunbrik, Port-au-Prince, Haiti, (1,800,000 blocks per year);<sup>64</sup> and Superlite Builder's Supply Company of Phoenix, Arizona, (45,000,000 blocks per year and said to be the world's largest block maker).<sup>65</sup>

An illustration of a substantial, but not unusually large, block making plant is found in the plant owned until recently by George Oswalt. This plant is located in Broadview, a suburb of Chicago, occupies an area approximately that of a large city block, and uses two Oswalt machines, together with mixers, skip hoists, and block curing equipment as required to handle the output of these machines. Block handling is entirely by machine, with a crew of about five men required to operate each machine and handle its block output. This plant was sold in 1956 to Illinois Brick Company for the sum of \$500,000.

An unusual block making enterprise is found in Texas Industries, Inc., incorporated on April 19, 1951. Its principal place of business is in Dallas, Texas, and shortly after incorporation either wholly owned or partially owned 12 subsidiaries.<sup>66</sup> Of these, four were engaged in processing lightweight Haydite aggregate and eight were engaged in the manufacture of Texcrete masonry units. Haydite is a lightweight aggregate that is made by fusing clay and shale in rotary kilns. The mixture is thereafter cooled, crushed, and screened. The resulting product is permeated with thousands of minute air cells, thus making it 40 per cent lighter than stone aggregate but capable of producing concrete blocks of equal strength. The Haydite is mixed with other materials in a cement mixture and supplied to the block machine in the same fashion as stone aggregate to make Texcrete block.

By 1956, Texas Industries, Inc., had expanded to 12 wholly owned subsidiaries, nine partially owned and three affiliates. This group operates 32 plants in Texas, Louisiana, Oklahoma, Kansas, and California.<sup>67</sup> Of those engaged in concrete product manufacture, there are seven Haydite plants using 15 kilns, five sand and gravel plants, seven ready-mixed concrete plants and nine masonry products plants.

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<sup>63</sup> *Concrete Products*, June 1956, p. 221.

<sup>64</sup> *Concrete Products*, Mar. 1956, p. 179.

<sup>65</sup> *Concrete Products*, Mar. 1956, p. 186-7.

<sup>66</sup> "Texas Industries—New Dallas Corporation—Installed in Unique Home Office," *Pit & Quarry*, Oct. 1951, p. 149.

<sup>67</sup> *Poors Industrials* (1956).

The latter manufacture lintels, blocks, joists, and concrete and metal pipe. In 1951, the capacity for the aggregate plants was 400,000 cubic yards per year; the capacity of the block plants was 10 million blocks per year. Total assets in 1951 equaled \$2,500,000.<sup>68</sup> By 1956, block production had increased to 25 million units.<sup>69</sup>

The parent company reported in 1952 that for the nine-month period ending on February 29, 1952, there was a 96.6 per cent gain in gross sales and a 168.9 per cent gain in net profits after taxes.<sup>70</sup>

By 1956, the parent company and its subsidiaries employed 900 people and had 873 common stock shareholders with 10,000 shares of no par common outstanding. The group has continued to expand since its inception in 1951. For example, in 1954 the net profit was \$296,629; in 1955 it rose to \$623,974; in 1954 gross sales totalled \$7,341,458; in 1955 they climbed to \$9,897,505.

Texas Industries manufactures "Holiday Hill" stone which is advertised as a colored concrete stone made by conventional block machines.<sup>71</sup> It is patented and is licensed to concrete block manufacturers on an exclusive territorial basis. Significantly the product was developed by one Burrey and one Felder of San Antonio, Texas, who are not block machine manufacturers.

Today the concrete block manufacturers make blocks having a wide variety of shapes and sizes. Considerable attention is directed to application of prestressed concrete techniques to the manufacture of beams for lintels and other applications.<sup>72</sup> Another trend of some interest is that of making blocks suitable for installation as "split block" having appearance somewhat similar to that of natural unpolished stone.

### CHAPTER 3

#### CONCLUSIONS ON THE EFFECTS OF CONCRETE BLOCK MACHINE DECREES

Two events in the concrete block making machine industry are of particular importance to a consideration of the antitrust decrees and their effects. One of these is the change from the tamping type machine to the vibration type machine. This began prior to World War II and was the established trend when production of machines was resumed after the war. The other event was the striking increase in volume of concrete blocks manufactured in the immediate postwar period, with the attendant demand for machines. Both of these events posed threats to the position of Besser Manufacturing Company as leader in the industry, and it was the response of Besser to these threats that was largely responsible for the antitrust charges.

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<sup>68</sup> See note 46, *supra*.

<sup>69</sup> *Pit & Quarry*, July 1956, p. 296.

<sup>70</sup> *Pit & Quarry*, June 1952, p. 153.

<sup>71</sup> The product is described in detail in *Pit & Quarry*, July 1956, p. 318.

<sup>72</sup> Persons, "Casting Long-Space Prestressed Concrete Slabs," *Concrete Products*, Mar. 1956, p. 149.

In thus emphasizing these rather recent developments, however, it should not be overlooked that the industry entered the postwar period after having gone through a long period during which Besser had been consolidating its position as industry leader. Besser was a pioneer firm in the industry, and with the plain pallet stripper type machine of 1926 it contributed an important technical development. There is also ample evidence that the company has been well managed and operated efficiently over a long period of years with the result that its market position would be impressive in any event.

The history of Besser prior to World War II, however, involves more than good management and pioneering in the plain pallet stripper machine development—for the company was ever alert for opportunities to purchase competitors, to purchase patent rights, and otherwise to forestall the emergence and growth of competitive enterprise. An early example is the purchase of Consolidated Concrete Machinery Corporation in 1931—when Consolidated sales rivaled Besser's in volume and may even have exceeded the Besser sales. Similarly in 1936 Besser purchased the block making machine business of Industrial Brownhoist, another major competitor of the time. And in 1938 Besser purchased exclusive rights to the block making machine patents and patent applications of Stephen Flam of California. Thus by a process of good business management and purchases from competitors Besser had, on the eve of World War II, an established position as leader of the industry.

The vibration type machine just prior to the war and the postwar competitive situation presented Besser with serious threats to the position it had attained during earlier years.

The application of vibration to concrete products in general and to building blocks in particular has a long history. Besser unquestionably was aware of the vibration principle long prior to the work of Gelbman. Nevertheless, Besser had little to do with the development and introduction of this type machine. Indeed, at the patent trial Besser himself quite candidly admitted that he learned effective application of vibration from Gelbman. Nor did Besser promote the technique. Rather, it was Stearns that entered into the exclusive license agreement with Gelbman and Andrus in 1936 and it was Stearns that undertook the first commercial manufacture of the machines in 1939. It was only after Stearns had proved the machine successful that Besser entered into the manufacture of vibration type machines. This precipitated the suit against Besser's customer, Bell, in 1942. When Besser won the district court decision in that case, it enjoyed a strong bargaining position that made possible the Besser, Stearns, Gelbman and Andrus patent license agreement that brought Besser under the existing and future Gelbman patents and at the same time placed Besser in a position to gain from the enforcement of these patents against other competitors.

Had Besser lost the Bell suit, there is reason to believe that the development of the industry would have taken a different turn and that Stearns would have emerged as a stronger competitor to Besser by reason of its exploitation of the new technique. As it was, the efforts of Stearns in conjunction with Gelbman led to the equivocal situation where the leading concern in the industry had a formidable bargaining position with respect to the license.

The competitors that concerned Besser in the immediate postwar period were largely new entries into the field. Of this group, Lith-I-Bar and Darden were conspicuous. At the time, these concerns could offer more favorable delivery dates and lower prices than could Besser. A substantial number of these concerns could trace their activity to concrete block manufacture—a principal source of both development and competitive machine manufacture throughout the history of the industry. The Besser Company was able to take advantage of its position as a licensee under the Gelbman patents to secure the assertion of these patents against the newcomers. In addition, its purchase of the Scott patent in 1948 provided an additional basis for charges of patent infringement. In the case of Graveley, GoCorp, Lith-I-Bar, Darden and others, threats of patent infringement action were made against the manufacturers themselves and against their customers. In the case of Lith-I-Bar and Darden, suits were filed—but against the customers and not the manufacturers. Darden was finally brought to terms by patent infringement threats directed against Link-Belt Company—the manufacturer of the machines sold by Darden and a company from whom both Besser and Stearns made substantial purchases.

In terms of throttling or at least delaying the growth of competitors, the patent infringement threats based on the Gelbman and Scott patents appear to have had some effect. However, the patent infringement suits that went to trial—the cases against Whitman, the Lith-I-Bar customer—resulted in a final judgment of the Court of Appeals for the Sixth Circuit holding all the patents invalid, not infringed, or both. Since the district court held the patents in part valid and infringed, it cannot be said that the suits were groundless or that the issue of patent validity and infringement was clear.

Patent infringement threats were not effective with respect to the competition of Stearns. As to the Gelbman patents Stearns was licensee and enforcement of these patents against other competitors probably helped Stearns more than it did Besser.<sup>1</sup> The Besser purchase of the Scott patent took place too late to be of any value as a threat against Stearns, even if it be assumed that Stearns would have been affected by such threat to it or its customers. By 1946 Stearns enjoyed about half the sales volume of Besser, and by increasing its capacity in a seller's market it could well have developed to a size equal to or larger than Besser. This fear, coupled with inability to take patent action against Stearns, appears to have prompted the Besser purchase of Stearns stock that led to acquisition of a controlling interest by 1948.

It is with this background that the events since the antitrust decree should be evaluated. The dominant over-all conclusion dictated by the record is that Besser overrated the extent competitors really would affect its competitive position. To be sure, it can be said that the first few years of the postwar period were crucial and that Besser succeeded during the only years such success was important. This conclusion, however, seems inconsistent with the experience of concerns such as

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<sup>1</sup> Stearns encouraged and participated to some extent in the activities of Besser Company in enforcing the Gelbman patents. The suit against Darden's customer, *e.g.*, was financed jointly by Besser Company and Stearns. The prime moving force in the patent threats, however, was Besser and—to the extent Stearns participated—it was through Olsen who resigned as president of Stearns in 1948.

GoCorp, Bergen, and Oswalt that have been selling in competition with Besser with only limited success over what is now a substantial period. Also, a number of firms have dropped out of the industry apart from any action by Besser. The great likelihood is that Besser misjudged its own ability to compete in the large-machine market and took the repressive measures by way of patent infringement threats, purchasing of competitors, and the Stearns stock purchase, in the mistaken belief that they were necessary to maintain its competitive position. In any event there is virtual unanimity in the industry today that the period since the antitrust decree has seen no decline of Besser in relation to competitors, and that the Besser market position is as strong if not stronger than it was prior to the decrees. Besser's sales volume is 60 to 70 per cent of the dollar volume of the large-type machines to which its present manufacture and sale is confined. At the present time Stearns appears to have a business volume of about one third that of Besser, and GoCorp and Bergen account for most of the remaining large machine sales. Oswalt sales are very small in relation to those of Besser and Stearns.

With these general observations, the following conclusions may be drawn with respect to the decree in the Besser case:

1. The Besser market position since World War II is based primarily on matters other than purchases of competitors, patent rights, patent infringement threats, or other activity that formed the focus of the anti-trust action. Besser appears to have greatly overestimated the real strength of its competitors and to have underestimated its own ability to maintain and increase its share of the market by means other than purchases and patent threats. Considerations of a going concern with extensive experience, a reliable machine, effective sales and servicing, and the limited importance of first cost of the machine, appear to be the basic reasons for the success of the Besser company. Accordingly, so long as the antitrust decree did not reach the existing business and going concern organization of Besser there could be no significant prospect that Besser's dominant position in the industry would be quickly disturbed. It might be added that the Department of Justice never sought relief by way of dissolution or divestiture. The decision of the Department in this respect seems completely justified by the practical difficulties with respect to such relief due to Besser's small size, highly integrated character, and the need of the block manufacturers for a continued source of machine supply.

2. This is not to suggest, however, that the tactics shown by the record in the Besser case were without effect in arresting the growth of competitors or that such tactics should be condoned. The Flam transactions removed the Flams from the block machine business. Darden was frozen out of the business by threats to Link-Belt. The Stearns stock purchase, coupled with other factors, effectively removed Stearns as an immediate rival to Besser in terms of size. Any antitrust judgment failing to foreclose repetition of tactics of this kind would be hopelessly inadequate. Moreover—though there is no evidence that the event has occurred to date—there is reason to believe that over a period of years competitors

will have opportunities to grow to size rivaling that of Besser. The medium-sized machine field is now occupied by a group of firms such as Columbia, Lith-I-Bar, and others that can readily move into the large-machine field when the opportunity presents. One immediately foreseeable event that may precipitate more activity by such firms in the large machine field is the retirement of Jesse H. Besser from the business—for he has exercised personal direction and control of the company over a long period of years, and a new management must fill the void he leaves.

3. The compulsory licensing decree provisions as to Besser Company have had no identifiable repressive effect on incentives for research and development and have been effective in encouraging the activities of competitors:

a) There is no evidence that the compulsory licensing decree provisions have significantly diminished any research and product improvement activity in which Besser would otherwise engage. The stripper type machine development of 1926 is the last significant technical development that can be credited to the Besser Company. The patent rights enjoyed by Besser Company since that date have been primarily based on purchases from outside inventors. The vibrator type machine development was pioneered by others and adopted by Besser only after its worth had been demonstrated. Machine development by Besser has been—and is—of the engineering improvement variety that does not appear to be dependent upon the exclusionary rights associated with normal patent enforcement. Finally, the time limitation of the compulsory licensing decree provision and the limitations as to its subject matter further confine the effects of this phase of the decree upon research and development.

b) The compulsory licensing decree provisions have encouraged the entrance of competitors to Besser primarily because of the very unusual status of Bergen and Oswalt. Bergen built up a business of making and selling repair parts for the Besser machines. In entering the machine business in 1951, Bergen's normal and usual course was to make a machine very similar to the Besser machines and thereby utilize its existing inventory and parts production facilities as well as its experience with the Besser type machine. Oswalt was in the business of supplying engineering services for the Besser machines, and had made some machines at the time of the decree. It too was in a position where it could capitalize upon experience and prior investment by making a machine very similar to the Besser machine. Both of these companies could have made their own distinctive machines that would have escaped any justifiable charges of patent infringement (as Stearns and GoCorp did)—and both do have competent engineering and legal counsel. Yet it is very doubtful that



they would have entered the business were such fresh design necessary. Indeed, there is evidence that Oswalt definitely held itself back because of the fear of patent action by Besser.

4. The importance of the activities of Bergen and Oswalt is, however, limited. Neither concern now is—or has been—a substantial competitor to either Besser Company or Stearns. The main interest of Bergen is in selling replacement parts for machines manufactured by Besser. Oswalt has neither the facilities nor the personnel to engage in large-scale block machine manufacture. While both of these concerns have made changes in the machines, and use accessories differing from those of Besser, each still retains the same basic machine design as that used by Besser at the time of the decrees. The principal prospect that one of these concerns will become a major competitor to Besser and Stearns lies in the chance that one or the other in the hands of an aggressive management and favorable economic conditions will exploit a market opportunity left open by Besser and Stearns.

The design, initial manufacture, testing, and marketing of a completely new concrete block making machine design (as distinguished from an accessory or an improvement on some specific portion of a machine) is a major task. Available records indicate that \$200,000 is a modest sum of money to invest in such a design. The more extensive the departure from existing techniques, the greater the required expenditure in a new design. This cost must be written off among the machines subsequently produced. Bergen's current sales volume of 14 machines per year<sup>2</sup>—and Oswalt's still smaller volume—do not appear to justify expenditure of this kind of money. Neither concern shows any current signs of undertaking such investment. So long as these concerns remain at about their present sales volume, it is unlikely that Bergen and Oswalt will compete other than in terms of price and such machine improvements as are compatible with the general design of the Besser machine at the time of the decrees.

5. Special conclusions apply with respect to the effect of the decree on Stearns. The participation of Stearns as a company in the 1942 license agreement with Besser Company, Gelbman, and Andrus—coupled with the activities of Stearns ex-president, Olsen—moved the Department of Justice to name Stearns as a defendant in the Government proceedings and to seek relief against Stearns. The theory appears to have been that without relief *via* the antitrust decree against Stearns, competition could not be restored to the concrete block making machine industry.

The government approach in this respect seems ill-advised. It seems to have placed too much emphasis upon the possibilities of creating an industry in which a great number of small manufacturers compete for the

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<sup>2</sup> Even a \$200,000 expenditure in a new machine design—which is believed to be minimal for any substantial change—would require amortization at about 7 per cent of the sales price of the Bergen machines to write off the expenditure in a five-year period.

limited business available and too little emphasis upon the value of Stearns as the major competitor to Besser. The writers do not discount the value of competition by the smaller concerns, but believe that as a practical matter—and with the state of the industry in 1949—there was little prospect of any possible antitrust decree giving rise to a large number of competing small manufacturers. It follows that the goal of the antitrust judgment should have been the more modest objective of prohibiting repetition of the repressive and anticompetitive practices of the past and creating a maximum stimulus to competition by Stearns.

The main reasons for Stearns' decline in competitive vigor after 1948 appear to be independent of the antitrust proceedings, namely the problem of redesigning the machines and getting them into production and the decrease in demand for concrete block making machines. Nevertheless the antitrust proceedings served to burden the Stearns management still further and to saddle the company with a continued drain on financial and managerial resources when it should have been most free to compete with the maximum vigor possible.

In the Supreme Court Besser argued that it should be treated in the same way as Stearns in the decree. The Department of Justice responded by obtaining an amendment to the decree to impose a like compulsory licensing provision effective as to Stearns. To be sure, no great harm appears to have been done by this provision to date. Yet a more selective attitude between Besser and Stearns in this connection would have been more consistent with the realities of what could have been accomplished. If it should happen that Stearns obtains an important patent that otherwise would enable it to press Besser Company harder, the present state of the decrees is such that Stearns would be forced to license Besser Company. Besser thus enjoys a degree of immunity as to technical improvement from the company most likely to make such improvement. The present indications that Besser Company is infringing one of the Stearns' patents suggests that this possibility is not entirely remote. If Stearns was to be subject to compulsory licensing at all, Besser should have been disqualified from obtaining such license.

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Over-all, the present study indicates that the Besser market position in 1949 was primarily the result of the numerous acquisitions of competing firms over a period of years coupled with the presence of a sound going concern, an established product, and an effective sales and servicing policy. Only to a secondary and limited extent was this market position in 1947 attributable to repressive measures against competitors, and specifically the tactics employed under the license agreement to the Gelbman patents that was emphasized so heavily by the Department of Justice. In proscribing repetition of the repressive measures—a phase of the antitrust decrees that has been wholly successful—the Government antitrust action accomplished an important result. While the compulsory licensing provisions of the decrees have

definitely encouraged the entrance of Bergen and Oswalt as competitors to Besser, neither of these concerns has seriously challenged Besser. In underestimating the practical importance of stimulating competition by Stearns, the antitrust proceedings appear to have done some harm to the company that could most effectively compete with Besser Company. At the present writing Stearns seems to be emerging from the period of difficulty that began in 1948. The present immediate prospect is one of an industry characterized by considerable competition between Besser Company and Stearns and considerably less important competition between each of these companies and GoCorp, Bergen, and Oswalt.

A prediction as to the future of the industry is in order. Stearns—with expansion into other fields, a recovery from the effects of its outdated machine design of 1947-9, and on the way to a resolution of the antitrust problems—is likely to become a stronger competitor to Besser Company as time passes. Besser Company—facing a major change of management upon the retirement of Jesse H. Besser—may face a period of changed policies, with the likelihood of some loss of sales volume in relation to Stearns. Based on performance to date, GoCorp, Darden, Bergen, and Oswalt do not appear likely to grow to a size comparable to either Besser or Stearns. At the same time, however, it seems probable that one of them—or a manufacturer of medium-sized machines—will undertake a major machine redesign (perhaps based on an important new principle) and establish itself as a third concern in the industry with sales volume comparable to Besser Company and Stearns, and with capacity to compete in machine improvement. It is felt, however, that for any third concern to attain this end it must offer Besser Company and Stearns substantial competition in significant product improvement, and not be content to manufacture any existing over-all machine with minor engineering changes from time to time.

Another foreseeable change in the industry may be in the long run the most important of all. We have seen how the block machine operators proposed to start a new manufacturing concern in 1948, when Besser was purchasing stock in Stearns. We have also seen how Gelbman, Samuelson, Oswalt, and other block manufacturers have made block making machines. Since the early postwar period the economic strength and abilities of the block manufacturers have increased vis-à-vis the machine manufacturers. In part this is due to a steadily decreasing number of block making plants and a more than corresponding increase in the size of each plant. The block makers also have an active trade association and are engaged in various forms of cooperative activity. All of these considerations indicate that the block manufacturers themselves may well become an economic force of increased significance, and that the machine manufacturers (whether they be few or many) will have as a major form of competition the ability of the block makers themselves to supply their machine needs.

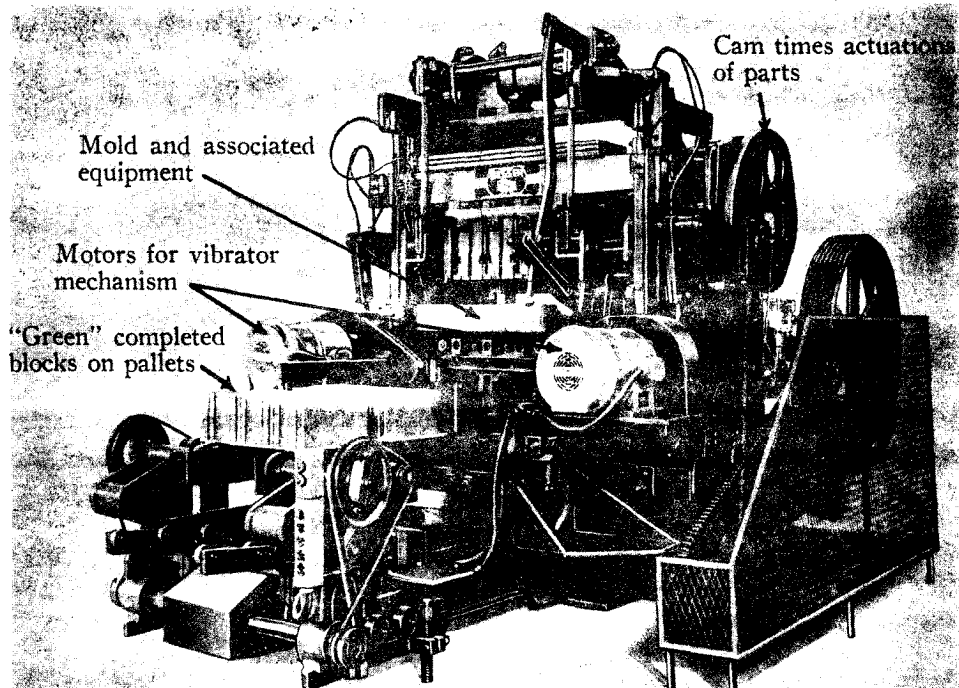


Figure 1 — Current Model Besser Concrete Block Making Machine

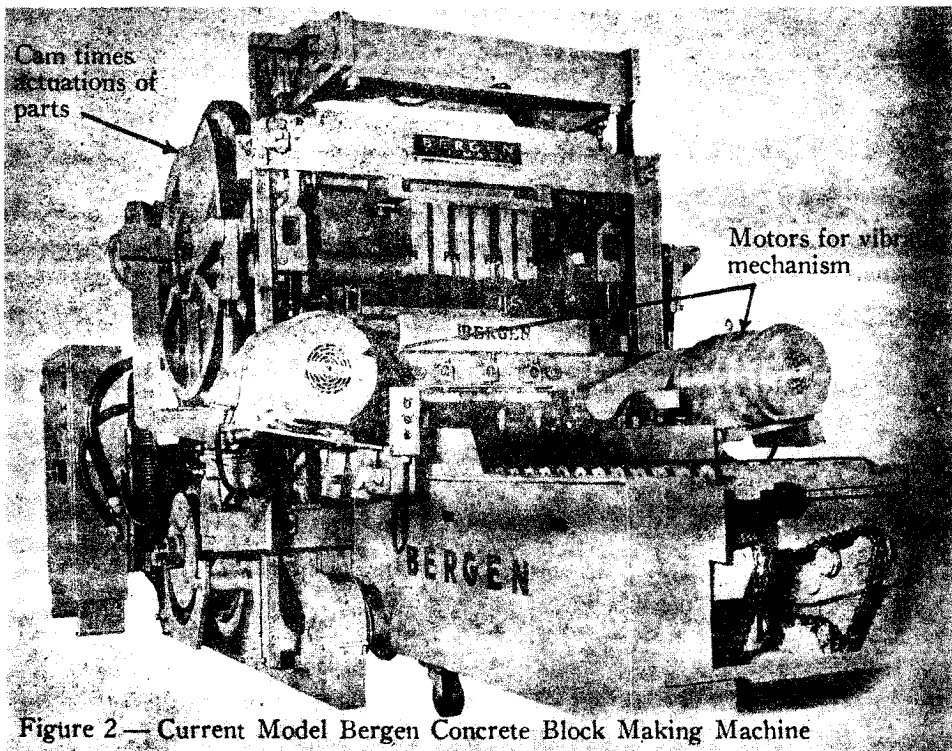
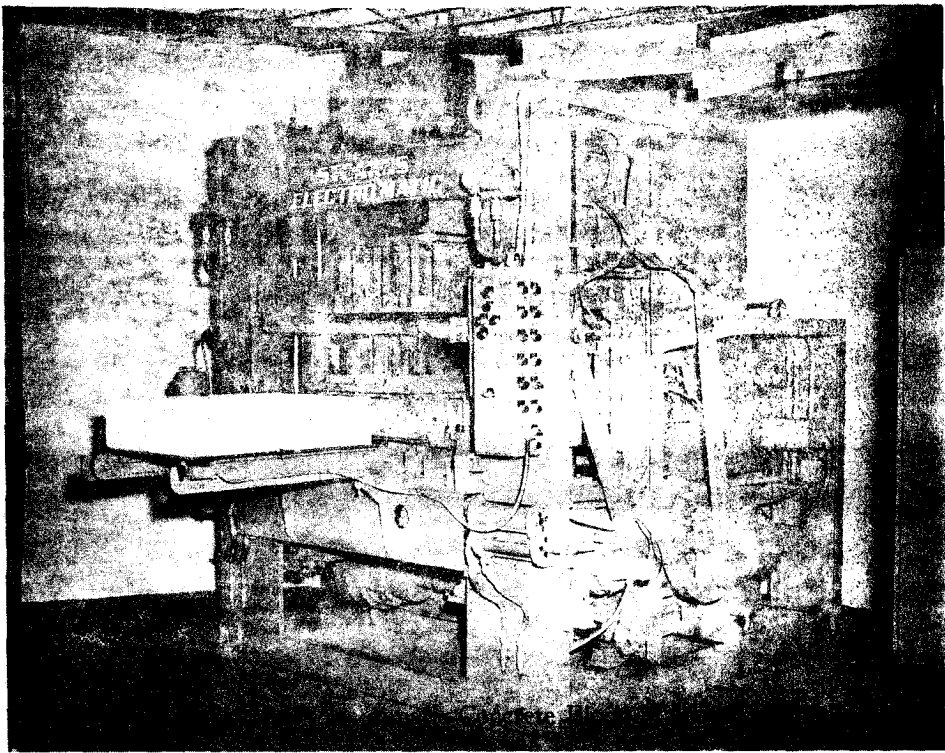
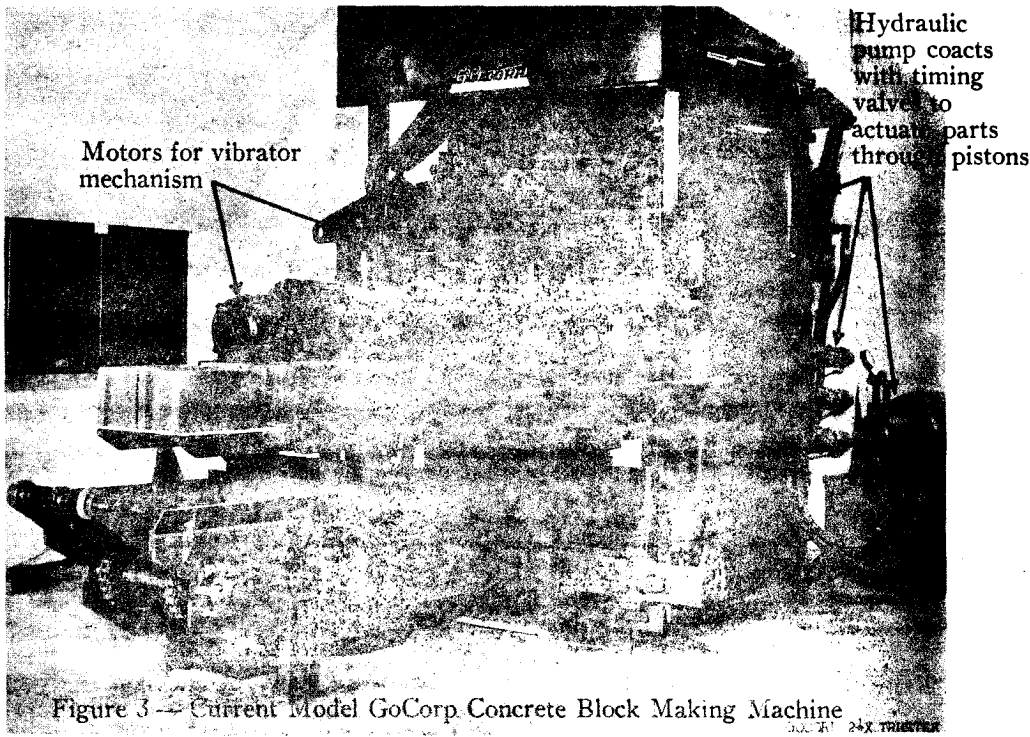


Figure 2 — Current Model Bergen Concrete Block Making Machine



## APPENDIX A

THE TECHNOLOGICAL AND PATENT HISTORY OF THE  
CONCRETE BLOCK MAKING MACHINE INDUSTRY

Concrete blocks were doubtless first manufactured by the obvious expedient of pouring concrete into a mold, allowing the concrete to cure, and then removing the mold. The cumbersome character of this method and the large expense for molds led to the first platen type concrete block making machines.

An early machine of this type was manufactured by Besser Manufacturing Company at about the time of its founding by Herman Besser in 1904 (Pat. R. 28). The machine is shown in one form in Herman Besser patent 810,700, filed April 19, 1905, and entitled "Molding Machine." The machine was based entirely on manual power, but did overcome the need for a multiplicity of molds and cores by using a single mold and core from which the blocks were removed immediately after casting. It consisted of a frame upon which a mold was formed by side and end walls, the walls being swingable outwardly and down to release the cast block. The cores required to form cavities in the block were supported from beneath the mold. In use, a pallet with openings to receive the cores was placed in the mold; the entire pallet and mold structure was then allowed to drop onto the cores by the use of a crank and cam mechanism provided (this action also serving to erect the sides and ends of the mold by the action of fixed cams); the mold filled with concrete; and the crank was then rotated again to lift the pallet and uncured block to initial position (the sides and ends of the mold being dropped at this time by the action of the fixed cams). With this type machine the pallet itself served as a stripper against which the fixed cores wiped as the uncured block was lifted. In this fashion the cores were withdrawn without collapsing the block itself.

Machines of this kind are reported to have produced 100 to 150 blocks per man day (Pat. R. 28). Output was necessarily limited by the physical capacity of the men using the machines. The work was exhausting because of the lifting required. This led to the introduction of power mechanism for use with the same basic type of machine. By 1909 arrangements were made to pour the concrete mix into the mold from above, thereby obviating the manual concrete lifting required to fill the mold by the shovel method. At about the same time power tamping devices were developed to tamp the concrete in the mold without the use of manual labor. These innovations increased block output to about 250 blocks per man day.

Further changes in the direction of automatic operation proceeded step by step. Variations were made in the automatic tamping mechanism to provide light-weight high-speed operation of several hundred blows per minute as an alternative to slow heavy tamps of the type analogous to hand tamping (Pat. R. 29). By 1914 Besser manufactured a machine with timed operation of the tampers, automatic feed of the concrete, and automatic withdrawal of the cores. Production per man day was increased to several thousand blocks by this type machine (Pat. R. 31). And by the use of two molds at a time the production of this type machine was increased to about 5,000 blocks per day by 1919.

All of the machines at this time were required to swing the mold open after formation of the block. This was in part due to the prevalence of the so-called "rock face" block which had an embossed face simulating rock and could not be removed from the mold by simple lifting action (Pat. R. 30).<sup>1</sup>

*The Stripper Machine*

Patent rights to a more fundamental development were obtained by Besser in 1929. This was the so-called plain pallet stripper machine, designed to permit the use of flat pallets without openings to pass the cores. The considerations leading to this development are set forth in Jesse H. Besser patent 1,699,218<sup>2</sup> as follows:

To mold hollow blocks, as of concrete or other moldable material, the latter is tamped and packed tightly about the cores so that a real problem is presented of loosening the cores from the material. This is especially difficult when the operation is to be performed rapidly, without injury to the block. A further

<sup>1</sup> An industry trend in the nature of a reversion to the rock face block is found in the current emphasis upon "split" block. These blocks are formed by splitting flat face blocks, leaving an irregular face of distinctive appearance somewhat similar to unground natural rock blocks. Some of the most attractive block applications for outer walls are based on split block.

<sup>2</sup> Filed August 31, 1926, entitled "Automatic Stripper Machine."

problem is presented, when it is desired to loosen the material from the cores when the latter are supported upon an imperforate pallet. Heretofore, concrete blocks have been molded upon pallets which have openings therethrough to receive the cores therein, so that the removal of the cores was assisted by the use of the pallet to hold the block stationary while the cores were being withdrawn. This operation made necessary the provision of a set of perforate pallets for each type of blocks to be molded. If a slight change in the size or form of the cores were to be made, an entirely new set of pallets with corresponding perforations was required. This provision of several sets of metal or non-metal and perforated pallets often required an expense of many thousands of dollars for pallets alone.

By my new machine provided with my new stripper mechanism for holding the hollow blocks stationary upon the pallet while the mold and cores are lifted from the block at one time, I am enabled to accomplish the stripping operation while the blocks are molded upon wholly imperforate pallets, and by this provision the same pallets may be used for blocks of different sizes and form having different openings therein and even a different number of openings therein, it being only necessary that the pallet shall be at least as large in surface area as the base of the block externally. Any blocks that are hollow as well as solid may by my stripper mechanism be automatically stripped from pallets of one standard size, thus resulting in wide economy. (Patent 1,699,218, page 1, lines 21-64).

In the plain pallet stripper type machine the mold and cores were mounted to move vertically from a lowered position—where they seat against the pallet—to a lifted position where they clear the molded block. In order to prevent the molded block from tending to rise with the mold and cores, and thus tending to disintegrate under the lifting forces, a stripper mechanism was provided which swung over the mold and block just prior to the mold lifting movement. The stripper defined a flat face of the same contour as the block, and was registered with the block. As the mold and cores moved up, the stripper seated against the top face of the molded block to hold it down.

The plain pallet stripper machine as developed by Besser included a "feed box" which moved in unison with the stripper mechanism to fill the mold. When the feed box was in retracted position, the stripper head was over the block and the cores and mold could be lifted. At this time the feed box was located under the concrete supply hopper and thus filled with concrete. When the stripper head was subsequently moved forwardly (after removal of the completed block and dropping of the mold and cores to operating position) the feed box moved forwardly in unison with the stripper head. At this time the concrete in the feed box discharged into the mold to fill the same.

The stripper type machine was a marked advance in the art and effected considerable economies for large volume block makers. Its advantages were principally in areas where large production combined with varying sizes of molds and cores, made the cored pallet method most troublesome and expensive. Besser testified in the patent case that the machine reduced a \$15,000 inventory of cored pallets to a \$2,000 inventory of plain pallets (Pat. R. 3).

It should be noted in connection with the plain pallet stripper machine that it could not manufacture the rock face type block. Moreover long after the stripper machine came out Stearns successfully manufactured a cored pallet type machine, called the "Joltcrete," capable of making 600 blocks per hour using cored pallets (R. 730).

### *Vibration Machines*

A significant change occurred in the concrete block making machine industry with the introduction of successful vibration type machines in the late 1930's (Pat. R. 31). The tamping method had a number of recognized disadvantages, the major one being the stratified block produced as a consequence of the successive layers of concrete necessarily associated with tamping.<sup>3</sup> Additionally, the hammer action of the tamping mechanism entailed considerable wear of the working parts.

In comparing the vibration machine of the Scott patent 2,106,329<sup>4</sup> and the tamping devices, Besser testified:

The result was very good, comparing it to the tamper arrangement. It avoided the wear and tear on the mold which the tampers produced by going into the mold to compact the material, and the vibrating method also gave an even texture to the block as the concrete was put in a mass rather than by steps by the tampers, and it made it convenient to make larger production with ease because this, being a standard pallet, made three of the most common size block at one time (Pat. R. 34).

<sup>3</sup> Williams patent 1,004,327, filed March 7, 1910, entitled "Machine for Making Concrete Blocks," noted this problem and proposed a machine where there was "means for raising said molding box and dropping it on said frame in rapid succession to cause the concrete in the molding box to be settled or condensed uniformly" (col. 2, lines 66-70). This machine appears to have come very close to a vibration machine. An ingenious mechanism was provided to convert rotations of a hand crank to successive jolts or impacts on the mold. See Besser's testimony, Pat. R. 35.

<sup>4</sup> Filed May 25, 1927, entitled "Apparatus for Treating Materials." This patent is discussed in further detail at pp. 122-124 *infra*.

Besser further testified that, with the tamping machine, blocks were generally made one at a time, whereas with the Scott construction three could be made at a time (Pat. R. 34).<sup>5</sup> He testified that production was practically doubled (Pat. R. 34, 43). Besser also testified that the vibration method worked out better than he predicted in 1938 upon the basis of his experience of over 30 years in the industry (Pat. R. 39).

In the actual vibration type machines about 3,000 vibrations per minute, with about  $\frac{1}{16}$  inch throw are used (Pat. R. 40). This means somewhat less than 750 vibrations per block, at the rate of one block every fifteen seconds, or four per minute (see Pat. R. 38-40). It should be compared with about five tamps per block used with the tamping method. When vibrated at this rapid rate the concrete acts generally like a liquid to fill the mold uniformly with a homogeneous mix.

The use of vibration in concrete molding was well known prior to the commercial introduction of vibration type concrete block making machines. The prior art in this respect is summarized in the opinion of the court in *Whitman v. Andrus*<sup>6</sup> as follows:

... Such vibration is disclosed in Esterday No. 1,523,936, as early as 1922. Stockwell No. 384,295 had taught the advantage to be gained by jarring or shaking the material for a certain length of time, as early as 1888, though it does not seem necessary, in view of the later patents, to consider nice distinctions between jarring and vibration. Shinn No. 2,036,367, which was not before the Patent Office, disclosed a shaking movement transmitted to the molds to settle the concrete during the filling and molding operation and Dahl No. 1,777,660 disclosed means for effective automatic vibration in the mold after being filled ...

One Thomas came to Stearns in 1928 and sought to use the facilities there to make a vibration type machine for standard blocks (R. 291). He did some work there along this line but left without making a successful machine (R. 292).

Although the application of vibration to concrete block manufacture was thus well known at an early date, it was not until the late 1930's that the concept was practically applied. When it did come, it came largely through the efforts of Louis E. Gelbman, whose name appears again in connection with the antitrust litigation. Gelbman testified that he and Hamlin F. Andrus put some \$165,000 into the development of his patented machines (R. 858).<sup>7</sup> Indeed, in *Andrus v. Whitman* Besser himself testified that he became acquainted with Gelbman's work in the early 1930's and that his introduction to effective vibration came from Gelbman (Pat. R. 32, and 194 F.2d 270, 272). Olsen, then president of Stearns, met Gelbman in 1935 when the latter sought to license Stearns (R. 145). At that time Stearns took an exclusive patent license at 20 per cent royalty. After the 1935 contract with Gelbman, Stearns rebuilt one of the machines Gelbman had installed in his own concrete block plant in White Plains (R. 292-3). Initially the machine was not sufficiently sturdy for commercial use. Stearns put another more heavily built machine into use in 1936 (R. 293). This machine gave trouble and was removed (R. 294). Then Stearns made still another machine. It was not until 1938 that Stearns had removed the "bugs" from the vibration type machine and was able to place such a machine on the market for general sale (R. 295). Besser's manufacture of vibration machines followed the manufacture and sale of such machines by Stearns.

A number of patents relating to concrete block making machines and their operation have been issued to Gelbman as the sole or joint inventor. One of the very early patents—1,867,144<sup>8</sup>—requires discussion because it was the subject matter of the patent infringement suit brought by Stearns, Gelbman, and Andrus against Bell, a customer of Besser. Two of the later patents—2,275,676<sup>9</sup> and 2,366,780<sup>10</sup>—require discussion because they formed the basis of a later patent infringement suit brought by Gelbman and Andrus against Whitman, a customer of Lith-I-Bar. Each of these latter patents was filed as the joint invention of Gelbman with Eugene F. Olsen and Arthur B. Mays of Stearns Manufacturing Company.

Gelbman patent 1,867,144 shows a vibration type machine in which the mold is carried on a platform or "jolt plate" supported on its four corners by compression springs. The upward travel of each spring is limited by an elongated bolt concentric with the spring and anchored at its ends to the base and to the jolt plate. The downward travel of each spring is limited by sleeves

<sup>5</sup> The actual machine shown in the Scott patent made one block at a time.

<sup>6</sup> 194 F.2d 270, 272-3 (6th Cir. 1952).

<sup>7</sup> A picture of Gelbman with one of his early vibration type machines appears at p. 175 of the March 1951 *Pit & Quarry*.

<sup>8</sup> Filed Jan. 24, 1930, entitled "Concrete Molding Machine."

<sup>9</sup> Effective filing date, Aug. 28, 1937, entitled "Concrete Block Machine."

<sup>10</sup> Effective filing date, Aug. 28, 1937, entitled "Method of Making Building Blocks."



telescoping over the spring and seating against each other when predetermined down travel (spring compression) takes place. Vibration is mechanically imparted to the jolt plate to cause the same to tend to move up and down under the forced vibrations to an extent greater than the limits permitted by the telescoping sleeves and by the elongated bolts. The over-all effect of this machine is to cause the jolt plate (and mold) to move up and down in a series of quick movements terminated at each limit of movement by an abrupt stop or jolt—an action said to provide particularly effective molding.<sup>11</sup>

The Gelbman '144 patent included the following rather broad claims that were involved in the Bell suit:

12. A method for packing the mold of a machine of the class described, consisting in vibrating the mold vertically, and abruptly stopping each stroke of the vibration at the top and at the bottom.

13. A method of packing the mold of a machine of the class described, consisting in moving the mold with external applied forces thru a vertical reciprocating path, and suddenly stopping at the top and at the bottom each stroke of reciprocation before it ends.

Both claims were held invalid in the Bell suit and subsequently disclaimed.

The Gelbman '676 and '780 patents each show the same structure for making concrete blocks, and each includes the same descriptive material in relation to that structure. The basic description in each is essentially the same, and in the '676 patent reads as follows:

The invention proposes the construction of a building block machine which packs the mold by the vibration system. After many years of experimentation and building of devices we have become aware of many deficiencies in the operation of building block machines working on the vibration principle, and methods for making blocks embodying this principle. One of the chief defects of the vibration principle resides in the fact that with the application of vibration the concrete material in the mold of the machine will be packed more densely in the bottom of the block than at the top. This is easily understandable now that we point it out, since when the mold is vibrated the material in the top portion of the mold is free to jiggle, or jolt or move around, and consequently it could not possibly pack as hard as the material within the lower portion of the mold which is held firmly by the material above it.

The method we have discovered for eliminating the defect pointed out in the previous paragraph consists essentially in providing a mold of a higher dimension than that required for the finished block. It is proposed to pack material into this mold by the vibration method. It is then proposed that after the mold has been packed by the vibration method to strike off the excess material at the top of the mold to insure a commercially uniform amount of material to be in the mold. It is then proposed that pressure be applied on the material in the top of the mold to compress the upper portion of the material in the mold and make the top portion of the block just as dense as the bottom portion and just as smooth, and perhaps smoother.

In carrying out the method it is proposed to limit the amount to which the material in the mold may be compressed to make blocks of uniform height. It is proposed to permit compression to a point which corresponds closely with the lowest level to which the packed material will compress by reason of resistance of the material itself ('676 patent, col. 1, lines 4-47).

Milewski—manufacturer of the machine charged as an infringement in the patent infringement case—testified that the use of vibration without the concurrent use of either pressure or tamping would not make a uniformly dense block (R. 505, 507).

The principal claim of the Gelbman '676 patent read as follows:

4. In a building block machine, a frame for the block machine, a mold for making concrete or the like blocks, means for vibrating or jolting the said mold to pack the concrete material therein during the making of said blocks, a feed drawer to supply the mold with concrete material as needed, and a track system mounted on said frame for the feed drawer to ride on and holding the feed drawer from touching the mold preventing the transmission of vibrations from the mold to the feed drawer.

In simple language this claim was directed to the idea of using a feed drawer to supply concrete to the mold, the drawer being independently supported by a track mechanism out of contact with the vibrating mold. The feed drawer idea itself was old—at least by 1926 when the Besser plain pallet stripper patent application was filed. While Besser attributed novelty to Gelbman's feed

<sup>11</sup> If the mold is vibrated up and down by a rotating eccentric weight (the usual mode of vibrating concrete block machines) the up and down movement is in the form of "simple harmonic motion." Such vibration is like that of a ball moving up and down on the end of an elastic cord. The mold gradually stops and reverses its direction of movement at the upper and lower extremes of movement. The jolt-type machine of Gelbman differed from this action by rapidly arresting the movement of the mold at its upper and lower limits. The action of the prior art Williams machine, note 3 *supra*, was very similar to that of Gelbman in that the mold was jolted at the top and bottom of each up and down movement.

drawer in that it wiped off the top of the cement in the mold, identical operation appears to be inherent in the feed drawer of the earlier machine (Pat. R. 37).

The principal claim of the '780 patent relates to the method of finishing off the top of the block and then applying downward pressure while the vibration continues to pack down the top of the block. This claim reads:

1. A method for making a building block, consisting in moving a feed drawer with plastic material across a vibrating mold by starting on one side of the mold and moving the said drawer until it is superimposed on the mold to fill and pack the mold, quickly moving said feed drawer off the mold to strip excess plastic material from the mold, and quickly applying a pressure head upon the top of the material in the mold during continued vibration of said mold.

With respect to the Gelbman method patent, Besser testified in the patent suit:

... the Gelbman contribution was the successful application, and definitely the first application, and the first successful application of the pressure head to finish off that top of the block, make it smooth and condense down to accurate height, and to do that in a practical successful way in a machine in production (Pat. R. 36-7).

The limit of vibration machine operation without the use of the pressure head or tamping is said to be about 200 blocks per hour (R. 435).

The Gelbman '676 and '780 patents were each confined to the use of a feed drawer. It is significant that Olsen—who subsequently left Stearns and organized a competitor, GoCorp—devised a machine that did not use a feed drawer. In this machine the mold itself was shifted back and forth from molding position (where vibration and pressure were applied) to a retracted position where concrete was received directly from the supply hopper (R. 312-3).<sup>12</sup>

The machine shown in the '780 and '676 patents was never made in exactly the form shown. Stearns did, however, construct a generally similar machine (Pat. R. 48). In the *Whitman* patent infringement suit the patents were alleged to be infringed by the Lith-I-Bar machine. The defense of the suit was undertaken by Lith-I-Bar. Judge Picard—who also tried the anti-trust case—held that the apparatus patent ('676) was valid and infringed and that the method patent ('780) was not infringed.<sup>13</sup> On appeal, the Court of Appeals directed its attention to the alleged novelty of the track system for the feed drawer, as a structure. So viewed, it considered the structure an application of mere mechanical skill and not invention, even assuming "that there was inventive thought in the concept of keeping the feed drawer from touching the mold so as to prevent the transmission of vibration to it from the mold."<sup>14</sup> With respect to the method patent, the Court of Appeals found invalidity for failure to disclose the "alleged inventive concept so that the method may be practiced by the public when the patentee's monopoly has expired."<sup>15</sup> The principal evidence relied upon to support this phase of the decision was the difficulty encountered by Besser in making a successful vibration machine as licensee under the patent and the necessity of Besser's "undertaking extensive experiments of his own."<sup>16</sup>

A third significant patent on the vibration principle is Scott patent 2,106,329,<sup>17</sup> issued on January 25, 1938. This patent was apparently the result of the independent activity of Scott, who was not associated with any of the machine manufacturers or users.<sup>18</sup> The patent application was filed in 1927, somewhat after Gelbman's first entry into the field, and was renewed in 1936.

The disclosure of the Scott patent shows a rather crude cored pallet type concrete block making machine in which no power-driven means is shown for pouring, lifting, or otherwise handling the concrete and the block. The point of novelty in the structure shown was thought to lie in the use of a mold to which was affixed a shaft carrying a pair of eccentric weights, so that as the shaft was rotated by a belt arrangement (not shown in detail) the shaft was subjected

<sup>12</sup> The machine referred to by Olsen appears to be that shown in R. O. Davis patent 2,581,579, entitled "Concrete Product Molding Machine," filed Sept. 28, 1948.

<sup>13</sup> 93 F. Supp. 383 (E.D. Mich. 1950).

<sup>14</sup> 194 F.2d 270, 273 (6th Cir. 1952). It should be noted that a considerable number of judicial decisions have rejected the proposition that the structure alone should be the measure of patentability where there is an "inventive concept" behind the structure. See, e.g., *Old Town Ribbon and Carbon Co. v. Columbia Ribbon and Carbon Mfg. Co.*, 159 F.2d 379 (2d Cir. 1947).

<sup>15</sup> *Id.* at 275.

<sup>16</sup> *Ibid.*

<sup>17</sup> See pp. 123-124 *infra* for more detailed discussion of the Patent Office history of this patent.

<sup>18</sup> The patent recites the inventor as "Ephriam J. Scott" of Forest Hills, Mass., "assignor to C. C. H. Thomas." Besser obtained the patent on assignment from Thomas in 1947 (Pat. R. 355).

to a rotating force which was communicated through the bearings to the mold box and hence to the concrete in the mold. The mold box was carried by a set of leaf springs which served to permit vibration of the same without communicating all the vibration to the support.

The vibration imparted in the Scott machine was not translational in character but rather was orbital; that is, it consisted of a force of constant strength rotating about the shaft axis. Also—because of the eccentric relation of the shaft and the center of gravity of the mold—the vibrations produced tended to rotate the mold about its own axis. The technique of isolating a vibrating body from a support by the use of springs is an old and well-known method of vibration isolation which has been used in connection with reciprocating engines and compressors, single phase electric motors, and other applications.<sup>19</sup> The particular feature stressed in the Scott patent was:<sup>20</sup>

... the fact that it describes a form or mold holding the mix freed from the rest of the machine during vibration by incorporating resilient supports between the mold and frame of the machine, imparting a high frequency orbital form of vibration to the mold, and producing and concentrating such vibration in the mold by the direct bearing attachment of a high speed eccentrically weighed orbital vibration producing shaft on a remote flexible drive. It also includes an ejection mechanism mounted on the frame of the machine but the machine is so constructed that the mold remains perfectly free to vibrate and the concrete block is ejected after the consolidation thereof is completed.

Claims 1 and 6 of the Scott patent read as follows:

1. An apparatus for treating a material comprising a mold for the material, a frame, springs carried by the frame for supporting the mold, means for vibrating the mold, and means for ejecting the product from the mold after vibration.

6. In apparatus for the molding of plastic materials like concrete, a mold for receiving the material, a supporting frame, a resilient means interposed between the mold and the frame whereby the mold can be vibrated substantially independently of the frame, means for applying vibration to the mold, and means for removing the formed mass of material from the mold, said last means including elements mounted upon the frame.

The District Court found that the Lith-I-Bar machine did not infringe the Scott patent because the mold was not "perfectly free" to vibrate but rather was affixed to parts anchored to the floor.<sup>21</sup> The Court of Appeals held that the patent was invalid in view of the prior art uses of resilient mountings for vibrating structures.<sup>22</sup>

While it is to some extent a digression from a treatment of the technical history of the concrete block making machine industry, the Patent Office history of the Scott patent requires some comment in view of the very early filing date and very late issue date of the patent. The inventor, Scott, as has been noted above, appears to have had no special interest in concrete block manufacture and appears to have regarded such manufacture merely as a promising application of the vibrating technique. Moreover, there is no indication that the machine shown in the Scott patent was ever constructed and used, although some of the language used in the patent is consistent with such use having taken place. The Scott patent application was filed on May 25, 1927, giving it the very early filing date that conferred commercial importance to the patent when issued. A typical Patent Office prosecution followed the filing of the patent application until early 1931. At that time the Patent Office finally rejected certain claims and Scott took an appeal to the Board of Appeals. Thereafter, on March 1931, Scott copied claims from Jackson patent 1,787,449.<sup>23</sup> It is significant in this connection that the Jackson patent related to the

<sup>19</sup> See Kimball, *Vibration Prevention in Engineering*, (Wiley, 1932).

<sup>20</sup> 93 F. Supp. 383, 386 (E.D. Mich. 1950).

<sup>21</sup> *Id.* at 386-7.

<sup>22</sup> 194 F.2d 273,376 (6th Cir. 1952).

<sup>23</sup> The Jackson patent was filed on Jan. 10, 1929, and issued on Jan. 6, 1931. It bears the title "Method of Forming and Molding Concrete." The patent shows a vibrator affixed to the stud of a wooden concrete form of the type normally employed in making vertical foundation walls for buildings. In an alternative form the patent shows a vibrator affixed to the form used for a poured concrete column. The claims of the patent are of sufficient scope to read in terms on vibration type concrete block making machines. The patent has never been involved in litigation and no instance has been found of its assertion against the maker or user of a vibration type concrete block making machine. The Jackson patent was cited and referred to by Judge Picard in *Andrus v. Whitman*, 93 F. Supp. 383, 386 (E.D. Mich. 1950). While the court there indicated that the Jackson reference was applicable against the Scott patent, he chose to place major reliance on other references.

The Jackson patent was also considered as a reference in *Blaw-Knox Company v. I.D. Lain Company*, 230 F.2d 373 (7th Cir. 1956). The patent there in suit was Bushnell's patent 2,361,377, entitled "Paving." This patent related to a concrete paving machine and method, including the step of subjecting the poured concrete

application of vibration technique to concrete molding generally and was not concerned with the specific manufacture of concrete blocks. In May 1931 the Patent Office declared interference No. 61,744 between Jackson and Scott, with 14 counts or claims involved. In June 1933, decision adverse to Scott was rendered, and in November of the same year that decision was affirmed by the Board of Appeals (which then had jurisdiction over interference appeals).

Following the interference decision of November 1933, the Scott patent was rejected on Flam patent, 1,806,620<sup>24</sup> and, finally, on March 22, 1935, was allowed. The patent application was thereafter allowed to lapse. In March 1936, petition for renewal was filed by an attorney for the then assignee, C. C. H. Thomas, who had just acquired title by assignment. A new notice of allowance followed on March 26, 1936, but on April 13, 1936, the patent was withdrawn from issue. The withdrawal was due to the fact that an amendment making three new claims was not in the file at the time of allowance. The three new claims were then the subject of a series of office actions and amendments, resulting in a new notice of allowance in June 1937. The patent thereupon issued on January 25, 1938. On January 23, 1940, an application for reissue was filed, but was subsequently abandoned.

The prolonged proceedings on the Scott patent resulted in issuance of the patent over 10 years after the filing date.<sup>25</sup> The patent did not expire until 1955.

The history of the Lith-I-Bar machine accused as an infringement of the Scott and Gelbman patents is of particular interest. Lith-I-Bar was operated by Frank E. Milewski (R. 383-437).<sup>26</sup> He had heard of a vibrating machine made by Ralph Samuelson of Traverse City, Michigan. Milewski testified that the machine was "very satisfactory" long before the industry as a whole had changed to vibrating machines.

Samuelson testified in the patent suit that he made his first vibration type machine in 1933 after watching vibration used to make castings in an iron foundry (Pat. R. 180-181). At the time Samuelson was in the business of making concrete blocks by the use of a tamping machine, two men making about 150 blocks per day (Pat. R. 180). With respect to the first vibration type machine, Samuelson testified:

I bought a machine. The first machine that I bought was a tamping machine. And I was always interested in trying to make a better block. I wasn't interested in the face-down principle because we couldn't put enough water in the material, and I wanted to compact it. All I had seen up until that time was tamping, and I was interested in putting it in some other way because the tampers wore out the cores of the box.

My plant was right across the railroad tracks from the Traverse City Iron Works, and they had a foundry there and they made molds to pour their iron in. I had to go over there to get steel from time to time—it was just across the track—and I was just sort of observing the way they were making those sand molds. It was practically the same thing as making a block, only they didn't have cement in it. And they were jarring it, and they had air hammers, or air vibrators that were buzzing the side of the box, and the thing would thump up and down and settle that sand.

I like to try and figure out something too. I traveled around. I was over to Mr. Besser's plant in Alpena, I think, once or twice. And I didn't see anything there that was a vibrator machine. Everything was tamping. They had a small tamper called a multi-mold. Then they had some other larger ones. The large ones were too big for me, and the small one was too much work, they had to be tamped manually. I ended up by building a small one, a block at a time, and I had a vibrator on the back of it to settle the concrete instead of tampers (Pat. R. 180-181) (And see R. 437 *et seq.*).

Samuelson constructed a larger machine during the war. The machine was started around 1945 or 1946 (Pat. R. 185). It made about 200 blocks per hour and was the machine Milewski followed to make the Lith-I-Bar machine. Samuelson spent about six months in the construction of the machine. After it had been made Samuelson was considering the manufacture of similar machines for sale and had a patent search made to determine the patent infringement situation (Pat. R. 185). Milewski subsequently had a similar search made, which he turned over to Besser

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pavement to a vibrating and smoothing action. The Court of Appeals reversed the district court and held the patent valid and infringed because "It is undisputed that the three mentioned elements essential to Bushnell's combination were known to the art. However, it is clear from the evidence that the specific arrangement and placement in combination which he prescribed and embraced in his claims and which, the proofs show, has solved effectually the serious problem that confronted road builders in the use of heavy concrete, had never been suggested. All prior efforts to solve the problem had resulted in ineffectiveness. For the first time in the art, Bushnell demonstrated that his specific placement and prescribed relationship of the three elements in a road building machine furnished a complete answer to the problem. . . ." 230 F2d 373,375-376 (7th Cir. 1956).

<sup>24</sup> Filed June 24, 1926, entitled "Vibrator Mechanism."

<sup>25</sup> Most of the delay encountered in the Scott patent prosecution is of a kind that would not occur under present conditions. The history of this patent is nevertheless an illustration of how a patent issuing long after its time can acquire importance out of keeping with the actual contribution to the art.

<sup>26</sup> For a further discussion of Lith-I-Bar, see pp. 103-104 *supra*.

when accused of patent infringement by Besser (Pat. R. 162-3). Samuelson filed application for patent in 1945 but no patent is known to have issued (R. 383).

As manufactured for sale the Lith-I-Bar machine had a capacity of 480 blocks per hour (R. 383). It used tamping at the end of the vibrating cycle (R. 384).

#### *Other Machine Developments*

One Wellnitz worked out a machine in which the height of the blocks was controlled (R. 767, 1100). The "Wellnitz-Meeker" group is reported to have invested \$200,000 in the development (R. 1099). Besser purchased the patent rights in 1950 for \$75,000, these rights then being in the form of patent 2,308,132 issued to Wellnitz on January 12, 1943, and an application of Meeker (R. 1098-9). During the course of compulsory license royalty proceedings after the antitrust judgment, Rosenthaler—the representative for Besser—proposed a royalty of \$600 per machine for the Wellnitz patent (R. 1120) and estimated that not more than 150 to 200 machines per year would use the invention covered by the patent (R. 1099); and Olsen, the government representative, proposed \$25 per unit (R. 1105). The court resolved the dispute by setting \$25 per mold compartment as the royalty (R. 1111).

The principal feature of the Wellnitz machine is the block height control mechanism. In the construction shown in the patent, this mechanism consists of a drop platen which rests on the top face of the concrete, together with electric switch elements responsive to the vertical position of the platen to lift the platen. This structure is covered by claim 2 of the patent, reading as follows:

In a machine for molding cementitious building blocks, a mold, means for filling said mold with a cementitious mix, a vertically movable drop platen, an electric motor for operating said mold filling means and said platen, an operating circuit for said motor, and a controller for said circuit operative automatically upon compaction of the mix to a predetermined height dimension within said mold to actuate said circuit, whereby to remove the weight of said platen from engagement with the mix in said mold.

This is the so-called electrical block height control concept. Its importance lies in the fact that high-quality block must have uniform dimensions. Alternative block height control techniques are available.

The Meeker application related to a mechanism to control the density of the block (R. 1107). The mechanism sensed the rate of descent of the pressure head to control the ultimate pressure applied and hence the density of the block.

Another machine development is found in the Warren "800" manufactured by Darden (discussed at page 132, *infra*) shown in patent 2,652,613.<sup>27</sup> In this machine the pressure head as well as the mold was vibrated to compress the block (R. 530-1).

Stephen Flam of Van Nuys, California, also developed several types of vibration type machines. These machines were limited to the use of a very wet mix and hence were suitable only for use with shallow blocks of less than four inches thickness and having comparatively thick webs (R. 290).

One of the earliest Flam machines is represented by patent 2,319,313.<sup>28</sup> The structure shown consists of two molds positioned at opposite ends of a revolving frame. As one mold is being filled with aggregate, the other mold is being stripped. One man operates the hopper which feeds mix into one mold, and another man operates the stripping mechanism. When the stripping action is complete, the frame is displaced 180° manually and the cycle begins anew. The block that is being formed is subject to vibrations produced by rotating eccentric weights mounted on a shaft. The vibrating mechanism disclosed in this patent was the object of Flam patent 1,806,620.<sup>29</sup>

The second Flam patent, 2,446,818,<sup>30</sup> shows a distinctive feature of the later Flam machines. This is the vibrator arrangement using a U-shaped cantilever, the free end of which supports the mold box. Eccentric weights are mounted on a shaft that is attached to the bottom face of the free end of the cantilever. Through a belt-pulley arrangement, the cantilever is vibrated in a vertical direction, packing the mix in the mold box.

<sup>27</sup> Filed, July 23, 1947, entitled "Building Block Molding Machine."

<sup>28</sup> Filed March 8, 1938, entitled "Molding Apparatus."

<sup>29</sup> Filed June 24, 1926, entitled "Vibrator Mechanism."

<sup>30</sup> Filed Nov. 25, 1944, entitled "Vibrator."

Flam patent 2,562,541<sup>31</sup> issued posthumously on July 31, 1951, shows a more refined and more automatic structure using the same cantilever vibration mechanism that was disclosed in patent 2,446,818. By means of a chain and pulley system a formed block is transported from the forming station to the stripping station and the finished block is automatically removed at the stripping station. The mold box is vibrated while the mix is fed into it in order to reduce the time of each cycle.

Flam patent 2,594,760<sup>32</sup> shows an improved method of stripping the packed block from the mold. A conventional type vibratory mechanism is used to pack the aggregate in rotating eccentric weights mounted on a shaft.

Still another machine development was made by Luther G. Randolph of Ann Arbor, Michigan (R. 445). He was a block manufacturer who used a Stearns machine and then built one of his own. He built a vibration machine with a capacity of 600 blocks per hour. Randolph used the resonant vibrator which became the subject of patent 2,353,492<sup>33</sup> issued to John O'Connor of O'Connor Machine Company. (O'Connor has been issued a number of other patents relating to vibration technique applications.)<sup>34</sup> The machine was built by Randolph only for his own use in 1948 (R. 449). The vibrator, however, was used by the Gene Olsen Corporation (GoCorp) in making machines for sale (R. 117).

#### *Developments Subsequent to Vibration*

The vibration principle is the most recent fundamental change in the construction of concrete block making machines. Currently, the emphasis is in other directions. For example, the development of light-weight aggregate in lieu of cinders has been a problem. This change has been dictated by the increasing scarcity of cinders suitable for block making—a scarcity resulting from the trend towards the use of powdered coal and liquid fuels which do not leave a cinder residue (R. 760).

Currently there are three types of light-weight aggregate in use.<sup>35</sup> One is cinders, an old source that is becoming progressively more scarce. The second is light-weight slag, a source found in considerable quantity in certain regions in the West, but not generally available elsewhere. Manufactured aggregates constitute the third type. Haydite is the oldest manufacturing process. It uses clay burned in a cylindrical kiln (R. 760). Aglite is a more recent process, using a sintering technique, with shale and coal as the raw materials. In 1950 one Stone, Olsen, and Besser were all interested in a proposed aglite plant in which all would invest (R. 326-8). Before this, Olsen testified in the antitrust proceeding that Besser was prepared to purchase GoCorp in 1948 (R. 132, 133). Olsen refused (R. 133), and the aglite plant discussion was an outgrowth of the refusal.

Louis Gelbman appears to have had a broad interest in developments in the industry, for he has been issued three patents directed to processes for making light-weight aggregate.<sup>36</sup> This process is known as the "Sinterlite" process (R. 629). Currently the Aglite process is being advertised for use under license.<sup>37</sup>

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The technological history of the concrete block making machine industry reflects the specific application to the block making machine of general developments in machinery and in concrete casting. The industry is not one where developments have come by way of long-term theoretical research but rather through the engineering design of successive machines intended to satisfy better a known market demand. In great measure the process has been one of borrowing techniques from other industries. The closest approach to a fundamental development over the entire period from 1904 to 1950 appears to be the transposition of the vibration technique from concrete molding generally to the concrete block making machine. As the efforts of Gelbman and Stearns

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81 Filed May 18, 1946, entitled "Concrete Block Molding Machine."

82 Filed April 14, 1947, entitled "Molding Apparatus."

83 Filed Jan. 16, 1952, entitled "Vibration Producing Mechanism."

84 Patent 2,418,982, filed June 9, 1944, entitled "Rocking Mixer"; patent 2,439,219, filed June 9, 1942, entitled "Apparatus for Transmitting Intense Vibrations for Performing Work."

85 For a brief discussion of the various aggregates available in 1951 see *Pit & Quarry*, March 1951, p. 174.

86 Patent 2,386,393, filed March 27, 1944, entitled "Sintering Apparatus"; patent 2,403,433, filed Feb. 9, 1945, entitled "Sintering Apparatus"; and patent 2,414,734, filed Sept. 4, 1943, entitled "Lightweight Concrete Aggregate."

87 See *Wall Street Journal*, Sept. 10, 1957—advertising of Sayre and Fisher Company of Sayreville, New Jersey, for licenses to manufacture Aglite.

showed, this was not a simple, straightforward, engineering design problem but rather one beset with many pitfalls and not susceptible to any easy solution. The key to success was in overcoming specific problems—such as the problem of isolating the vibration and the problem of compacting the top of the concrete—rather than pioneering fundamental concepts. Besser and others in the field had more or less discarded the vibration technique until the efforts of Gelbman and Stearns ultimately proved successful. Once the advantages of vibration were proven by Gelbman and Stearns it appears to have been a matter of only modest difficulty for others to design and manufacture competitive vibration type machines similar to the first successful machines only in rather basic respects, such as the application of pressure during the vibration period, the isolation of the vibrating mold from the remainder of the machine, and the like. As the patent cases brought out, however, it was in just these basic respects that vibration had been applied in other fields.

The history of the concrete block making machine industry shows that the concrete block machine operators are a fruitful source of innovation. The operation of a block making plant, with a considerable capital investment, strong incentive to produce blocks of high quality and lowest cost, and emphasis upon minimizing down time, calls for the services of skilled mechanics. With a continued exposure to the problems incident to machine operation it would be surprising if these men failed to bring forth numerous improvements. In the application of the vibration technique, particularly, the operators appear to have been especially active. Indeed, it is doubtful that the machine manufacturers can take credit for the development itself, since Gelbman, Flam, and other workers in the vibration technique came from the operator group. At least the early attempts, including that of Gelbman, encountered serious difficulties that dissuaded the established manufacturers from pursuing the vibration technique. In any event, the combination that ultimately made the vibration machine a commercial reality was the work done by Gelbman—which alone fell short of providing a commercially salable machine—and the further development work done by Stearns in conjunction with Gelbman to convert Gelbman's early effort to a commercially practical machine.

## APPENDIX B

### BUSINESS AND COMPETITIVE ACTIVITY IN THE CONCRETE BLOCK MAKING MACHINE INDUSTRY PRIOR TO THE ANTITRUST DECREE

The business history of the concrete block making machine industry reflects the ups and downs of the building industry, the principal user of concrete blocks. The economic depression following 1929, which was felt to an exaggerated degree in the building industry, led to a long period of very low demand for the machines. Conversely, the immediate post war years, such as 1946 and 1947, were characterized by intense demand, even for small machines, and many persons entered the industry (R. 298).

Over the years Besser Manufacturing Company has been the leading manufacturer of concrete block making machines. The company entered the field in 1904 with the hand-operated cored pallet machine described at page 118 above. Following the introduction of this machine the company appears to have been rather active in devising and adapting power methods by which the capacity of the machine was progressively increased as discussed above. The company also appears to have pioneered the development of the plain pallet type machine by which the expense of cored pallets was eliminated as discussed above.

Besser turned to the production of vibration type machines in 1939 after others, especially Gelbman and his licensee, Stearns, had demonstrated the practicality of such machines. As discussed in detail hereafter, the company, after being sued (through a customer) on the Gelbman patents, entered into the patent license forming a focal point of the antitrust proceeding. Besser discontinued the manufacture of tamping machines in 1943 (Ex. 7, R. 1187).

The activities of the principal competition to Besser can be traced through Eugene F. Olsen, a major government witness in the antitrust proceedings. In 1919 Olsen worked for the Anchor Concrete Stone Company of Rock Rapids, Iowa (R. 256-7). That company made an automatically tamped but otherwise hand-operated machine (R. 257). In 1922, Anchor moved from Iowa to Adrian, Michigan, and changed its name to Anchor Concrete Machine Company. (R. 258). In 1926 this company merged with a number of other companies to form Anchor Consolidated Concrete Machinery Company of Adrian (R. 259). The other companies included Ideal Concrete

Machinery Company of Cincinnati, and Universal Tamping Company of Peoria, Illinois, both of which were then manufacturing concrete block making machines (R. 259). Subsequently the merged company dropped the word Anchor from its name to become Consolidated Concrete Machinery Company (R. 261).

Over the years Besser purchased a number of its competitors. Consolidated was one of the first, control being obtained in 1931 when Besser purchased Consolidated stock. At that time Olsen was president of Consolidated. Besser employed Olsen from about December 1931 until about June 1932, when Consolidated was dissolved (R. 83).

By 1929 Consolidated was either first or second in the concrete block making machine industry, as measured either by number of machines or dollar volume (R. 75). Consolidated reported \$388,862.58 gross sales in its 1930 fiscal year income tax return, while Besser reported \$266,773.71 gross sales in its 1930 calendar year tax return (Ex. 104-5; R. 75). For the year 1931, Consolidated sold 44 per cent of the dollar volume of concrete block making machines as compared to the 45 per cent figure of Besser (Ex. 106-7; R. 78). Evidence at the antitrust proceeding, however, showed that Consolidated was not then in sound financial condition, for it had losses of \$33,000, \$37,000, and \$167,000 in 1928, 1929, and 1930, respectively (R. 264). Besser testified that he had purchased a controlling stock interest in Consolidated at the request of one of the Consolidated stockholders (R. 905).

After Consolidated was dissolved, Olsen returned to Adrian, where he went into the manufacture and sale of farm light plants (R. 83). In this business he used the name Stearns Manufacturing Company, a former subsidiary of Consolidated which was purchased from Besser by Olsen at the time Olsen left (R. 84). By 1934 Olsen began the production of concrete block making machines under the name of Stearns Manufacturing Company, then unincorporated (R. 92). At the time Olsen was subject to a covenant not to compete in this business with Besser, which covenant was released by Besser (R. 281). Stearns began with a simple machine in 1934, and in 1935 began work on an improved automatic machine. In 1936 Stearns was formally incorporated (R. 284). Stearns entered into a patent license with Gelbman in 1936 (R. 92). It made one vibrating machine in 1937 or 1938, and two or three more in 1939 (R. 92). It manufactured tamping type machines at least through 1948.

In 1942 Gelbman (with Andrus who had financed Gelbman in part and was a record owner of the patents) brought patent infringement suit against one Bell, a user of a Besser machine.<sup>1</sup> This suit resulted in a judgment of patent invalidity and non-infringement (R. 94). Besser undertook the defense of the case (R. 147). Gelbman, Andrus, and Stearns then entered into a settlement agreement with Besser that became one point of emphasis in the antitrust suit.

The agreement between Besser, Stearns, Andrus, and Gelbman in settlement of the Bell litigation appears as Exhibit 10 of the Government antitrust proceeding (R. 1201). The agreement lists Andrus and Gelbman as licensors and Stearns and Besser as licensees. The first recital of the agreement states:

Whereas, Licensors are the owners of certain improvements and inventions in concrete block making machines of the vibrating type in which the mold box is vibrated during the operating cycle of the machine in order to compact the concrete mixture therein, which said improvements and inventions are the subject of the following Letters Patent and application, for Letters Patent of the United States and Canada owned by Licensors:

#### United States Patents

1,867,144, Louis Gelbman.....	July 12, 1932
2,003,632, Louis Gelbman.....	June 4, 1935
2,029,365, Louis Gelbman.....	Feb. 4, 1936
2,069,880, Louis and Nathan L. Gelbman.....	Feb. 9, 1937
2,251,447, Louis Gelbman, Eugene F. Olsen, and Arthur B. Mays.....	Aug. 5, 1941
2,269,955, Eugene F. Olsen.....	Jan. 13, 1942
2,275,676, Louis Gelbman, Eugene F. Olsen, and Arthur B. Mays.....	Mar. 10, 1942

#### U. S. Patent Application

Serial No.	Filed
407,710 Louis Gelbman, Eugene F. Olsen and Arthur B. Mays.....	Aug. 21, 1941

#### Canadian Patent

302,579 Louis Gelbman.....	July 29, 1930
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<sup>1</sup> Hamlin P. Andrus, Louis Gelbman and Stearns Mfg. Co. v. H. W. Bell Co.; Civil Action 7-314, (S.D.N.Y., tried in April 1942 before Judge Rifkind).



As to the license granted, paragraph 3, of the agreement states:

3. Subject to the terms and conditions of this agreement, Licensors give and grant to Stearns and to Besser, the right and license to manufacture or have manufactured, use and sell machines embodying the improvements and inventions disclosed in the above listed patents, or any of them, in and throughout the United States and Canada. The license granted herein shall extend to and include any and all improvements or inventions hereafter made by Licensors, or either of them, during the term of this agreement, in concrete block making machines of the vibrating type in which the mold box is vibrated during the operating cycle of the machine in order to compact the concrete mixture therein, and throughout the United States and Canada.

The other critical provision of the agreement is that of paragraph 4, reading:

4. Licensors covenant and agree that they will not grant any other right or license to manufacture, use or sell machines embodying said improvements or inventions, or any of them or under said patents, or any of them, during the term of this agreement without permission of Stearns and Besser, in writing. Neither Stearns nor Besser shall have any right to grant sublicenses to others or to grant, assign or transfer to others the whole or any part of the license rights granted by this agreement.

The agreement further provided for royalty payments to the Licensors, Andrus and Gelbman, the maximum royalty being \$225 per machine (para. 5), and that where the parties agreed to bring an infringement suit the expense would be shared by all, but any two parties could bring suit at their own expense.

The only patent actually involved in the Bell suit was Gelbman patent 1,867,144, which covered the jolting principles, discussed above at pages 120-121.

By the 1946-8 period, Stearns had emerged as the principal competitor to Besser in the sale of concrete block making machines. While the comparative figures for Stearns and Besser are somewhat influenced by a strike at the Besser plant, they nevertheless reveal a real competitive threat to Besser in the operations of Stearns. The following tables give these figures:

TABLE 6  
NUMBER OF MACHINES PRODUCED, 1946-8, INCLUSIVE

	TAMPING		VIBRATING		TOTAL	
Besser.....	0	....	490	8.9%	490	6.1%
Stearns.....	522	20.4%	257	4.7%	779	9.6%
Others.....	2041	79.6%	4770	86.4%	6811	84.3%
	2563	100.0%	5517	100.0%	8080	100.0%

(Ex. 183-186, R. 1395-1400, 998-1004)

TABLE 7  
ANNUAL CAPACITY IN THOUSANDS OF BLOCKS, MACHINES PRODUCED IN 1946-8 INCLUSIVE

	TAMPING		VIBRATING		TOTAL	
Besser.....	0	....	682,200	24.2%	682,200	18.0%
Stearns.....	238,080	24.9%	278,976	9.9%	517,056	13.7%
Others.....	716,878	75.1%	1,861,268	65.9%	2,578,146	68.3%
	954,958	100.0%	2,822,444	100.0%	3,777,402	100.0%

(Ex. 187, R. 1401, 1004-5)

In 1948 Besser, through intermediaries, purchased a controlling interest in the Stearns stock. After the purchase, Besser owned 45 per cent of Stearns stock, an amount in excess of 85,000 shares. Olsen then lost control of the company and sold most of his stock (R. 103). Olsen at this time owned 35 per cent of Stearns stock, amounting approximately to 70,000 shares, and sold them to Smith, Hague & Company (R. 103, 104, 660). Olsen thereupon resigned his position with Stearns.

TABLE 8

DOLLAR VALUE OF MACHINES PRODUCED 1946-8

	1946		1947		1948	
Besser.....	\$2,692,500	33.9%	\$3,366,500	47.8%	\$2,623,000	52.1%
Stearns.....	1,253,043	15.8%	1,363,206	19.4%	651,779	12.9%
Others.....	3,990,943	50.3%	2,306,001	32.8%	1,760,800	35.0%
	\$7,936,486	100.0%	\$7,035,707	100.0%	\$5,035,579	100.0%

(Ex. 188, R. 1402, 1006)

Upon leaving Stearns, Olsen formed the Gene Olsen Corporation (GoCorp) (R. 110). This company was formed on June 1, 1948, and began the manufacture of concrete block making machines before the end of that year. The machine then made was of the high-production vibrator type. It made blocks three at a time on a single pallet, using the application of pressure while vibration continued to form the block (R. 116). The construction of the vibrator of this machine was that patented by John O'Connor.<sup>2</sup> It used what was termed the "resonant principle"—by which increased vibration was achieved by the use of a spring suspension giving mechanical resonance at the forced vibration frequency (R. 117). Olsen requested a patent license from Gelbman in the summer of 1948, although he testified that he had been advised by counsel that there was no infringement of the Gelbman patents (R. 118-9). Later Besser threatened to sue Olsen (then known as GoCorp). At a still later date Besser offered to license GoCorp at \$75 per cavity per machine to go to Gelbman, and a like sum to go to Besser. This proposal was contingent upon Lith-I-Bar taking a similar license limited to no more than a two-at-a-time machine (R. 122). Rosenthaler, treasurer of Besser, was reported to have later said Besser would not grant any license (R. 123-4). Milewski of Lith-I-Bar was unwilling to agree to the arrangement said to have been proposed by Besser (R. 123).

Another purchase by Besser was that of the concrete block making machine business of Industrial Brownhoist Corporation in 1935. This was effected by purchasing the assets relating to this phase of the Brownhoist business. At the time, Brownhoist was primarily engaged in other businesses and was planning to move to Bay City, Michigan—a few miles from Besser's plant at Alpena. In the antitrust proceeding the District Court looked upon the Brownhoist block making machine business as a "sideline" and expressed the fear that "there can easily develop unfair competition by a company operating 'a sideline' that cripples a legitimate business wherein the 'sideline' is the main object of its existence."<sup>3</sup>

Competition of a somewhat different type arose in connection with one Stephen Flam. Flam was the inventor of a number of concrete block making machines. He is reported to have had an early vibration machine (Pat. R. 188). In 1942 Flam was making a machine restricted to a very wet mix and suitable for use only with shallow tile of less than four inches thickness and having thick webs (R. 290). Flam operated in California. By 1946 his company—Stephen Flam, Inc.—was fourth in the industry in terms of dollar sales selling about 14 per cent of the market (R. 1019-20). In 1938 Besser had entered into a patent licensing agreement under which Flam granted exclusive license to Besser, subject to an exception giving Flam all rights in the states of Washington, Oregon, California, Idaho, Nevada, Utah, Arizona, New Mexico, and Texas (Ex. 9; R. 1192).

In 1946 Besser purchased the assets of Stephen Flam, Inc. (Ex. 26-29; R. 1229-1249). Flam was currently employed for a five-year period by Besser as a consultant in the development of concrete block making machines, and agreed not to engage in the business for a period of eight years beginning on January 1, 1947. Flam was paid \$385,000 by Besser.

Bernard Flam, son of Stephen Flam, appears to have entered the concrete block making machine industry in 1948, at which time he filed a patent application to such a machine. In 1948 Besser entered into an agreement with Bernard Flam providing for the payment of \$65,000 for an exclusive license on a paid-up basis for any of the Flam pending applications and an option to take license under any patent issued to Flam prior to April 1, 1954 (Ex. 99; R. 1296-

<sup>2</sup> Patent 2,353,492, filed Jan. 16, 1942, entitled "Vibration Producing Machine."  
<sup>3</sup> 96 F. Supp. at p. 309.

1300). Flam agreed not to engage in the concrete block making machinery business until April 1, 1959.

Bernard Flam was issued patent 2,555,688<sup>4</sup> for a vibratory mechanism for molds. A conventional vibration producing mechanism was used—eccentric weights mounted on a rotating shaft. The point of novelty lay in the fact that the bearings which support the shaft are connected directly to the plate upon which the mold rests. The plate was separated from the main frame by rubber supports.

Robert L. Graveley, Jr., of Orlando, Florida, engaged in the business of making concrete block manufacturing machines from October 1945 to 1950 (R. 152-3). He manufactured vibration type machines, principally a non-automatic cored pallet machine (R. 179) and a fully automatic plain pallet machine (R. 153). Some of his machines used simple vibration of the molds without application of pressure, and others used pressure during part of the vibration period. The feed drawer was vibrated as well as the mold. In 1946 Graveley sold \$300,000 worth of machines. In 1947 sales had dropped to \$69,500, and in 1948 to \$29,800 (R. 157). Graveley applied for patents, but they never issued (R. 157). Early in 1948 Graveley applied for a license from Besser (R. 158). Stark, patent attorney for Besser, is reported to have told Graveley that if Graveley sold any plain pallet automatic machine he would be sued (R. 163). Graveley testified that he dropped out of the concrete block making machine business because the trade would no longer accept a hand-operated machine and he could not afford a lawsuit (R. 169). He was then just beginning the manufacture of the high production plain pallet automatic machine, of which he sold a total of only three before he dropped out of the business (R. 169,181).

Prior to his own manufacture of concrete block making machines, Graveley was in partnership with one F. C. George of Orlando, Florida (R. 176). They were together a year or two, manufacturing concrete block making machines. Prior to that time Graveley was in the business of manufacturing machinery generally and had made some concrete block making machines (R. 177).

Another concrete block making machine manufacturer was known as Vibra-Tamp Machinery Company of Greensboro, North Carolina (R. 198-9). This company was operated by one Thomas B. Winn. It made vibrating type machines from 1946 to 1950. Originally the machine was a small hand machine vibrated by an electric motor. The second machine was semi-automatic (R. 199). The third Vibra-Tamp machine was a fully automatic plain pallet type machine and was manufactured in 1947 to 1949 (R. 199). The fully automatic machine was reputedly very much like the Lith-I-Bar machine which was accused of infringement in the patent litigation. Winn testified that he was told of his alleged patent infringement by Stark of Besser early in 1948 (R. 203). At that time Stark is reported to have named the Scott and two Gelbman patents as those infringed. Vibra-Tamp charged about \$7,500 for its automatic machine without attachments, whereas Besser charged about \$35,000.

One Joseph J. Hanneman of Van Dyke, Michigan, manufactured concrete block making machines from 1946 to 1948 (R. 217). He made a fully automatic vibration type machine in which three blocks were made at a time and at a rate of four cycles per minute to give an overall rate of 720 blocks per hour. After patent threats by Besser's attorney, Stark, Hanneman was given a license to make 10 machines in 1948 (R. 221-2). Hanneman actually made only one machine after the license (R. 224). He had made three machines before the agreement (R. 225). Hanneman had previously been in the tavern business and had owned the lights in a ball park (R. 227-8). Hanneman had several persons making machines, including Glen Leemon of Ludington, Michigan (R. 231).

Another concrete block making machine manufacturer was Roy W. Darden of Atlanta, Georgia (R. 471). Darden evidently was started in this field when he made a machine in 1941 or 1942 at a block making plant where he was superintendent (R. 501). The machine he then made was similar to the Rocker-Crete machine he later made (R. 502). Darden started in the business in 1944, the machine being a cored pallet type using vibration and capable of making 1,500 to 2,000 blocks per day. He made 12 machines in 1944 and 24 in 1945 (R. 472).

Darden's Rocker-Crete machine combined vibration and tamping.<sup>5</sup> A movable carriage to which was attached a spout collected the mix and deposited the mix in the mold box. The hopper containing the mix was in spaced relation to the mold box. The mold box was operatively connected to one end of a vibrating frame which was insulated from the main frame by resilient

<sup>4</sup> Filed June 30, 1947, entitled "Vibratory Mechanism for Molds."

<sup>5</sup> Shown in patent 2,400,361 filed Oct. 4, 1943, entitled "Building Block Forming Machine."

rubber pads. At the other end of the vibrating frame a weight was located in eccentric position in relation to the shaft upon which the vibrating frame was balanced. A series of eccentric weights were mounted upon another shaft which was journaled at the mold box end of the frame. An electric motor rotated this shaft. During the operating cycle, the spout deposited mix into the mold and the vibrator motor was then started automatically. The carriage thereupon moved the spout to collect more mix for the next cycle; a pressing head dropped on the mold box and compressed the mix in the mold during vibration. Before the spout returned to the mold, the block and pressure head were raised from the mold along with the pressure head and shunted to one side at which time the cycle was completed.

In 1940 Darden made an agreement with one Millard Warren to have manufactured for sale and to sell the machine known as the Warren 800. This machine was a plain pallet machine capable of producing 800 blocks per hour (R. 472-3). Warren had constructed one such machine in 1945 (R. 529). The first machine of this kind delivered to a customer on sale from Darden was in 1947. Warren filed a patent application on the 800 (R. 475-6) and received patent 2,652,613<sup>6</sup> to the "800" in 1953.

The machines manufactured for Darden were made by the Atlanta Welding and Machine Company between 1944 and 1946 (R. 474). After that time they were made by the Atlanta plant of Link-Belt Company (R. 474).

In January 1947, Landis Concrete Products Company of Landisville, New Jersey, was sued by Gelbman and Andrus for patent infringement (R. 480).<sup>7</sup> Landis was using a Rocker-Crete machine, which was charged to infringe Gelbman patents 2,275,676 and 2,366,780. It was these patents that were later involved in the Whitman suit.<sup>8</sup> Darden undertook defense of the case (R. 501). During the pendency of the Landis suit, Darden filed an unfair competition suit against Besser, Stearns and Gelbman (R. 481).<sup>9</sup> This suit was filed in the Superior Court of Cook County, Illinois, while the parties were in Chicago for a trade show.

The Darden unfair competition suit was based on allegations that the defendants had waged an unlawful campaign of advertising, claiming that they were the originators of the vibration under pressure principle;<sup>10</sup> that they had threatened Darden's customers with patent actions at the National Concrete Masonry Association meeting in Chicago in February 1947;<sup>11</sup> and that they had told Darden's customers that Darden would soon be out of business because of the patent situation.<sup>12</sup>

The disputes between Darden and Gelbman were resolved by a preliminary agreement of February 20, 1947, under which the patent infringement and unfair competition actions were withdrawn (Ex. 76; R. 1274). A final agreement was entered into on April 7, 1947. Each agreement provided for the further manufacture and sale of a limited number of additional machines by Darden, the final agreement providing for a total of 30 such machines, of which five could be multiple block machines.

One of the events that received later emphasis in court proceedings was the refusal of Link-Belt Company to manufacture any further machines for Darden so long as the patent controversy continued (R. 485). Darden testified that this refusal was due to the efforts of Besser and Olsen (R. 485).

The subsequent activities of Darden are discussed in the text at page 95 in connection with the treble damage litigation.

A significant event respecting competition in the concrete block making machine industry took place in April 1948. At that time a considerable quantity of Stearns Manufacturing Company stock had been sold, and information regarding the matter had reached the concrete block makers. A meeting was then held in the offices of the National Concrete and Masonry Association in Chicago. The meeting was attended by Olsen, Dienhart (secretary of the Association) and a number of block makers (R. 110-13). Olsen's account of the meeting is as follows:

And they wanted to know if it was true I had sold my Stearns stock and to whom. I told them I had sold it to a representative who declined to identify his principal. They stated that they believed the principal was the Besser Company or Mr. Besser, and if that was true, they were taking steps to start a concrete block machinery company of their own, because they were not willing to be put in a position

<sup>6</sup> Filed July 23, 1947, entitled "Building Block Molding Machine."

<sup>7</sup> Docket 9580, D.N.J.

<sup>8</sup> See p. 120 *supra*.

<sup>9</sup> Doc. 47 S. 2844, filed Feb. 19, 1947.

<sup>10</sup> Para. 5.

<sup>11</sup> Para. 8.

<sup>12</sup> Para. 9.

where they would have to go to one concern for high production block machinery. They asked me if I was going to start again and I told them, as I had told the representative of the purchaser of my stock before he bought it, that I did intend to start again. Before the meeting closed, they said that in view of the fact that I professed to be going to start again that they would not go ahead with their plans to start a company, because what was wanted essentially was more than one source for high production block machinery. (R. 115).

In preparation for the antitrust trial the government took the depositions of all known manufacturers of concrete block making machines. From the data of these depositions it prepared tabulations that became exhibits 183 to 186, inclusive, at the trial. Table 9 lists the sales of all vibration type concrete block making machines of 200 blocks per hour capacity or more, for the years 1946 to 1948, inclusive. Table 10 lists similar data for tamper type machines manufactured during this period.

TABLE 9

MANUFACTURE OF VIBRATION TYPE CONCRETE BLOCK MAKING MACHINES, 1946-1948  
(Excluding Machines Under 200 Blocks Per Hour)  
(Based on Ex. 184-186)

	1946		1947		1948		TOTAL	
	No.	Cap.	No.	Cap.	No.	Cap.	No.	Cap.
Columbia Machine Works..... Vancouver, Washington	5	200	7	200			12	200
					3	250	3	250
			3	400	13	400	16	400
W. E. Dunn Mfg. Co..... Holland, Michigan	72	200	58	200	14	200	144	200
Stephen Flam..... Van Nuys, California	514	200					514	200
	80	300					80	300
	6	750					6	750
Roy W. Darden..... Atlanta, Georgia	3	200	3	200	2	200	8	200
			2	800	1	800	3	800
F. C. George Machine Co..... Orlando, Florida	218	300	55	300	16	300	289	300
			27	375	43	375	70	375
Scripps Pearson Machine Works, Inc..... Edmonds, Washington			15	250			15	250
					10	500	10	500
					2	600	2	600
Bob Graveley Industries..... Orlando, Florida	250	250	25	250	12	250	287	250
			6	300	2	300	8	300
			2	400			2	400
			2	480	1	480	3	480
Lith-I-Bar Co..... Holland, Michigan	2	480	27	480	45	480	74	480
Praschak Machine Co..... Marshfield, Wisconsin	6	240	3	240	8	240	17	240
Van Orman Co..... Fairmount, New Jersey					5	400	5	400
Vibra-Tamp Machine Co..... Greensboro, North Carolina	5	250	10	250			15	250
					8	500	8	500
Universal Tampers, Inc..... Peoria, Illinois	1	220					1	220
C. M. Wooten Co..... Knoxville, Tennessee	2	200	1	200			3	200
Stearns Mfg. Co..... Adrian, Michigan	33	360	18	360	13	360	64	360
	77	400	48	400	18	400	143	400
			32	720	18	720	50	720
Besser Mfg. Co..... Alpena, Michigan	16	250	24	250	14	250	54	250
	170	600	186	600	19	600	375	600
			5	750	56	750	61	750

TABLE 10

MANUFACTURE OF TAMPER TYPE CONCRETE BLOCK MACHINES, 1946-1948  
 (Excluding Machines Under 200 Blocks Per Hour)  
 (Based on Ex. 183, 185)

	1946		1947		1948		TOTAL	
	No.	Cap.	No.	Cap.	No.	Cap.	No.	Cap.
Ford Cement Block Machine Co.....	44	300	45	300	6	300	95	300
Cedar Falls, Iowa								
E. B. Kelly Co.....	37	300	8	300	7	300	52	300
Tarmingdak, New Jersey								
The Kent Machine Co.....	180	200	60	200	30	200	270	200
Cuyahoga Falls, Ohio								
Miles Mfg. Co.....	241	200	226	200	97	200	564	200
Jackson, Michigan								
Multiplex Machinery Co.....	16	200	12	200	14	200	42	200
Elmore, Ohio	12	300	15	300	5	300	32	300
Praschak Machine Co.....	2	240	6	240			8	240
Marshfield, Wisconsin								
Stearns Mfg. Co.....	269	200	156	200	37	200	462	200
Adrian, Michigan								
Universal Concrete Machine Co.....	5	250	5	250			10	250
Columbus, Ohio								
Universal Tamper, Inc.....	9	220	12	220	7	220	28	220
Peoria, Illinois								

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## CONTRIBUTED ARTICLES

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Individuals are invited to submit manuscripts to the *Journal*. The following articles in this section have been selected for publication in this issue.

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### Three Major Trademark Problems in the United States

FRANCIS C. BROWNE\*

A FREQUENTLY STATED PRINCIPLE OF TRADEMARK LAW in the United States is that no prior trademark case is a precedent for or is controlling upon a subsequent case—each case must be decided on its own facts. This principle is not consoling to businessmen who adopt, promote, and then try to protect their trademarks in statutory or common law actions for trademark infringement and unfair competition. It may be that the principle was initially adopted by the courts for the purpose of circumventing prior adjudications without either specifically overruling them or distinguishing from them. To state it otherwise, the courts have probably tried to avoid reliance upon cases which come under the category of those in which “bad facts make bad law.” The net result, however, is that *the doctrine of stare decisis* has found little application to cases involving trademark infringement and other forms of unfair competition. Legislative efforts to bring about uniform application of this doctrine in the federal courts seem to have served only to further complicate matters. The courts, for the most part, have taken the position that the Lanham Act, for example, either codified the existing case law or did not substantially change the prior case law or statutes.

This is but one of the major problems confronting trademark owners at the present time. It is best illustrated by the diametrically opposing results in the Second Circuit Court of Appeals decision in *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*, 234 F.2d 538; and the decision of the Fifth Circuit of Appeals in *Sears Roebuck & Co. v. All States Life Insurance Company*, 114 U.S.P.Q. 19, 246 F.2d 161.

A second serious problem arises in the selection of a mark. It is the desire of the fair-minded businessman to adopt a mark which he may promote extensively without running the risk of unexpectedly encountering a prior unregistered intrastate user of the same or a similar mark for the same or similar goods. Under the common law theory applied in this country, the prior user has the upper hand (at least in his own territory under the *Hanover*<sup>1</sup> and *Rectanus*<sup>2</sup> cases) and the subsequent user must either: (1) buy up the prior user's rights, (2) proceed at his own peril, (3) change to another mark, or (4) continue use elsewhere but stay out of the prior user's territory.

The “prior registration” theory employed in certain foreign countries is equally disconcerting, particularly where the country permits registration without actual

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<sup>1</sup> *Hanover Star Milling Co. v. D. D. Metcalf*, 240 U.S. 403, 36 S.Ct. 357.

<sup>2</sup> *Theodore Rectanus Co. v. United Drug Co.*, 248 U.S. 90, 39 S.Ct. 48.

use. In those countries, the later user is completely at the mercy of the prior registrant, and the extent to which the former has developed his market in the rest of the world determines the price he must pay to remove the registrant as an obstacle in the new market. Thus it is not believed that this system, which is tantamount to "compulsory registration," would provide the answer to the problem in this country.

A third problem, unrelated to either of the foregoing, is that arising out of domestic and foreign licensing and assignment of trademarks. The legalization of the free assignment of domestic trademarks (assignment in gross) has been urged from time to time and, in many respects is condoned in substance, if not in form, in the United States. The arguments pro and con have resulted in a compromise which is the "licensed user" or "related companies" doctrine adopted by many countries. The criteria of control over the licensee or related company, however, are not at all uniform and the grantor risks loss of rights if the criteria are not met, country by country.

Apropos the same general subject, recent decisions in this country<sup>3</sup> involving exclusive territorial distributorships have pointed up the necessity for a studied approach to the divisibility of ownership of trademarks on a country-by-country basis. Either on the theory of "free assignment" or "licensed user" there is no assurance that the public will be guaranteed uniform quality of goods sold under identical trademarks in different countries, since the standards of quality of a certain product sold under a certain mark may vary from one country to another, depending upon economic or technical factors.

These major problems deserve exploration and solution, to the end that, in the public interest, trademarks will serve their intended and proper function and that the owners of trademarks may have an adequate remedy against those who either reap where they have not sown or, by artful devices, unjustly enrich themselves by a sort of legalized larceny.

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The comment below was received from Dr. Joseph Rossman in the course of his staff review of this paper among others for this issue of the *Journal*. In view of the fact that it is illustrative of the type of constructive suggestions for research which this article is intended to encourage in our readers and its emphasis on the interdisciplinary approach of the Foundation, it is being published.

Mr. Browne is pointing to *purely* legal problems which do need attention. I think our trademark system needs a fresh look which only an interdisciplinary approach can provide. The questions of infringement, confusion in trade and palming off need a scientific psychological approach by the courts. The courts, for example, have been very reluctant to accept or rely on *opinion surveys* in trademark cases even though based on modern scientific sampling methods and procedures. Trademark cases are largely decided on the judges' hunch reactions just like invention questions in patent cases. Psychological techniques in trademark cases could shed a great deal of light in resolving legal problems.

The question of secondary meaning, weak and strong marks could also be studied by psychological techniques.

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<sup>3</sup> *Roger & Gallet v. Janmarie, Inc.*, 114 U.S.P.Q. 238, 245 F.2d 505.



# Advantages and Disadvantages of Foreign Licensing\*

J. N. BEHRMAN\*\*

## SUMMARY

FROM RESEARCH AMONG a variety of sources, including personal interviews with corporate officials, a picture of the extent of foreign licensing, its nature, and its advantages and disadvantages has been drawn. While little contained in the current presentation may be new to the official responsible for foreign licensing, the analysis of these aspects in one place may be useful as a reference. And, to the neophyte, it may open up new approaches or provide new insights.

The analysis compares foreign licensing with the alternative approaches to foreign operations of direct sales (export) and foreign investment. A concluding section relates foreign licensing to the interests of the governments and national economies involved.

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THERE HAS BEEN an increasing interest in the exchange of technical know-how and of certain proprietary rights among industries in many nations over the past decade. This has been evidenced by the exchange of persons under various foreign aid programs, the standardization of armaments under NATO, and the increasing volume of licensing agreements entered into by U. S. companies with foreign enterprises.

Licensing agreements usually provide for the transfer of information (either managerial or technical "trade secrets"), of trademarks, and of patent rights. The existence of significant patents, trademarks, and managerial and technical know-how often epitomize a successful company; they reflect its inventiveness in the areas of production, management, and sales. This inventiveness is a valuable asset in the domestic market, and it has been the basis of much of the expansion of U. S. exports during the past decade. But inventiveness may be even more valuable as an asset which can be turned into profits from abroad through the transfer of the resulting foreign patent rights, trademarks, or of American know-how under licensing agreements.

This inventiveness must take the form of something which is desired *abroad*. What may be licensed at home may have no takers abroad; to find out whether the

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\* The Foundation supported the preparation of this paper which was presented in an earlier version before the International Management Association's seminar on foreign licensing at Colgate University in August 1957.

\*\* Dr. Behrman, Professor of Economics and Business Administration at the University of Delaware, is Principal Investigator of *Project 5a* of the Foundation. See PTCJRE, 1, No. 2 (December, 1957), pp. 220-243.

proprietary right is usefully licensed abroad involves an analysis of the product, processes, patent position, and technical leadership in the industry as it applies in each foreign market; to present the procedure which should be followed in making such an analysis would lengthen this paper considerably. But some considerations as to appropriate characteristics of products for licensing abroad are discussed in a separate report in the *Journal*, vol. 1 (December, 1957), pp. 220-243.

Assuming that there is something which has a license potential abroad, the question first is whether or not it would be advantageous to do so.

The various advantages and disadvantages can be distinguished according to whether we are talking about the potential American licensor, the potential foreign licensee, the foreign government and its economy, or the U. S. Government and the U. S. economy in the aggregate. The impact of licensing on each will not be the same, though the *net* result will often be advantageous enough to warrant specific agreements or the encouragement of licensing through governmental policies. While we may separate these aspects for discussion, they are woven inextricably. For example, the attitude of a foreign government toward one of its companies becoming a licensee depends on what results the government considers will occur; if it finds that the effects will not be desirable, it will erect obstacles to the agreement. These obstacles in turn will make the opportunity less advantageous to the American licensor, who may withdraw his interest in that field. By the same token, a favorable attitude of the U. S. Government toward licensing would cause it to encourage the removal of some obstacles abroad and to administer its own rules and regulations so as to encourage licensing, thereby increasing the advantages to the American licensor.

Before we examine the various advantages and disadvantages and their origins in the attitudes of private companies and policies of governments, we may give more meaning to the discussion if we pause to examine the nature and extent of foreign licensing.

#### NATURE AND EXTENT OF FOREIGN LICENSING

##### 1. *Types of Licensing*

There are basically four types of licensing agreements, though they are usually found in combination. The agreement may be a vehicle for transferring rights to *patents*, either of products or processes, which have been filed abroad by the American firm. It may be a means of transferring the right to use an American *trademark* registered abroad. It may be an arrangement to sell *know-how* relating to either technical or managerial skills or both. A fourth type combines one (or more) of these agreements with a reciprocal arrangement under which the same rights are extended from the foreign company to the American firm, thus setting up a *cross-license* which frequently involves no payment between the parties of royalties or fees. Any of these types of licenses may extend the right to manufacture, or merely to use and sell items embodying the patents or know-how or bearing the trademark.

Any of these, or any in combination, forms what is known as a "pure" licensing arrangement—as distinct from licensing combined with investment by the licensor in the licensee.

## 2. *Extent of Licensing*

Despite the fact that there is inadequate quantitative information as to the extent of foreign licensing by U. S. companies, it is evident from the increasing comment in trade journals and from the greater attention to licensing programs being given by corporate officials that the practice is growing rapidly.

It is not yet possible to say definitely which of the types of licensing predominates, though there is evidence that the major item which the licensee wants is technical and managerial know-how with the patent and trademark rights being desired mainly for protection or for extra sales value. The experience of Westinghouse is instructive:

None of the "associate companies" has ever failed to seek renewal of its licensing agreement, and Westinghouse thinks this record is explained, in part, by its belief that the mere transfer of patent rights is less important than a long-term program of technological assistance. At the main works in East Pittsburgh there are always foreign engineers gathering information for the use of licensees. Also in East Pittsburgh, at the famous Westinghouse graduate engineering school, foreign students work alongside the U. S. college graduate being trained by Westinghouse for its own operations. In the great D aisle of the home plant, a foreign student will sometimes see in various stages of construction more generating capacity than his whole country possesses. The faculty figures that he will stay impressed by Westinghouse for a long time.<sup>1</sup>

Nor is it yet possible to say which countries are the major recipients of licensed rights and know-how by American companies. Some firms have over 100 licensees in a group of 20 or more countries. It is safe to say that France, the United Kingdom, Germany, and Japan are the top countries, in somewhat that order, with few countries outside of the Iron and Bamboo Curtains being excluded from the list.

The magnitude of licensing operations abroad is suggested by some data on Japan, Britain, and Germany. In the case of Japan, 431 technical assistance contracts were negotiated between May 1950 and December 1954. The U. S. Department of Commerce estimated that these contracts had a total capitalized value of \$293 million (at an average royalty rate of 5%). The strong demand for U. S. technical assistance is reflected in the fact that U. S. firms participated in 307 (or 71%) of these contracts and represented 62 per cent of the capitalized value, or \$182 million. A study in *Fortune* (April 1953) estimated that the amount of foreign exchange remitted by Japan as royalties on the few contracts in existence during the full year of 1951 equalled \$3.7 million and in 1952 jumped to \$15 million; Japan's balance of payments shows a *cash* payment on the order of \$12 million in 1955. While these two sets of estimates do not jibe, both support the conclusion that the capitalized value of licensing contracts existing between the United States and Japan was nearly the value of outstanding U. S. private direct investment in Japan during the early 1950's.

A study of the operations of U. S. companies in the United Kingdom reported that four-fifths of the U. S. products sold to British consumers in 1954 were *not*

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<sup>1</sup> *Fortune*, February, 1950, p. 76f.

*manufactured* in the United States.<sup>2</sup> They were manufactured by U. S. subsidiaries, by joint Anglo-American firms, or by British firms under U. S. licenses. In the aggregate, some \$2 billion of U. S.-type goods were produced, of which two-thirds were by U. S. firms (wholly or jointly owned) and one-third by British firms under license. Of course, some of the wholly or jointly owned firms were operating under formal or informal license, also; thus, licensing was involved in even more than one-third of the \$2 billion of goods produced.

Assuming a royalty rate of 5 per cent on net sales, and assuming that only half of the production of U. S.-type goods was under license, a return in the order of \$50 million was due U. S. licensors of British (and jointly owned) firms in the year 1954. (British statistics do not show a figure comparable to this amount; the explanation may lie in inadequate estimates underlying the \$50 million figure, *or* in the fact that some of the royalties were retained abroad for re-investment in subsidiaries, *or* in the fact that some agreements were cross-licenses offsetting the value of the return to the United States by an equal return to Britain, leaving no funds to move.) In contrast, just under \$400 million of manufactured goods were imported into the United Kingdom from the United States in 1954, exclusive of defense equipment, the net profit on which may have averaged 20 per cent, giving a net return of \$80 million—hardly twice the estimated “net return” from licensing.

The Western German Economic Ministry reportedly estimated that the country paid out over \$200 million in royalties to U. S. firms in 1956, exclusive of German patents and know-how made available on a reciprocal basis to U. S. firms. This figure is almost seven times that which can be derived from German balance-of-payments data which show about \$40 million of payments to the United States for patents, royalties, and copyrighted *films* plus another \$15 million or so of miscellaneous fees (possibly including engineering services) under licenses; these two figures may include a total of some \$30 million of returns to the United States under licenses. It is difficult to reconcile these figures, and no attempt can be made to do so here. We must wait on more adequate reporting.

It is also estimated that the returns from France are greater than those from either Britain or Germany. The total payments to the United States by these three countries plus Japan may *conservatively* aggregate \$100 million yearly. When we add the returns from other nations, an estimate of \$200 million may be close to the actual transfers—exclusive of cross-licenses. At a capitalized rate of 5 per cent, this would mean a non-financial investment valued at a minimum of \$2.5 billion by American enterprise abroad, compared with outstanding direct private foreign investment of \$20 billion (gross). If the capitalized value of cross-licenses and royalties retained abroad are added, it is not inconceivable that the *non-financial* foreign investment of U. S. companies licensing abroad equals \$4-\$5 billion.

The returns from licensing are not concentrated in any one industry in the United States. The diversity of products licensed tells part of the story; the list includes items such as novelty ashtrays, pop-up telephone directories, “wonder” drugs, radio parts, electronic equipment, military ordnance and materiel, air-

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<sup>2</sup> *Engineering Digest*, March, 1956, p. 4.

conditioning equipment, textile machinery, and entire processing or generating plants with their built-in know-how. The number of firms engaged in licensing abroad is not readily estimable, but it is probable that over 3,000 U. S. companies operate abroad through licensing arrangements. Nor do the companies so engaged follow any specific size pattern; licenses are extended by both large and small firms. While the returns of those which have set up entire divisions to carry out the agreements are sometimes in the millions of dollars, smaller returns to many of the remainder are not inconsiderable in their over-all profit pictures; for some of the smaller firms, it has been estimated that licensing returns equal 30 per cent of *net* profits.

Despite the number and diversity of firms engaged in licensing, one expert has asserted that the answer to the question of whether or not to license should probably be "No" in the case of 99 per cent of the firms in the United States. But, since for the one firm for which the answer should be "Yes" the profits may be great and the benefits to both parties over many years may be considerable, it is well worthwhile examining the pros and cons—both in specific instances and in the over-all picture.

#### ADVANTAGES AND DISADVANTAGES OF PATENT AND KNOW-HOW LICENSING

The problems surrounding licensing of trademarks are distinct in important respects from those of patents and know-how, so we will treat these separately from patent rights and know-how.

##### *1. Motives to License Abroad*

The motives of businessmen to license the use of their foreign patents and their know-how to firms abroad fall into two main categories: those related to expansion of foreign business and those stemming from discouragements to other forms of overseas business, that is, exports or direct investment.

##### *a) Licensing to expand overseas operations*

While most companies consider licensing a poor alternative to direct sales or even direct investment, there are differences in approach to overseas operations; these approaches are exemplified at one end by Westinghouse, by General Motors at the other, and by General Electric somewhere in between. General Motors seldom licenses independent foreign manufacturers and retains the largest possible equity in its many plants overseas. General Electric International has 10 or so manufacturing subsidiaries and only about 20 manufacturing licensees, with a minority interest in half of them. Westinghouse has about 40 manufacturing licensees and hardly any foreign investment. There are distinct reasons for entering into licensing arrangements:

(1) *Royalty return.* Obviously the primary motive of foreign licensing is usually to obtain some monetary returns; they may be in the form of royalties or of dividends from a subsidiary. But this motive is frequently coupled with one of the following.

(2) *Maintenance of the current relation with a customer.* A manufacturer-customer may go abroad (an industry such as automobiles or oil processing), and the American parts supplier (or plant constructor) may have to license the manufacture of products (or the use of processes) in order to keep its customer. In this event, the motive to license stems from that of the customer-investor who may himself have a tradition or a necessity of foreign expansion.

(3) *Maintenance of market position in the industry.* This motive may be more important than profit maximization. If a firm's competitors are going abroad, it may be necessary to expand abroad in order to keep one's place. This seems to be a significant factor in some decisions to license, for it is quite clear that the uncertainties in foreign markets make a calculation of future royalty returns difficult. Company officials may wish to maximize profits, but more frequently they seem to *think* in terms of the maintenance or expansion of the firm's market position. This position may be strengthened better and at less cost by expansion abroad through licensing than by upsetting the domestic market picture by aggressive expansion at home—even though the return abroad might seem to be less.

(4) *Licensing as a result of the drive to research.* The maintenance of the domestic market position itself is conducive to foreign licensing, for the race to keep one's place at home requires a continuous improvement of technical and managerial skill and product design. Contrarily, a stimulus to research arises from the necessity of keeping licensees up to date.

(5) *Stimulus from NATO.* NATO cooperation in standardization of armaments has opened up many areas for licensing, which are given special protection by both the U. S. and foreign governments under technical assistance agreements. When a given piece of military equipment is accepted as the standard item for NATO forces, the decision to have it produced in Europe may require that an American firm—which developed it under U. S. Government contract or on its own—license the requisite know-how. The U. S. Government licenses its own proprietary interest in the item freely, but the production may not be carried out wholly under processes or patents developed under government contract. An agreement covering the private proprietary rights is then required. Since in some cases the licensee is a government, a covering intergovernmental agreement between the U. S. Government and the foreign one seeks to protect the interest of the American licensor.

Such activities—associated with the manufacture of tanks, jets, engines, spare parts, supplies, etc.—have increased the volume of licensing to foreign countries. These increased contracts have also been the basis of wider licensing agreements among the firms concerned. It is unlikely that, if the licensing of armaments subsidies, the American and European firms will sever their other economic ties.

(6) *Impossibility of "hoarding" developments.* Some American companies have attempted to hoard improvements as "trade secrets." It has been found that in some instances it is more profitable to sell them, because it is impossible to keep technical know-how a secret for long. Obviously, it may not be good to disclose information so that competitors can obtain it immediately, but since they will do so

eventually, many companies have concluded that it is best to get the maximum return possible (including from abroad) in that short time. A technical assistance agreement provides a *continuing* outlet for improvements developed at home. Cross-licensing, of course, assures the American firm of reciprocal advantages of developments abroad; some firms have found this return of foreign improvements is much more important than the royalties on their own licenses. Currently, the U. S. licensor is in a favored position, since it is his know-how that is in demand over the world; it may be highly desirable for U. S. enterprise to "get in on the ground floor" in the process of economic development or more rapid industrialization abroad.

b) *Licensing to substitute for or expand exports*

While there are a few American companies which place primary emphasis on licensing over direct sales abroad, almost all seem to prefer to export. One expert in the field of foreign operations (Rudolf Kuhlman) has stated the maxim that a license should be extended "only when export volume declines and seems to be on permanent skids." Licensing, under this approach, is a last resort; it is to be used *only* after exports have been fully tested for profitability by actual sales in foreign markets over an *extended* period of time. It is not suggested that *every* decline in exports is a signal for licensing.

A temporary drop in exports may not be met suitably by licensing the manufacture of the product, for as soon as the obstacle was removed, the direct market would open up again. If licensing had taken place in the interim, important information would have been transferred and would not be easily recovered. This would be the case if the cause was a slump in aggregate or specific demand abroad which is likely to be reversed in the near future.

A temporary drop in exports might be a result of a lack of foreign exchange in the foreign country; that is, its balance of payments may have gone temporarily into deficit. In this event, restrictions may be placed on imports of U. S. goods, causing U. S. exports to decline until the exports of the foreign country can rise again. This condition of so-called "dollar-shortage" has seemed more permanent than temporary for some foreign countries. Several U. S. companies have engaged in licensing abroad as a direct result of balance-of-payments deficits abroad. But during the past three or four years, the pressure on dollar balances has been somewhat relieved in many countries, and the ability to purchase dollar goods has risen. Some companies which have extended licenses may regret it in the future.

They may equally well *not* regret their licensing if the seemingly temporary restrictions aimed at balancing payments are expanded or extended into those aimed at increasing economic nationalism. If this is the case, the restrictions on imports of American goods will lead to either manufacturing abroad or licensing. For example, the American manufacturer may sell his room air-conditioner in the United States for \$200 per unit only to see the same item sold in Europe for over \$400 as a result of transportation and duties. At that price, he will find the European market quite limited for imported air conditioners. By avoiding duty, transportation, etc., the same unit produced in Europe may well undersell the imported American

product considerably. If the right licensee can be chosen, there is little doubt about the value of manufacturing abroad under license.

The same restrictions which stopped exports and caused consideration of licensing may themselves be a factor in making a license agreement quite profitable. That is, the same restrictions excluding U. S. exports also preclude sales in that market by competing exporters. The foreign licensee may then enjoy a protected market.

In addition, if the cause of the decline in U. S. exports was such as to give the foreign competitor a chance to take over the market, it might be desirable to license the foreign firm to make the (better) American product and then to share the market once demand picked up again or the obstacles were removed.

During the immediate postwar years Europe, especially, was war-torn and unable to meet demand for industrial goods. Since it has recovered, its industry has given stiffer competition not only at home but in third markets. Many European manufacturers are now able to underbid American producers, and many new firms are rising abroad. This competitive ability may be a result of better techniques, lower labor costs, cheap credit provided by the government (especially in exporting), or governmental subsidies. If the European common market is established, barriers will fall within Europe, increasing productivity and intra-European trade; competition with U. S. goods will become stiffer. In this event, if a sound competitor abroad can be found who would profit from American know-how or patents, licensing can provide a profitable business relationship and permit the American company to take advantage of an early start in the expansion of the European economy.

But the competition in sales may come not only from *foreign* companies. American companies may be setting up subsidiaries, branches, or licensees abroad. When this enables them to produce a similar product at less cost (and particularly at less dollar cost), it may be desirable to follow suit. Even though the first firm may consider the motives of the competing American companies insufficient if they succeed in squeezing out its exports, the desirability of maintaining its position in the market in the best possible fashion becomes a motive to license. By way of illustration: Suppose that the competing American firm has found that it can sell more products if they are not invoiced in dollars because of a fear of the foreign customer of having to pay in dollars. This fear may be irrational currently since there may be no "dollar shortage," but if it affects demand, it must be taken into account. The competitor may then enter the market through licensing or investment, receiving payment for sales in a foreign currency. The first firm may feel compelled to follow suit even though its officials think that both companies would have had profitable sales if the competitor had not jumped.

It might be emphasized that not even in this hypothetical case does *licensing* cut off direct sales. They would have presumably been reduced through the action of the competitor. It is seldom the case, therefore, that licensing will be adopted by U. S. companies when their direct sales would actually be reduced *by the fact of licensing*. Either the export volume has already dropped or it is expected to do so.

Contrarily, there are some firms which employ licensing to *expand* exports. This occurs through direct sales of component parts or complementary items. The licensee



may be able or willing to manufacture one part, assembling it with the rest, which are imported; such an activity may be profitable because of certain import tariffs or regulations. Also, the existence of sales by the licensee of a part of the licensor's line of products has, in the experience of some companies, increased their sales of other items, especially the complementary goods, in their line. Again the experience of Westinghouse is instructive. In 1949, its licensees bought about \$6 million worth of Westinghouse parts. Because of import quotas and tariffs, parts orders represent a greater volume of business and a greater profit than Westinghouse could achieve by shipping the finished products. The power-consuming equipment manufactured by its licensees also creates new demand for generating equipment which the licensee cannot itself produce and supply. These heavy items must be purchased outside the country of the licensee, and Westinghouse is convinced that its having helped develop a home-owned industry abroad is remembered when such orders are placed.<sup>3</sup> Finally, total economic activity may be increased by production of the licensee; the licensor may share in that expansion through more exports.

Though it has been argued above that licensing might not be desirable until exports fall off, there are those who assert that licensing has inherent advantages over direct sales. First, licensing is more flexible than exports in that the licensor's own production facilities are not tied up in anticipation of any given volume of sales. Any shift in demand or production patterns abroad is borne by the licensee. The licensor is, thereby, relieved of a continual surveillance of market demand.

Secondly, and as a collateral point, the licensee can get closer to the market being an old hand in the area and can determine its significant movements. The licensor then buys into this know-how with very small expenditures of time and money and yet can "get out" completely if necessary at practically no cost, whereas the loss of significant exports would involve considerable readjustment in production schedules and marketing agencies.

Thirdly, licensing avoids the problems stemming from trade barriers. For example, many firms are now forced to carry out multiple export shipments, invoicing and re-invoicing cargoes to avoid these barriers and make the sale profitable. In addition, manufacture behind such barriers, as we noted, gives the licensee a preferred position, and the extra profit is shared by the licensor—a profit which he could not gain through direct sales.

Fourthly, proceeds from exports are often restricted as to their convertibility, making it uncertain whether they will yield a profit. One investigator elicited the response from a corporate official that licensing would not have the appeal that it does currently were exchange restrictions removed:

Naturally, we'd rather export the product than the patent and make the profit from its sale ourselves. But exchange authorities in many foreign countries won't let their people have all the dollars they want because the country as a whole is not able to sell enough of its own goods and services to replenish its supply of greenbacks. However, these authorities are much more willing to release the smaller amount of dollars required to meet royalty payments if the patents obtained in exchange help them save more dollars or earn more foreign exchange in other markets.<sup>4</sup>

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<sup>3</sup> See *Fortune*, February, 1950, p. 76f.

<sup>4</sup> *Commerce*, March, 1957, p. 299.

Finally, the assertion that direct sales *are* more profitable than licensing rests on an assumption that sufficiently accurate accounting is carried out to make a comparison possible. This problem is one which has not been given sufficient attention by most licensors; it will be examined in a later study.

But, whether or not licensing is a more appropriate technique than exporting in expanding one's foreign operations, or whether licensing should wait on a permanent loss of export position, it is quite apparent that the export position of the United States is not going to remain in the same "preferred" place that it has held during the past decade when it was almost the sole supplier of many of the world's goods. Even in areas which have previously been considered "U. S. markets," U. S. enterprise is meeting stiffer competition. Other nations are actively seeking export outlets and are actually displacing some U. S. exports (e.g., agricultural machinery). And many of the more backward countries are emphasizing industrial development in items which have loomed large in U. S. sales (e.g., textiles). Collaterally, the U. S. economy may find that its own growing consumption demand will cut down on production *available* for export; yet, a drop in exports might reduce the inflow of foreign raw materials which are becoming increasingly scarce as they are sought by other industrial countries or are utilized in the development programs of the more backward areas themselves. These factors stress the importance of an examination of U. S. overseas operations to find ways to make them more effective.

c) *Licensing to substitute for or facilitate direct foreign investment*

Just as licensing may be a substitute for direct exports, it may be a substitute for manufacturing through a branch or subsidiary. When the factors previously discussed concerning exports make it advantageous to manufacture abroad, the American businessman still has the choice of doing it himself or permitting others to make his product or use his processes and know-how. The decision is obviously not all one way; what are the relevant factors?

Once again, licensing enables the American firm to achieve the objective of jumping trade barriers or offsetting declining exports *without* making extensive transfers of capital. When capital is already scarce at home, the smallest possible investment of funds is desirable if the same general purpose may be met. A recent study of business motives in investing abroad concludes that many companies do *not* expect returns abroad higher than those gained on capital invested in domestic operations. The desirability of having the product manufactured abroad may be strong, but there is not a strong monetary incentive to put *capital* into the project in many instances.<sup>5</sup> Several U. S. firms have turned to licensing because domestic expansion requirements are taking all their available capital. By the same token, licensing does not involve the American company in a possible *loss* of capital.

Second, a branch or subsidiary operation requires the use of scarce executive talent. While licensing also requires some expenditure of brain-power, it removes worries concerning sites, technicians, employee relations, local legislation, etc. These are borne by the licensee.

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<sup>5</sup> E. R. Barlow and Ira T. Wender, *Foreign Investment and Taxation* (New York: Prentice-Hall, 1955), pp. 132, 158.

Third, licensing need not preclude a later investment abroad either in the licensee or through a separate subsidiary if desired. For example, if the foreign market is not now large enough to warrant an investment of American capital sufficient to gain economical production, licensing is a means of getting a foot in the door. Licensing avoids the problem of the size of a market necessary to justify the investment of American capital. By the same token, however, as the foreign firm expands, it may wish to call on American capital as well as know-how. The question will then arise as to whether the licensor should stand ready to take an equity participation. Libbey-Owen Glass Company obtained substantial investments in Europe through licensing its patents, and General Motor's early investments in Canada grew out of patent rights extended to others. This dynamic relation between licensing and investment points up one of the prime advantages of licensing: it permits a gradual test of the foreign market with a small commitment of capital or of U. S. production facilities.

Fourth, licensing may be the only appropriate means of manufacturing abroad if the foreign market is already dominated by large firms. It might be possible to enter a licensing agreement, but it would be impossible to buy into the foreign firms, at least with any intent to control.

Fifth, where governmental restrictions on transfer of currency already exist, it has been found that returns of royalties are often looked upon more favorably than the return of dividends and principal. Not only are royalties smaller in many instances (though this need not be the case if a large portion of subsidiary profits are re-invested) but also there is no possibility that a large sum might be repatriated in a short space of time. In order to regularize the impact of direct investment on their balance of payments, many countries have imposed restrictions on the transfer of capital and returns thereon. Licensing has sometimes avoided these restraints and given the licensor time to assay the situation abroad.

Sixth, several foreign governments have reserved a given area of manufacturing or industrial service for themselves. It is impossible for the private investor to enter the industry. But licensing is still feasible and sometimes actively sought by the foreign public agency. Whether or not it is advantageous will depend largely on the integrity of the government and the protection the licensor can obtain.

Seventh, among the objections to direct foreign investment voiced by governments in the recipient countries are that insufficient local personnel are trained for managerial and technical positions, that the capital structure gives too much authority to the foreign (U. S.) firm, and that the interests of the local community are not sufficiently taken into account. Licensing, since it leaves all of these decisions in the hands of citizens of the foreign country, automatically avoids all of these problems. Also, compliance with local labor and social legislation—which has sometimes been used in a procedure called “silent expropriation”—is the responsibility of the licensee.

Not all factors are favorable to licensing as compared to direct investment, however. First, without equity participation, the licensor gains no direct control over the licensee; control may be highly desirable if American managerial know-how is

important in this field. Without control, any contribution the licensor might make to management problems is no more than advisory.

Second, the licensor may build up competition for himself in the future, if he does not have ownership. He is supplying know-how and information which may enable the licensee to sever the agreement in the future (say, at the expiration of the patent) and still hold the market. This can be avoided by having a technical assistance agreement and by keeping the technical improvements running ahead of actual production processes so that the licensee finds it continually to his advantage to remain under an agreement.

Third, if the licensor later deems it desirable to enter the market directly also (i.e., through a subsidiary), it may be more difficult than if direct manufacturing had been started in the first place.

Fourth, since either the licensee or the licensor may wish to terminate the agreement and go it alone, some have suggested that licensing might best be looked on as a temporary arrangement. A major problem, then, is how to keep the license essentially temporary in nature, if this is the intent of either party, or how to make it permanent if this is the most desirable situation. Once again, these problems will be examined in a later study covering contract provisions and the relationship of licensor to licensee.

Finally, one expert in the area of foreign business operations has asserted that, in general, direct manufacturing abroad through subsidiaries is more desirable than indirect manufacturing through licensing. He has argued that investment is the "direct and permanent approach" to the foreign market and involves integration into the foreign economy, which he assumes will provide good opportunities for growth and expansion. If the foreign market is expanding, and if the American firm has available capital and personnel, and if some of the obstacles we have already examined (and will examine below) do not exist, then it might be asserted that the control which accrues with direct investment does help reap the maximum benefits for the American firm. There is some evidence that U. S. companies are moving away from straight licensing agreements to licensing with equity participation in *foreign plants*.<sup>6</sup> This action does not preclude licensing; it is merely a complex form of overseas operations.

## *2. Obstacles to Licensing of Patent Rights and Know-how*

So far we have examined the various advantages of licensing abroad—those which are independent of any other technique for operating abroad and those which arise in comparison with exports and direct investment. There are also some obstacles to licensing which arise apart from any *comparison* with other methods of doing foreign business.

First, both investment and licensing are subject to the impact of instability in foreign governments. If the foreign firm is nationalized, or if there is insurrection or revolution, the licensing agreement may be voided and the information not

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<sup>6</sup> See *Business International*, April 1, 1955.

returned; this result occurred in many instances during World War II and in some significant cases afterwards; the fear remains. Further, the mere instability of the political situation makes it difficult to assess the market and to determine the feasibility of a long-range agreement.

Second, when one is contemplating a licensing arrangement (or establishment of a foreign subsidiary) the quality of personnel abroad is most important. While it may be possible to train individuals to assume responsible positions, it is sometimes more difficult to find an entire plant or firm which is competent or reputable enough to warrant a long-term agreement that entrusts valuable proprietary rights to the foreigner.

Third, the reputability of the potential licensee including his credit standing may be inadequate to support operations of a sufficient scale to be profitable. Many a potential American licensor has investigated a foreign applicant only to find that he has a basement shop or nothing at all in the way of assets or honesty. The investigation of the foreign firm is one of the most important aspects of licensing operations for the success of licensing depends heavily on good faith. Some officials go so far as to assert that if a reputable, trustworthy, and competent set of executives runs the foreign firm, the agreement hardly needs be written out; it will be sufficient that the arrangement is mutually profitable; for, so long as it is, the good faith of the licensee will see that the verbal agreement is carried out. Contrarily, if the arrangement is not mutually profitable a written agreement can hardly be *made* to bind the licensee. This view is recognizedly an extreme statement, made to emphasize the importance of good faith; there are, as shall be shown in a later study, reasons why the contract *should* be written and in considerable detail.

Fourth, as with direct investment, licensing may be unattractive because of a lack of sufficient market abroad. The profit potential may simply not exist. Once again, a preliminary survey of the situation is most important.

Finally, a few American firms have become so wary of changing interpretations of the antitrust legislation that they have curtailed their licensing program.

#### LICENSING OF TRADEMARKS

To this point we have addressed ourselves to the problems surrounding the licensing of patents and of technical know-how. The licensing of trademarks involves many of the same issues, but it also raises distinct ones. What is now licensed is part and parcel of the licensor's firm. It is in large part the very life-blood of the company's sales, for it embodies the results of successful business activity, it reflects the maintenance of quality, and it results from the acquisition of prestige and from successful sales. To maintain, if not increase, the value of the trademark is of primary concern to the company. Licensing may expand the area of usefulness of the mark, but it may also endanger its value through low-quality production or careless use of the mark by the licensee.

The advantages and disadvantages of licensing trademarks are clear cut, and the lines of disagreement are sharply drawn. For example, one expert in the field has written that :

Wherever possible, every attempt should be made to require the use of your own trademarks on the products manufactured by the licensee. Undoubtedly, there will be instances when technical assistance and know-how may relate to the manufacture of component parts of a product, in which case the licensor's trademark probably would not be applicable. However, in a majority of cases, the licensor's trademarks should be applied and proper safeguards provided for appropriate notation and reference to licensing of the trademarks as required by the law of the particular country. In the absence of this safeguard, the licensor may be faced with the possibility that the licensee's trademarks will have acquired an importance and popularity greater than those of the licensor.<sup>7</sup>

Emphasis is laid on the possibility that the licensee's mark may displace the licensor's. There are many instances in which precisely this has happened, and the licensor has rued the day in which he was so cautious as to try to protect his own mark only to see it dwindle in importance or market influence.

A second advantage to licensing the trademark stems, however, from the fact that it gives rise to a continuous agreement, binding the licensee to the arrangement even after patents have expired or when the patent position is weak. The licensee also becomes more interested in the know-how which maintains the quality of the product and the value of trademark. If better quality improves sales, the agreement will thereby become more profitable to the licensor.

A third advantage arises from the fact that the use of the licensor's trademark creates a market for other products in his line. While it is readily recognized that the sale of some kitchen appliances through licensing will increase direct sales of others, there is also evidence that the sale of one type under a *trademark* will increase sales of other appliances under the same mark.

The obvious risk is that the licensee will use the mark carelessly and thereby jeopardize its validity or that he will produce inferior quality goods and reduce the value of the mark on your own goods, either abroad or at home. These risks can be minimized by dealing only with reliable firms and employing good legal counsel.

But there are some corporate officials who feel so strongly the possible risks of losing or depreciating the mark that they have adopted a policy of never *licensing* their marks and assert that it would be foolish for *anyone* to do so unless the product was produced under the strictest quality control and even then probably only under a subsidiary relationship.

Thus, the lines are drawn; decisions must be based on individual conditions, for the positions are not sufficiently strong on one side or the other to permit generalized and categorical conclusions.

#### ADVANTAGES TO LICENSEE

It is of little value to discuss the advantages and disadvantages of licensing to the licensor unless there are commensurate advantages to the licensee. One cannot sell something to another when the latter obtains no advantages from it. We are concerned, then, to show that there are advantages to the licensee. The disadvantages

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<sup>7</sup> Joseph S. Cardinale, "Foreign Trademarks, Patents and License Agreements in International Business," *Export Trade and Shipper* (reprint).

arise largely from the terms of the agreement—in the royalty cost and whatever restrictions are imposed. An examination of the particular provisions of a license agreement will be made in a later study. It may suffice here to stress that, since the value of the agreement to the licensor depends greatly on the licensee keeping information secret and abiding by the spirit of the agreement, it is absolutely necessary that the licensee be satisfied and understand the desirability of keeping the rights and information to himself.

The advantages gained by the licensee stem from his obtaining rights to which he would not otherwise have access, or information which would otherwise cost him considerably more to obtain on his own. If he wants the rights to patented items and processes, he *must* purchase unless he is willing to risk an infringement suit. His foremost question is whether the value of those rights is greater than the royalty he will have to pay. Negotiations as to royalties are of primary importance and the burden of payments over the life of the agreement must be given careful consideration.

In the case of know-how and other information, the question is whether his own establishment could uncover the same procedures and employ the same skills through research and training. If so, the second question is at what cost and over what period of time. Even if the foreign firm is an old, well-established one, having its own extensive research facilities, time may be the essence in meeting competition. In this situation, the advantage of the agreement arises from the rapid exchange of new developments and at much lower cost than if the licensor's research were duplicated.

Up until the past year, American firms have faced a seller's market in know-how and to some extent in patents and trademarks. Many have found themselves licensing abroad at the behest of foreign companies urgently demanding American savvy. The necessity to improve quality and reduce costs has caused others to look to the American producer. But, as Germany and other Western European nations—including Russia—have recovered their feet and pushed ahead technologically, the continued expansion of licensing (at least at an increasing rate) may well depend on whether the American company can demonstrate that its techniques, rights, and trademarks will benefit the foreigner most. Greater attention will have to be paid as to how to adapt American know-how and processes to the production problems faced abroad.

#### ATTITUDES OF FOREIGN GOVERNMENTS

All of the advantages discussed above would be overshadowed if the attitude of the foreign government were unfavorable toward licensing. As we have already noted, the exchange restrictions imposed on remittance of currencies earned abroad have deterred direct exports and investments in many cases; they may also have a deterring effect on licensing. In addition, the same importing regulations which may make licensing more attractive than direct sales may restrict the import of goods needed by potential licensees; in one instance, an American licensor had to *give* its licensee several thousand dollars worth of a key component to permit the licensee to continue production.

In most countries, it is now necessary to obtain permission of the foreign government with respect to the royalty provisions before an agreement may be consummated. Through this procedure, the government may impose a sort of surveillance, ascertaining whether it considers that the know-how or other rights obtained by the licensee are worth the potential drain on foreign exchange reserves. Some governments require approval of the entire agreement; the amount of information requested is sometimes more than the American company or its potential licensee wish to divulge. The foreign government may create additional deterrents through special taxation, as France attempted to impose.

A deterrent stemming from the foreign government but in a nonvolitional fashion is that of political instability. While it is certain that the foreign government is not deliberately creating instability, it may be the case that it cannot or will not take the measures necessary to stability. The absence of stable political and economic conditions in foreign countries has been one of the primary deterrents to an expansion of licensing, just as it has deterred private U. S. investment abroad. The absence of political stability means that the licensor cannot be certain what legislation the licensee faces, whether "silent" expropriation will make the business unprofitable, or whether the approval of remission of royalties may be rescinded.

On the whole, however, most stable governments have adopted general policies supporting and encouraging licensing in at least some fields. As with direct investment, foreign governments have taken upon themselves the power of planning large sectors of economic activity, and they therefore desire that certain industries move ahead as rapidly as possible while others may be held back. Licensing is a means of making certain that the industries which should expand have the latest techniques. Thus, Japan has periodically published a list of industries in which licensing (and investment) would be most welcome. The list changes as each gap is filled or as the economic plans are altered. The government may refuse to approve licensing in other areas either because of the dollar drain or too great an infiltration of American officials.

Approval is more readily given by most countries if the licensing can be shown to improve the chances of exports, especially to the dollar area, or if the product involved is one which would substitute for imports, especially for dollar goods. In addition, approval will be more readily given if the product will break a bottleneck in economic development plans by providing a key commodity at less expense. In order to permit themselves greater leeway and control, the government may also require approval of any renewal of the agreement, thus giving it a chance to examine the experience.

Inducements offered by foreign governments to encourage licensing in approved areas have included special tax treatment, subsidies, additional protection from imports, and favorable exchange rates in either purchase of required imports or remission of royalty fees. These inducements may already exist or may be extended to the licensee upon suitable application.

Also, more favorable treatment is frequently extended to protect a licensee than is given to encourage foreign investment. For example, French government officials



turned down some American projects to establish subsidiaries on the ground that existing French producers were capable of supplying the market of the industries concerned. But the same officials have welcomed licensing arrangements in the same items with established French firms, especially when the licensed rights improved the chances of French exports. The justification for this discrimination by some developing countries is usually that licensing is not exploitative—whereas direct investment is still considered so—but adds to the productive capabilities of the country.

The control exercised over licensing agreements has been used in some instances to prevent the current status of competition among firms within the host country from being changed. For example, know-how received from a U. S. firm might make one firm in the foreign industry much more efficient and upset the “competitive balance” in that market. This desire to protect is much stronger when licensing is to a *subsidiary* of the U. S. firm or one in which it has a financial interest, for then the U. S. firm will become dominant. The U. S. Department of Commerce reports that many Japanese businessmen and government officials believe that the entry of new firms will mean less business for all. Since they regard the domestic and international markets as largely static, they are led to believe “that the foreigner with his more advanced technology and his scientific management techniques and skills would (1) cause the downfall of some companies (particularly the smaller ones), (2) obtain control of certain industries, and (3) increase the unemployment problem.”<sup>8</sup> Such sentiments lead to efforts to regulate entry of both capital and know-how and sometimes to discrimination against capital from the United States.

#### FOREIGN LICENSING AND U. S. FOREIGN ECONOMIC POLICY

While the U. S. government generally follows a policy of non-interference in foreign business operations of American firms, it does at times give some positive encouragements, and it also applies various discouragements. The latter will be illustrated in a subsequent review of the problems of antitrust legislation and taxation in the foreign field. The question raised here is whether licensing is actually in the national interest of the United States and if so whether there are policies at hand which might be employed to encourage it. The president of an American corporation which has licensed abroad since 1939, upon learning of this projected study by The Patent, Trademark, and Copyright Foundation, volunteered the view that “. . . it would indeed be helpful if official attention were more closely directed to the over-all national benefits obtainable through foreign licensing. I can imagine no better way to make and keep friends and allies than to render this stimulus to their economies which they must realize is at the possible risk of our own standard of living. As an example of democracy at work, foreign technical assistance agreements are, I believe, far more effective than government subsidies.”

The necessity of examining the coincidence of business policy and national interest has been stressed by John J. McCloy as follows :

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<sup>8</sup> *Investment in Japan*, 1956, p. 63.

I believe it can be said that the international activities of our business today are tinged with the national interest as never before. When a United States company ships specialized machinery to Western Germany, it helps strengthen an area which is vital to us. When one of our metal producers develops a new copper supply in Africa, he contributes both to our future defense and to our standard of living. And when an investment firm provides dollar funds for capital imports into India, it affords much-needed help to a nation whose friendship we value highly.

This does not mean that the national interest is the sole or even the primary consideration in determining the shape and the extent of our foreign trade and investment. The interests of shareholders and employees continue to be paramount factors, and private business cannot be expected to carry out ventures that are inconsistent with them. Yet a third consideration must often be added today to the interests of shareholders and employees—and in a degree never before recognized. That factor is the public interest. Management's problem is to be cognizant of all three and move ahead in harmony with each of them.<sup>9</sup>

### *1. Support of U. S. Foreign Economic Policy*

If we presume that the foreign economic policy of the United States which emphasizes the development of other countries along democratic lines is appropriate, we find that foreign licensing is consistent with and supports that over-all policy in three ways: (a) it assists in increasing the productivity of foreign countries, (b) it helps to extend the private enterprise system into other economies, and (c) it encourages capital formation in the foreign country and U. S. private investment abroad.

(a) The contribution of licensing of know-how and patent rights to productivity abroad results primarily from the extension of the fruits of American research. For example, one licensee in Japan is the beneficiary of a \$22 million annual research program of its licensor. The reduction in cost of research is a result not only of the smaller research establishments abroad, but also of the ability to pick and choose out of the results of more extensive U. S. research. Out of the many hundreds of products developed or processes perfected, only those immediately applicable need be adopted and paid for by the licensee.

There are many striking cases in which foreign countries have profited greatly by additions to their knowledge and improvement in their techniques provided through licensing. For example, Japanese textiles are now "Sanforized," Japanese rice is saved from the rice-stem borer by Parathion and Malathion (twin insecticides) so that rice production has increased 18 per cent in the areas treated, and technical advances in a host of items from pigments and solvents to high-grade steel have improved Japan's competitive position. In Mexico, a Westinghouse licensee employs about 2,500 people, and a licensee in Brazil has become the third largest elevator manufacturer in the world. Similar records exist for Italy, India, Philippines, Australia, and others.

Part of the productivity impact of licensing is reflected in the recent availability in developing countries of commodities necessary to health and sanitation. For example, Aureomycin, Streptomycin, cortisone, hydro-cortisone, terramycin, tetra-

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<sup>9</sup> "A Prospective for Business Abroad," in Dan H. Fenn, Jr. (ed.) *Management Guide to Overseas Operations* (New York: McGraw-Hill, 1956), p. 7.

cyn, and Chloromycetin—all produced in some foreign country under U. S. license—have performed “miracles” in combatting such illnesses as trachoma, rheumatism, neuralgia, dysentery, typhus, typhoid, and para-typhoid. These illnesses are scourges of humanity in the developing countries and are heavy drains on productivity through absenteeism and premature death.

But the impact of the new products and industrial capacity goes far beyond their immediate increase in economic activity or satisfaction of demand. The improvements in health and productivity give other people a sense of progress, achievement, and purpose in life.

(b) The contribution of licensing to the extension of private enterprise abroad is probably less well-publicized but is nonetheless striking. Although great emphasis has been placed on the assistance to development along capitalistic lines which has been provided by foreign aid and foreign investment from the United States, much less has been said—probably because much less is known—about the important impact of sending know-how and technicians abroad under licensing arrangements.

Many observers are becoming convinced that the developing nations of the world can solve a large portion of their problems by themselves if they are only informed of appropriate techniques. Assuming that there are a sufficient number of men in the foreign country who will respond to economic incentives, the provision of managerial and technical know-how and the extension of a privilege to profit from patent rights will be important stimuli to private enterprise. Unless private enterprise takes the reins in spite of the uncertainties and risks, the direction of economic growth and the control and use of the agents of production will go to governments by default.

But, once private initiative takes hold and skills in production and management are disseminated, the process becomes cumulative; skills tend to spread to other firms and industries as executives and technicians are hired away through competition. The impact of licensing one firm is that of a catalyst; it triggers similar activity in other areas of the economy and demonstrates that private enterprise can solve the problems of production and distribution. For example, one American licensor (Dayton Rubber) goes beyond its contract to help licensees set up modern labor standards, incentive systems, and cost and material controls. These systems have increased productivity greatly and have been copied by other firms and industries in the foreign country. Mr. Stanley C. Allyn, president of National Cash Register, has emphasized that know-how “is one of the most important and welcome exports that any company produces. An American boy who knows how to increase production can often be a more valuable ambassador than a lecturer on the fine points of the democratic philosophy.”

(c) Finally, the licensing of patent rights, know-how, and trademarks to companies abroad stimulates the accumulation of capital in the foreign country. The formation of capital is one of the prime requisites of economic growth, and many of the developing countries have been slow to adopt measures or provide incentives to investment of the savings which so accrue in their economies. The improved

profit positions of licensees will be a first contribution to investible funds. Increased profit expectations in other areas will also help to mobilize savings and even increase its volume.

By the same token, the provision of U. S. know-how and patent rights is a needed supplement to the investment of U. S. capital. During the 19th century, most of the foreign capital invested by Europe went into government accounts or into public utilities and railroads; the latter areas were automatically provided with the know-how of the European investors. Know-how and capital seemed to flow together. In the current period, however, much of the international capital flow is *by* governments to governments, and the private enterprise techniques do not automatically follow. While the Point Four Program is a partial attempt to obtain some technical assistance through private research agencies, including universities, it cannot obtain access to the processes and skills which make U. S. enterprise so productive. These *must* be provided privately; they cannot successfully be taken over by one government and handed to another.

If, then, the program of helping other nations to help themselves is an appropriate one, foreign licensing has an important role to play. This is not to argue that any U. S. company ought to seek out ways to license just to support the national foreign economic policies. But it is a happy circumstance where one can claim legitimately that the interests of the country coincide with what may be a highly profitable undertaking abroad.

## *2. A Governmental Policy Toward U. S. Licensing Abroad*

The avowed policy of the U. S. Government is to encourage licensing of patent rights and know-how especially to foreign companies. This policy is evidenced in part by the concern of the Government to protect the rights of licensor's extending rights involved in the production of armaments and military materiel. The Department of Commerce is also eager to supply as much information concerning potential licensees as it can and will often have precisely that information which will tell the American company whether it is desirable to enter into negotiations. The Department's survey of economic conditions in foreign countries is also extremely helpful in sizing up the market potential of the licensee.

The Government has made an attempt also to mitigate one of the more serious obstacles to licensing—that of currency inconvertibility. Under the foreign aid programs, authority has been extended to the International Cooperation Administration to insure convertibility of returns from licensing agreements into dollars if restrictions are imposed abroad. The program is a special type of insurance operation under which the insured pays a fee for protection against certain risks—namely inconvertibility and expropriation. Approximately 30 foreign countries have signed agreements putting the program into effect with reference to their nationals. The guarantees are available for new agreements only, at a premium of  $\frac{1}{2}$  to 1 per cent per year of the amount of the protection provided; the contract may endure for 20 years.

While the necessity of disclosing the provisions of the agreements had deterred

some firms from obtaining guarantees, several have made use of the program. But many potential licensors have found that where the host country was politically stable and economically sound enough to warrant a license agreement, it was also sound enough not to require a guarantee.

The desirability of a guarantee program has been questioned by many businessmen, especially those concerned also with direct investment. In fact, many have questioned whether the Government should have a policy toward licensing at all. It should be pointed out, however, that *no* policy is itself a policy. Whether the "let alone" policy is appropriate in this instance depends on the national and the private interest both and on the extent to which private enterprise assumes its responsibility to each without the Government's taking more positive action.

### *3. Impact on the U. S. Economy*

The significance of licensing for the U. S. economy as a whole stems from (a) the costs of licensing, (b) the impact of licensing on technological advance, and (c) its tendency to integrate varied economies.

Licensing is not without cost to the United States. There are costs involved directly through management and research. The direct costs of research and development in each company are usually attributed to domestic sales as licensing programs increase; however, it is not unlikely that research departments will find demands made upon them to solve problems of foreign companies or to adapt their results to foreign situations with increasing frequency. Indirect costs arise in the shift in location of production which may occur with the transfer of know-how and other production factors; this relocation may be desirable, but it is not costless.

In addition, the continued licensing of foreign companies will increase their technical proficiency. It is to be expected that they will in time compete more readily with American production both abroad and at home, even invading the American market at times. This shift in production and sales patterns will require adjustment to the new competition and will impose a burden on those required to shift. This cost should be more than offset by increased efficiency, however.

The U. S. economy must stay "one jump ahead" of technological developments abroad, else it will lose its leadership. This position need not be maintained in all fields across the board, however. It is sufficient if we maintain pre-eminence in our specialties, leaving other areas to other countries. We in turn can profit from accepting the developments they uncover in their specialties. It is not, I think, possible for any country or firm to retain a monopoly on technical information or even patented products or processes. If the product is greatly demanded or the process is needed and withheld, close enough substitutes will be found or the patent itself will be infringed. It may be much more profitable in the long run to profit from Britain's experience in the 19th century—which shows, I think, that know-how cannot be kept permanently from competitors—and accept the direct returns which go to the discoverer or provider of new techniques.

The growth of industrialization abroad and the closer ties of American companies to those abroad will lead to a sort of economic integration at the private level which can be wholesome if we understand what is happening and are willing to adjust

to the new situation. For example, an American licensor who also contracts to send some component parts to his licensee or to purchase items for him assumes some responsibility to keep the flow of goods at the level needed by the licensee. If the licensor's own production is involved, we find a sort of vertical integration under which the licensor assumes responsibility to maintain output, despite its own labor-management difficulties or shortage in raw materials supply. That is, the interest of the licensee must now be taken into account. Even if there is no sales relationship, the licensor now relies upon the licensee to serve their joint interest in the latter's country. Any equity participation enhances these ties and strengthens the feeling of responsibility to foreign peoples and their problems. U. S. foreign policy is, once again, predicated on the assumption that such ties are desirable, being productive of friendship and eventually of peace. If this is true, licensing plays an important policy role. In fact, licensing may become part of the company's *own* foreign policy. Many of the larger corporations have developed a foreign policy of their own—as, for example, has been reported of Standard Oil of New Jersey:

Any big international company like Jersey, these days, needs a foreign policy. Jersey has one. That policy, which has had its greatest development within the past ten years, was founded on the obvious proposition that capitalism, if it is going to survive and flourish, must come to terms with its environment—must, in the company's own words, maintain “an equitable and working balance” among the claims of stockholders, employees, customers, and public.<sup>10</sup>

This is not to argue that the profit motive should be subsumed under an over-riding one of supporting foreign policy. But it has become evident that American businessmen cannot operate abroad without regard to the national interest of the United States and of the foreign country; in both instances, a “community of interest” is the foundation of lasting and profitable relations. One patent lawyer speaking on the “Commercial Exploitation of Foreign Patents” has stressed this point as follows:

While the profit motive may exist in the exploitation and commercialization of foreign patent rights, I am sure that many companies also have other objectives in mind. By the use of their foreign patent rights and by use of know-how and technical information, American owners of foreign patent rights are able to spread technical information and know-how throughout the world and thus assist in the more rapid development of undeveloped countries. The spreading of technical information and know-how to undeveloped countries has a very important effect upon the entire world, including the American economy, in that it creates economic stability and peace throughout the world.<sup>11</sup>

In the creation of the requisite community of interest, nations may themselves take a few lessons from businessmen, who have long shown a willingness to understand the customs and traditions of others and to respect them. This willingness has arisen from the necessity to establish a common understanding or forfeit the opportunity to do business. American business has an important role in showing the way to cooperative competition—not only within nations but among them—competition which does not kill but which stimulates all to achieve a better world.

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<sup>10</sup> *Fortune*, November, 1951, p. 81.

<sup>11</sup> George von Gehr, *Bulletin*, American Patent Law Association, April-May, 1956, p. 153.

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## STUDENT PAPERS

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The Foundation's first seminar and lecture series\* on the patent, trademark, copyright and related systems established jointly with The George Washington University Law School, was given.

Among the objectives of the seminar and lecture series are the stimulation of student interest and the initiation of a source of publishable student material. It is planned to include publishable contributions from students in future issues of the *Journal*. By making available the best papers, students will receive an incentive and our readers will appreciate the evidence of scholarly development in the fields of interest. The Foundation invites educational and research institutions to submit informative student manuscripts on the patent, trademark, copyright and related systems.

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### Certain Aspects of the Non-Use of Patented Inventions

IRVING M. FREEDMAN

#### SUMMARY

A CONSIDERATION OF NON-USE as an equitable defense to a charge of patent infringement and as evidence of the invalidity of an issued patent along with some consideration of certain aspects of the nature of the patent grant. The author feels that mere non-use although often criticized is within the right of the patentee.

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#### A. THE PROBLEM DEFINED

NON-USE OF PATENTS has long been broadly attacked as contrary to public policy and as an alleged evil flowing from the patent system.<sup>1</sup> Much of the dicta and

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\* See PTCJRE, I (June 1957), p. 16. See also annotated bibliography of student papers on pp. 174-176 of this issue.

<sup>1</sup> See e.g.: Castel, *Recent Trends in Compulsory Licensing in Case of Non-Use of Patents; A Comparative Analysis*, 36 J. PAT. OFF. SOC'Y 330 (1954); the dissenting opinion of Mr. Justice Douglas in the Case of Special Equipment Co. v. Coe, 324 U.S. 370 (1945); Hamilton, *Patents and Free Enterprise*, Temporary National Economic Committee, Monograph No. 31, 76th Cong., 3rd Sess. (1941); and Bush, *Proposals for Improving the Patent System*, Committee on the Judiciary, U.S. Senate, 84th Cong. 2nd Session (1956).

writings fail to define adequately what is meant by the rather generic term "non-use" and fail to distinguish the various reasons and purposes for not using the teachings of a patent. Such "shotgun" critiques of non-use of patents only help to instill in the lay reader and the non-discerning professional reader the premise that non-use of a patent is contrary to public policy and an evil brought on by the present patent statutes.

Non-use, broadly speaking, means only that the owner of the patent neither makes, uses, sells, nor licenses others to make or use the patented invention. Such a patent is often referred to loosely as a paper patent.<sup>2</sup>

Non-use may be mere passive inaction on the part of the patentee. For a variety of practical and commercial factors it may not be feasible to manufacture, market, or use the subject matter of the patent. Alternative products of equal quality may be cheaper and available, the patent owner may be short of funds, the market may not yet be ready for the product, or the patentee may be nearing completion of a simpler and less expensive version of the patented article. Such non-use is at times referred to as "reasonable,"<sup>3</sup> and as such is within the bounds of the patent grant. The term non-use should not indiscriminately embrace suppression.<sup>4</sup> Suppression has been defined as the deliberate shelving of a technologically meritorious invention, capable of being worked commercially, by the patentee for the sake of greater profits.<sup>5</sup> However, many eminent inventors have testified that the practice of suppression is practically non-existent.<sup>6</sup>

In a leading article on the subject of non-use,<sup>7</sup> the motives for obtaining a patent with the intent of future non-use were classified as (1) fencing—obtaining a patent to restrict a competitor to inferior technology and (2) blocking—patenting alternative devices for a product, to block competition developing along these lines. The two are related. Contracts, combinations, or conspiracies along these lines between potential competitors have been held unreasonable antitrust violations.<sup>8</sup> However, such action by a single patentee could not fall within the conspiracy in restraint of trade prohibitions of the antitrust laws.<sup>9</sup> The scope of this discussion does not embrace the antitrust aspects of non-use or misuse of patents which are too broad and complex to be adequately treated in this relatively short discussion.

<sup>2</sup> See the plurality of case definitions of paper patents in Stemple, *Non-user or Paper Patents*, 34 J. PAT. OFF. SOC'Y 23 (1952).

<sup>3</sup> See the Report of the Attorney General's National Committee to Study the Antitrust Laws, March 31, 1955; the discussion of Mr. Justice McKenna in *Continental Paper Bag Co. v. Eastern Paper Bag Co.* 210 U.S. 405 (1908); and the doctrine of unreasonable non-use set forth by Oppenheim, *Cases on Federal Anti-Trust Laws* (St. Paul, Minn.: West Publishing Co., 1947), at p. 702.

<sup>4</sup> E.g., see *Special Equipment Co. v. Coe*, *supra* note 1 at 378, where Mr. Chief Justice Stone uses the word suppression in referring to secret use of an invention.

<sup>5</sup> Oppenheim, *Cases on Federal Anti-Trust Laws*, *supra* note 3, at 693.

<sup>6</sup> *Hearings on the Oldfield Bill*, H.R. 23, 417, 62nd Cong. 2nd Sess. (1912). However, compare Justice Douglas in the *Special Equipment Case*, *supra* note 1, who cites Hamilton, *T.N.E.C. Monograph*, *supra* note 1, and alleges that suppression of patents has become commonplace. Note that here suppression includes "blocking" and "fencing."

<sup>7</sup> Frost, *Legal Incidents of Non-Use of Patents Reconsidered*, 14 GEO. WASH. L. REV. 273, (1946).

<sup>8</sup> See *Blount Mfg. Co. v. Yale and Towne Mfg. Co.*, 166 Fed. 555 (C.C.D. Mass. 1909) and *Hartford-Empire Co. v. United States*, 323 U.S. 386 (1945).

<sup>9</sup> *Special Equipment Co. v. Coe*, *supra* note 1.



## B. PUBLIC POLICY ASPECTS AND NATURE OF THE PATENT GRANT

It has been argued that non-use is contrary to public policy and inconsistent with the Constitution and the patent statutes.<sup>10</sup> The Constitution grants Congress the power to "promote the Progress of Science and useful Arts by securing for limited Times to Authors and Inventors the exclusive right to their respective Writings and Discoveries."<sup>11</sup>

Those opposed to allowing any sort of non-use urge in essence that the public policy consideration behind the patent laws of promoting the progress of science and the useful arts is not realized if a patentee can obtain a patent and "block" progress along the lines of the patent. It is also urged that a patent grant is not another form of property but a "privilege which is conditioned by public policy."<sup>12</sup>

However, the patent grant merely gives the patentee the exclusionary right to restrain others from manufacturing and using the patented invention.<sup>13</sup> The patentee's right to use the invention is a common law right. The inventor could keep his invention a secret and use or not use it as he sees fit, but in order to induce a disclosure of the invention, Congress has by legislation in pursuance of the Constitution, granted an exclusive right for a limited time to protect the monopoly—not to give the patentee a use which he did not have before, "but only to separate to him an exclusive use."<sup>14</sup> The theory is analogous to that of a contract; full disclosure of the invention with the right of the public to use it after the expiration of the patent grant as consideration in return for an exclusionary interest for a limited period. The patentee is giving the public something it did not have prior to the disclosure, and furthermore the public is free to observe, copy around, improve the device and obtain other related patents.

## C. DEVELOPMENT OF THE LAW

The view that a patentee is bound to use the patented invention during the term of the patent has an early precedent. In 1832 Congress passed a statute authorizing the issuance of patents to aliens conditioned upon the use of the invention.<sup>15</sup> This statute was deleted in 1870.<sup>16</sup>

In 1886 Judge Blodgett noted in dictum in the much-discussed case of *Hoe v. Knap*<sup>17</sup> that the patentee:

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<sup>10</sup> *E.g.*, see Mr. Justice Douglas in the dissenting opinion of *Special Equipment Co. v. Coe*, *supra* note 1.

<sup>11</sup> U. S. CONST. art. I, § 8.

<sup>12</sup> This oft-quoted description of the patent grant appears in *Mercoird Corp. v. Mid-Continent Investment Co.*, 320 U.S. 661, at 666 (1944).

<sup>13</sup> See *Bloomer v. McQuewan*, 14 How. (55 U.S.) 537, at 548 (1852), in which Mr. Chief Justice Taney stated: "The franchise which the patent grants consists altogether in the right to exclude everyone from making, using, or vending the thing patented, without the permission of the patentee. This is all that he obtains by the patent."

<sup>14</sup> *United States v. American Bell Telephone Co.*, 167 U.S. 224 (1897); *The Paper Bag Case*, *supra* note 3.

<sup>15</sup> 4 STAT. 577 (1835). The patent became void after one year of non-use. The provision was amended in 1836, 5 STAT. 117, at 123 (1836). A defense in an infringement suit could still be raised that a patent issued to an alien was not used for 18 months.

<sup>16</sup> 16 STAT. 198 (1870).

<sup>17</sup> 27 Fed. 204 (1886).

is bound either to use the patent himself or allow others to use it on reasonable or equitable terms.

This view has been oft-repeated and as recently as 1945 three members of the Supreme Court indicated this is, and rightly should be, the law.<sup>18</sup>

The dictum of *Hoe v. Knap* was much criticized in succeeding cases<sup>19</sup> and then flatly repudiated in a Court of Appeals case, the *Button Fastener* case,<sup>20</sup> in which Justice Lurton observed that along with the grant of a patent it is expected that the patentee will use his invention or license others to use it and:

... This expectation is based alone upon the supposition that the patentee's interest will induce him to use, or let others use, his invention. The public has retained no other security to enforce such expectations. A suppression can endure but for the life of the patent, and the disclosure he has made will enable all to enjoy the fruit of his genius. His title is exclusive, and so clearly within the Constitutional provisions in respect of private property that he is neither bound to use his discovery himself, nor permit others to use it. The dictum found in *Hoe v. Knap* . . . is not supported by reason or authority.

The Supreme Court later quoted the language of the *Button Fastener* case with approval.<sup>21</sup>

#### D. NON-USE AS AN EQUITABLE DEFENSE

The problem of non-use came before the Supreme Court soon after the *Button Fastener* case in the form of the much discussed *Paper Bag* case.<sup>22</sup>

In a suit to enjoin infringement of a patent, the defendant pleaded that an equity court should bar the suit on the ground that the patented invention had "long and always and unreasonably been held in non-use . . . instead of being beneficial to the art to which it belongs." This defense was raised for the first time in the case in oral argument in the Circuit Court of Appeals.<sup>23</sup> The Court of Appeals affirmed the finding of the patent being valid and infringed. In a strong dissent, Judge Aldrich considered the patent as a "paper patent deliberately held in non-use for a wrongful purpose" and contended that the owner should be denied equitable relief. He further observed:<sup>24</sup>

My contention is not that an individual or corporation may not buy and hold competing patents . . . and recover such damages at law for infringement . . . but that equity should not by the arm of injunction aid the owner in a purpose to control and suppress invention and to retard intended benefits which in the ordinary course of manufacture and trade, uninfluenced by unconscionable and inequitable control, would naturally flow to trade and commerce.

<sup>18</sup> *Special Equipment Co. v. Coe*, *supra* note 1. The dissenting opinion expressing this view was written by Mr. Justice Douglas, with whom Mr. Justice Black and Mr. Justice Murphy concurred.

<sup>19</sup> See *e.g.*, *Consolidated Roller-Mill Co. v. Coombs*, 39 Fed. 803 (C.C.E.D. Mich. 1889).

<sup>20</sup> *Heaton-Peninsular Button Fastener Co. v. Eureka Specialty Co.*, 77 Fed. 288 (6th Cir. 1896) *reversing* 65 Fed. 619 (1895).

<sup>21</sup> *Bement v. National Harrow Co.*, 180 U.S. 70 (1902) and *Henry v. A. B. Dick Co.*, 224 U.S. 1 (1912), *overruled on other grounds* by *Motion Picture Patents Co. v. Film Manufacturing Co.* 243 U.S. 502 (1917).

<sup>22</sup> *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, *supra* note 3.

<sup>23</sup> 150 Fed. 741 (1st Cir. 1906).

<sup>24</sup> *Ibid.* at 745.

On certiorari, the Supreme Court faced the issue of non-use.

Mr. Justice McKenna, speaking for the majority of the Supreme Court, observed that :

Counsel seems to argue that one who has made an invention and thereupon applies for a patent therefor occupies, as it were, the position of a quasi-trustee for the public ; that he is under a sort of moral obligation to see that the public acquires the right to the free use of that invention as soon as conveniently possible. We dissent entirely from the thought thus urged. The inventor is one who has discovered something of value. It is his absolute property. *He may withhold the knowledge of it from the public and (sic) he may insist upon all the advantages and benefits which the statute promises to him who discloses to the public his invention . . .*<sup>25</sup> (emphasis added).

The court, however, pointed out that there had been no evidence tending to show that the non-use had been unreasonable. Justice McKenna concluded that :

Whether, however, a case cannot arise where, regarding the situation of the parties in view of the public interest, a court of equity might be justified in withholding relief by injunction we do not decide.

It thus appears that the issue of whether or not to deny equitable relief where the non-use is unreasonable was not squarely before the court and was not decided.

In the intervening half century since the *Paper Bag* case, there appears to be no case where *mere* non-use was held unreasonable. The implication of the concluding warning, therefore, has been considerably watered down.

Unreasonable non-use may be that which would work a hardship on the public. A Supreme Court Justice<sup>26</sup> recently emphasized what appears to be his view that non-use is *per se* unreasonable by citing an extreme example of "unreasonable" non-use in the case of an invention which reveals the cure of a dread disease. This is a severe situation in which public policy could well outweigh the normal rights of the owner of a patent grant and point toward compulsion of the patentee to use or license the invention during the term of the patent through denial of injunctive relief for patent infringement. It should, however, be noted that while an equity court might refuse to enjoin the practice of the invention by other than the patentee the legal remedy of damages, at least equal to a reasonable royalty, could still be obtained in the courts by the patentee.<sup>27</sup>

In the event of such an extreme case, the government under the present patent laws could make the serum or invention involved available to the public without allowing all comers to infringe the recognized property rights of the patentee on a theory of non-use. The government through an agency, such as the Public Health Service, could distribute the serum and be sued in a single suit by the patentee who has no injunctive recourse against the government.<sup>28</sup> Such an approach would

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<sup>25</sup> Quoting from *United States v. American Bell Telephone Co.*, 167 U.S. 224, at 249 (1897).

<sup>26</sup> The dissenting opinion of Mr. Justice Douglas in *Special Equipment Co. v. Coe*, *supra* note 1.

<sup>27</sup> See Title 35 U.S. Code § 284 (1952), "Upon finding for claimant the court *shall* award claimant damages . . ." (emphasis added).

<sup>28</sup> U.S. Code, § 1498, as amended 66 STAT. 757 (1951). It should be noted that a manufacturer and persons such as doctors could participate in the program and under the law this would amount to manufacture and use by the government if done under government authorization or consent so as to provide a complete defense.

avoid the multiplicity and circuitry of suits which would result if a plurality of individuals were to make, sell, and use the serum during the term of the patent and be individually sued by the patentee.

Denial of injunctive relief would in effect result in a situation analogous to compulsory licensing. The patentee would be unable to prevent others from making, using, or selling his patented invention but he could obtain damages for infringement, at least if an antitrust violation were not involved. Compulsory royalty-free licensing has been used in antitrust cases while the antitrust violation continued or until the results of the violation were eliminated and the status quo restored.<sup>29</sup> Compulsory licensing is a complex problem in itself.<sup>30</sup> There are other situations besides antitrust violations where courts have denied injunctive relief to the patent owner on the equitable theory that the hardship to the defendant or the public was great compared to the benefit of such relief to the plaintiff. Situations include those where the patent is about to expire<sup>31</sup> or a preliminary injunction is involved.<sup>32</sup>

A leading case illustrating the denial of injunctive relief for infringement because of great hardship to the public contrasted with slight gain to the patentee is *City of Milwaukee v. Activated Sludge*.<sup>33</sup> The City of Milwaukee was charged with infringement of a patent through use of a plant for treatment of the city's sewage, before disposal into Lake Michigan. The court denied injunctive relief pointing out that the normal patent right of such relief is conditional on the equities of the situation and to grant the relief prayed for would result in the City closing the plant and dumping raw sewage in a lake used for drinking and bathing purposes. The court held that no risk to public health of a half a million people should be taken.

The Patent Statutes have in effect codified the equitable principles involved in the *Activated Sludge* case. Injunctive relief is to be granted in accordance with the principles of equity on such terms as the court deems reasonable.<sup>34</sup> The patent laws thus recognize that injunctive relief may be denied by the court where in the discretion of the court such relief would be inequitable or unreasonable.<sup>35</sup>

The issue of non-use came before the Supreme Court for a second time in the *Special Equipment* case<sup>36</sup> in a somewhat indirect manner. Suit was brought in the District Court for the District of Columbia, under R.S. Sec. 4915, to compel issuance by the Commissioner of Patents of a patent for a subcombination of elements of a machine for which the inventor had previously filed a patent application. The combination application disclosed a machine for preparing fruit for canning or other processing while the subcombination application in essence omitted a splitting knife

<sup>29</sup> *United States v. Vehicular Parking*, 61 F. Supp. 656 (D.C. Del. 1945) and *United States v. United States Gypsum Co.*, 124 F. Supp. 573 (D.C.D. of C. 1954).

<sup>30</sup> There is much material on this subject. E.g., see, Folk, *Patents and Industrial Progress* (1942); *Hartford-Empire Co. v. United States*, *supra* note 8, *United States v. National Lead Co.*, 332 U.S. 319 (1947); Sec. 11 of the Atomic Energy Act of 1946, 48 U.S.C. 1811; *Hearings on the Oldfield Bill*, *supra* note 6, and *McFarlane Bill*, H.R. 9259, 75th Con. (1938); and Coburn, *Compulsory Licensing by the Courts*, 28 J. PAT. OFF. Soc'y 180 (1946).

<sup>31</sup> *Draper Co. v. American Loom Co.*, 161 Fed. 728 (1st Cir. 1908).

<sup>32</sup> *Barnard v. Gibson*, 7 How. (48 U.S.) 650 (1848).

<sup>33</sup> 69 F.2d. 577 (7th Cir. 1934) *Cert. denied* 293 U.S. 576 (1934).

<sup>34</sup> Title 35, U.S. Code, § 283 (1952); based on R.S. 4921, 35 U.S. Code repealed § 69 (1946).

<sup>35</sup> See *Vitamin Technologist, Inc. v. Wisconsin Alumni Research Foundation*, 146 F.2d 941, (9th Cir. 1944); *cert. denied*, 325 U.S. 876 (1945).

<sup>36</sup> *Special Equipment Co. v. Coe*, *supra* note 1.

arrangement and disclosed the pre-splitting of the pears by hand. Both the District Court and the Court of Appeals<sup>37</sup> upheld the Patent Office but the Court of Appeals rested its decisions on a new issue, raised in oral argument, and affirmed on the ground that the inventor did not intend to make or use the invention and that the purpose of seeking the subcombination patent was merely to protect the entire combination of the complete machine.

The Supreme Court reversed the lower courts and held that it is well-established practice to allow claims to both a combination and subcombination.<sup>38</sup> Mr. Justice Stone points out<sup>39</sup> in the majority opinion that:

... By the very terms of the statute, the grant is nothing more than a means of preventing others, except under license from the patentee, from appropriating his invention.

It by no means follows that such a grant is an inconsistent or inappropriate exercise of the constitutional authority of Congress "to promote the Progress of Science and useful Arts" by securing the inventors "the exclusive right to their . . . Discoveries." Congress, . . . could have provided that the grant should be conditioned upon the use of the patented invention, as in fact it did provide by the Act of 1832 . . . authorizing . . . patents to aliens conditioned upon the use. . . . But Congress was aware that an unpatented invention could be suppressed<sup>40</sup> and the public thus deprived of all knowledge or benefit of it . . . statutes which it did enact require that patents be granted only for a limited term upon an application fully disclosing the invention. . . .

The court has consistently held that failure of the patentee to make use of a patented invention does not affect the validity of the patent.<sup>41</sup>

The Court pointed out that the record afforded no basis of establishing that the inventor intended not to use the invention. Hence, much of the above decision could be considered dicta.

The *Special Equipment* case is notable also for the vigorous dissent of Mr. Justice Douglas<sup>42</sup> who stated:<sup>43</sup>

I think it is time to be rid of that rule. [that non-use of a patent is not a defense to a charge of patent infringement] It is inconsistent with the Constitution and the patent legislation which Congress has enacted. . . . It is a mistake therefore to conceive of a patent as but another form of public property. The patent is a privilege "conditioned by a public purpose."<sup>44</sup> . . . suppression of patents has become commonplace.<sup>45</sup>

I think it is time to return to the earlier, and I think the true philosophy of the patent system. We should not pass on to Congress the duty to remove the private

<sup>37</sup> 144 F.2d 497 (D.C. Cir. 1944).

<sup>38</sup> The court cited cases for this proposition including *Mercoid Corp. v. Mid-Continent Investment Co.*, *supra* note 12.

<sup>39</sup> 324 U.S. 370, at 378 (1945).

<sup>40</sup> See discussion note 4 on use of the word suppression.

<sup>41</sup> The court cited *The Paper Bag Case*, *supra* note 3; *Crown Die & Tool Co. v. Nye Tool and Machine Works*, 261 U.S. 24 (1922); *Woodbridge v. United States*, 263 U.S. 50 (1923); *Fox Film Corp. v. Doyal*, 286 U.S. 123 (1931); and *Hartford-Empire Co. v. United States*, *supra* note 8.

<sup>42</sup> Joined by Mr. Justice Black and Mr. Justice Murphy, Mr. Justice Rutledge dissented on other grounds in a separate opinion.

<sup>43</sup> 324 U.S. 370, at 381 (1945).

<sup>44</sup> Citing *Mercoid Corp. v. Mid-Continent Investment Co.*, *supra* note 12.

<sup>45</sup> Citing *Hamilton, Patents and Free Enterprise*, *supra* note 1.

perquisites which we have engrafted on the patent laws. This court is responsible for their creation. This court should take the responsibility for their removal. I would adopt the view of *Hoe v. Knap*.<sup>46</sup>

#### E. NON-USE AS EVIDENCE OF INVALIDITY

In order for a patent to be valid, it must have some utility. It was never intended that a patent be granted on a product unless such product be useful,<sup>47</sup> and to obtain a patent, requires but slight evidence of successful operation to establish the required utility.<sup>48</sup> The granting of a patent extends a presumption of validity which has long been recognized in case law<sup>49</sup> and which has been codified in the Patent Act of 1952.<sup>50</sup>

Non-use has been discussed in many cases as tending to show non-utility and hence invalidity of the patent. A recent case<sup>51</sup> held that it is an admission of deficiency in a patented invention when the patent owner soon departs in its manufacture from the teachings of the patent. Such overcoming of the presumption of validity of an issued patent by a showing of non-use was criticized by one writer.<sup>52</sup> Earlier cases have held that non-use does not overcome the prima facie presumption of validity of the patent<sup>53</sup> and according to Walker,<sup>54</sup> non-use has only a bearing on the construction to be given a patent.

Non-use has been equated to the converse of commercial success.<sup>55</sup> Evidence of commercial success is often introduced in an effort to uphold the validity of a patent, and as bearing on novelty, utility, and invention, the elements determinative of patentability. Mr. Justice Roberts in the *Ray-O-Vac* case<sup>56</sup> pointed out that:

Once the method was discovered, it commended itself to the public as evidenced by marked commercial success. These factors were entitled to weight in determining whether the improvement amounted to invention and should in a close case tip the scales in favor of patentability.<sup>57</sup>

It is submitted that a court should rightly consider non-use of a patent as evidence in determining validity, but as appears to be the prevailing view, only in a close case.

The validity of patents cited as prior art has often been attacked because of non-use of such cited patents. On investigation, it becomes apparent that this line of attack is only a special area of attack on the validity of patents in general because of non-use. Cases often cited point out that a successful patent will not be anticipated by

<sup>46</sup> *Hoe v. Knap*, *supra* note 17.

<sup>47</sup> *In re Bremmer*, 182 F.2d 216 (C.C.P.A. 1950).

<sup>48</sup> *Dalton Adding Machine Co. v. Rockford Milling Machine Co.*, 253 Fed. 187 (D.C.N.D. Ill. 1918), *aff'd*, 267 Fed. 422 (7th Cir. 1920).

<sup>49</sup> *Crown Cork & Seal Co. of Baltimore City v. Aluminum Stopper Co. of Baltimore City*, 108 Fed. 845 (4th Cir. 1901).

<sup>50</sup> 35 U.S. Code § 282 (1952).

<sup>51</sup> *Auto Specialties Mfg. Co. v. Handler Motor Supply Co.*, 226 F.2d 853 (8th Cir. 1955).

<sup>52</sup> 24 GEO. WASH. L. REV. 717 (1956).

<sup>53</sup> *E.g.*, see, *Packard v. Lacing-Stud Co.*, 70 Fed. 66 (1st Cir. 1895).

<sup>54</sup> Walker On Patents, § 244 (Deller's Ed.) 1937.

<sup>55</sup> *Dewey & Almy Chemical Co. v. Mimex Co.*, 124 F.2d 986 (2d Cir. 1942).

<sup>56</sup> *Goodyear Tire & Rubber Co., Inc. v. Ray-O-Vac Co.*, 321 U.S. 275, at 279 (1944).

<sup>57</sup> Citing: *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486 (1877); *Topliff v. Topliff*, 145 U.S. 156 (1892); *Keystone Mfg. Co. v. Adams*, 151 U.S. 139 (1894); *Paramount Public Corp. v. American Tri-Ergon Corp.*, 294 U.S. 464 (1935); and others.

prior patents which were failures.<sup>58</sup> However, in such cases the courts are actually only pointing out that a patent will not anticipate a subsequent invention when the patented invention is inoperative or lacks utility. It should be noted that the validity of the patents is not being attacked for non-use *per se*, but rather for non-utility or inoperativeness as *evidenced* by the non-use.

Other cases specifically point out that paper patents may negate invention. A Ninth Circuit case<sup>59</sup> pointed out:

... the fact that no commercial use has been made of a patented device does not affect its weight as anticipatory of a later patent. . . .

It is well settled that mere paper patents may negate otherwise patentable novelty, provided they sufficiently disclose the principles of the alleged invention.

The patent laws provide that a mere printed publication without an actual reduction to practice, if of an early enough date, can be sufficient anticipation to preclude the grant of a later patent.<sup>60</sup> The only question that might arise is whether the printed publication provides sufficient disclosure for a person "skilled in the art" to reduce the described invention to practice.<sup>61</sup>

#### F. CONCLUSIONS

The writer feels that new attacks on non-use will continue in the form of proposed legislative changes to require compulsory licensing on a reasonable royalty basis in the case of non-use. A compromise view often suggested is compulsory licensing after a specified period of non-use.<sup>62</sup>

It should also be expected that requests for denial of injunctive relief for patent infringement on a showing of non-use will continue.<sup>63</sup> The issue of non-use of patents will continue to be attacked and examined as an alleged abuse possible under the present laws.

While there is a vigorous minority view that non-use is unreasonable *per se* and contrary to public policy and the patent laws, another strong minority view holds that non-use can be and must be reasonable. The "rule of reason" has been suggested by the Supreme Court and others but not applied in recent times.

It is submitted that the law is, as it should be, that mere non-use of a patented invention is within the rights of a patentee. When a patentee conspires with others or attempts to extend his monopoly beyond that granted by the patent laws, he comes within the purview of the antitrust laws, a subject beyond the scope of this discussion.

<sup>58</sup> *E.g.*, see, *General Electric Supply Corp. v. Maytag Co.*, 100 F.2d. 218 (8th Cir. 1938), *rev'd on other grounds*, 307 U.S. 243 (1939) and *Farmers Mfg. Co. v. Spruks Mfg. Co.*, 127 Fed. 691 (4th Cir. 1904).

<sup>59</sup> *Tashjian v. Forderer Cornice Works*, 14 F.2d. 414 at 415 (9th Cir. 1926).

<sup>60</sup> Title 35 U.S. Code § 102. "A person shall be entitled to a patent unless the invention . . . was described in a printed publication in this or a foreign country, before the invention thereof by the applicant . . . or . . . more than one year prior to . . . application. . . ."

<sup>61</sup> See *Remington Cash Register Co. v. National Cash Register Co.*, 6 F.2d. 585 (D.C. Conn. 1925).

<sup>62</sup> This appears to be the continental law. *E.g.*, see: Casalonga, *The Compulsory License System in France*, 36 PAT. OFF. SOC'Y 19 (1954) for French 3-year law; and Casalonga, *Forfeiture of Patents for Non-Working*, 33 J. PAT. OFF. SOC'Y 714 (1951).

<sup>63</sup> *E.g.*, see, Bush, *Proposals for Improving the Patent System*, *supra* note 1, at 28.

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## ANNOTATED BIBLIOGRAPHIES

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### Annotated Bibliography of Publications of Interest to the Foundation Staff

THE ANNOTATED BIBLIOGRAPHY is intended to list, primarily, recently published or reported material (such as books, pamphlets, periodicals, etc.) which has been found of interest to the members of the Staff of the Foundation. They have screened this material and it has been circulated to the other members of the Staff to keep them abreast of developments, relating to the Foundation's work, in disciplines other than their own. The Foundation lists here a compilation selected from these bibliographies for possible wider interest. Since economic literature on patents is limited, much of this bibliography is devoted to such materials.

#### BOOKS AND PAMPHLETS

Adelman, M. A. "Concept and Statistical Measurement of Vertical Integration," with comment by Irston R. Barnes, in *Business Concentration and Price Policy*. Princeton, N. J.: Princeton University Press, 1955. 514 pp.

Bright, Arthur. *The Electric Lamp Industry: Technological Change and Economic Development from 1800 to 1947*. New York: The Macmillan Company, 1949. 526 pp.

This book is one of the relatively few industry studies which consider specifically the role of patents in industry. In general, Bright concludes that the patent system has functioned well, but not optimally, in stimulating invention and innovation in the electric light industry. He considers and evaluates the desirability of suggested changes in the system as they would apply to this industry.—JWM\*

Chamberlin, Edward H. (ed.). *Monopoly and Competition and Their Regulation*. Proceedings of a Conference held by the International Economic Association, London, 1954. 548 pp.

Various shades of opinion were expressed as to the extent that large organizational

units in industry lead to monopoly and the extent to which government ownership might ameliorate this situation. Most economists took a middle of the road position; the consensus seemed to be that large corporations, in the United States for example, do not actually monopolize the market. By and large the groups favored, however, the government's antitrust policies.—BSS\*

Kaysen, Carl. *The United States v. United Shoe Machinery Corporation—An Economic Analysis of an Anti-Trust Case*. Harvard University Press, 1956. 404 pp.

Attention is directed to the above for its discussion of the economics of the patent phase of the case.

Markham, Jesse W. "Survey of the Evidence and Findings on Mergers," with comments by Walter Adams, George W. Stocking in *Business Concentration and Price Policy*. Princeton, N. J.: Princeton University Press, 1955. 514 pp.

Maclaurin, W. Rupert. *Invention and Innovation in the Radio Industry*. New York: The Macmillan Company, 1949. 304 pp.

In this study Professor Maclaurin specifically considers the role of patents in the

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\* Staff member who submitted item.



- radio industry. He concludes that they have been an important spur to the industry's technological progress. See also the following journal article by the author:
- "Patents and Technical Progress—A Study of Television," *Journal of Political Economy*, 58, No. 2 (April, 1950). —JWM\*
- McCloy, Shelby T. *French Inventions of the Eighteenth Century*. Lexington: University of Kentucky Press, 1952. 212 pp.
- Direct awards and prizes to inventors and to their families were given by the French Government to stimulate industry in the early days of the French patent system, according to Chapter 12, which gives the story of how the French patent system was started in 1791.—JR\*
- Oliver, John W. *History of American Technology*. New York: Ronald Press, 1956. 676 pp.
- Gives a historical survey of the growth of American industry, but barely mentions the role of our patent system. The author teaches history at the University of Pittsburgh.—JR\*
- Palmer, Archie M. *Nonprofit Research and Patent Management in the United States*. No. 371 in the NAS-NRC Series. Washington: National Academy of Sciences—National Research Council, 1956. 54 pp.
- Penrose, Edith Tilton. *The Economics of the International Patent System*. Baltimore: The Johns Hopkins Press, 1951. 247 pp.
- Schumpeter, Joseph A. *Capitalism, Socialism, and Democracy*. 2nd ed. New York: Harper and Brothers, 1947. 411 pp.
- Although only tangentially related to the patent system, this well-known book should be interesting to research workers and to the layman. In Chapter VIII, especially pages 87-88, the late Professor Schumpeter argues that patents, though often condemned by economists because they lead to restrictive practices, are on balance propelling rather than inhibiting factors in a dynamic economy.—JWM\*
- Stocking, W. G. and Myron M. Watkins. *Monopoly and Free Enterprise*. New York: The Twentieth Century Fund, 1951. 596 pp.
- The authors believe that the present American business is neither pure monopoly nor free competition but a mixture of both. They would favor, however, more strict control of private large enterprise to see that these serve the public interest. —BSS\*
- Tuska, C. D. *Inventors and Invention*. New York: McGraw-Hill Book Company, 1957. 174 pp.
- A popular discussion of inventors and their work and methods of inventing.—JR\*
- Vaughan, Floyd L. *The United States Patent System; Legal and Economic Conflicts in American Patent History*. Norman: University of Oklahoma Press, 1956. 355 pp.
- Unlike the late Professor Vaughan's well-known 1925 book, *Economics of Our Patent System*, this book is not an economic analysis of the patent system. Nor is the book "revolutionary," in the sense of seeking to abolish the system. The author is, however, concerned with the sins of the system and presents in detail illustrations of abuse. The book also contains a lengthy chapter on remedies. Students of the patent system are probably familiar with most of the material in this book, including the discussion of remedies. Nevertheless, it may serve a useful purpose as a source of reference.—JWM\*
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- It is suggested that students interested in objective literature read Vaughan's revision somewhat critically.—JR\*
- Williams, B. R., and Charles Frederick Carter. *Industry and Technological Progress*. London: Oxford University Press, 1957. 244 pp.
- A discussion of the motivation forces and economic factors which control the speed of application of new products in industry. The conclusions and findings are based on cases.—JCG\*
- ### PH.D. DISSERTATIONS
- Reese, Jim E. "The Economic Implications of the U. S. Patent System." Unpublished, University of Texas, 1940.
- Listed in Vaughan's recent book, *The United States Patent System; Legal and Economic Conflicts in American Patent History*, 1956.—JR\*

Schmookler, Jacob. "Invention and Economic Development." Unpublished, University of Pennsylvania, 1951.

Those engaged in research on the patent system should be interested in studying Schmookler's conclusions concerning the use of patent statistics as a measure of changes in technical knowledge and as a tool for forecasting technical change. This thesis has been summarized in an unpublished paper presented before the Conference on the Quantitative Description of Technological Change, sponsored by the Committees on Economic Growth and on Social Implications of Atomic Energy and Technological Change of the Social Science Research Council, April 6-8, 1951. See also the following journal articles by the author: "The Interpretation of Patent Statistics," *Journal of the Patent Office Society*, 32, No. 2 (February, 1950). "The Utility of Patent Statistics," *Ibid.*, 35, No. 6 (June, 1953). "Patent Application Statistics as an Index of Inventive Activity," *Ibid.*, 35, No. 8 (May, 1954). "The Level of Inventive Activity," *Review of Economics and Statistics*, 36, No. 2 (May, 1954).—JWM\*

Stafford, Alfred B. "Trends of Invention in Material Culture." Unpublished, University of Chicago, 1950.

This study analyzes recent trends in patented inventions, covering essentially the period 1916-1947. It provides interesting information on a variety of issues, such as:

- a. the declining rate of patents;
- b. the shift from individual invention to corporate invention;
- c. the increasing complexity of inventions;
- d. whether invention is or is not declining; and
- e. the influence of social values on invention.

This thesis has been summarized in an unpublished paper presented before the Conference on the Quantitative Description of Technological Change. . . . Social Science Research Council, April 6-8, 1951. See also the following journal article by the author: "Is the Rate of Invention Declining?" *American Journal of Sociology*, 57 (May, 1952).—JWM\*

#### PERIODICALS

Currie, Brainerd (ed.). "The Patent System." *Law and Contemporary Problems*,

12, No. 2 and 13, No. 2 (Autumn, 1947, and Spring, 1948).

This source is probably well known to most students of the patent system. It is an excellent and representative collection of articles on various aspects of the system. Among others, the papers included cover:

- a. government policy concerning patents;
- b. the relationship of patents to competition in the automobile industry;
- c. the United States Patent Office; and
- d. patent reform.—JWM\*

Dirlam, Joel B. "Patents and Progress: Is Our Patent Law Obsolete?" *Dun's Review and Modern Industry*, 69, No. 6 (April, 1957), 52.

In this article Mr. Dirlam refers to the Foundation and other studies. The author has made a survey of his own on an admittedly unrepresentative sample and there appears to be insufficient factual data to support his statements.—JR\*

———. "The Patent Slump," *Challenge*, 4, No. 11-12 (August-September, 1956), 58-62.

Today's inventions come almost exclusively from the research laboratories of large companies, according to this article. The independent inventor is seen as being handicapped in getting the highly expensive and specialized equipment needed for modern research. Another difficulty is seen in the vigorous attacks by the antitrust division of the Justice Department of patent pool restrictions. The number of patents applied for and granted has been steadily declining in the last 25 years and thousands of existing patents are being made publicly available without royalty as the result of consent decrees.—JCG\*

Gilfillan, S. Colum. "Inventions as a Factor in Economic History," *The Journal of Economic History*, Vol. V, December, 1945, A Supplemental Issue, Supplement V, pp. 66-85.

The author, though denying the primacy of inventions, does agree that it is an economic good, but it differs from other economic goods in that all its cost is entirely overhead. He believes that so far mankind has found no effective way to pay the inventor. He also believes that no wide advance in civilization can take place without a string of inventions.—BSS\*

———. "The Prediction of Technical Change," *Review of Economics*

and *Statistics*, 34, No. 4 (November, 1952), 368-385.

A portion of this article is devoted to the role of patents as a stimulus to invention. It contains an estimate that the patent system is responsible for only 15 to 20 per cent of total American invention. Research personnel should be interested in examining the basis of this estimate.—JWM\*

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and A. B. Stafford. "Social Implications of Technical Advance," *Current Sociology*, 1, No. 4 (1953), 211-266.

An extensive annotated bibliography of subject literature published chiefly the last seven years.—JR\*

Graue, Erwin. "Inventions and Production," *Review of Economic Statistics* (now *Review of Economics and Statistics*), 25, No. 4 (November, 1943), 221-223.

This article compares the index of patents issued with indexes of industrial production and general business activity. It is found that cycles in the issuance of patents more or less concur with the business cycle from 1863 until the 1930's. Graue suggests an explanation for the departure in the 1930's which is based upon the severity of the depression.—JWM\*

Handler, M. "An Examination of the Chapter on Patent Antitrust Problems in Attorney General's Committee Report," *Antitrust Bulletin*, 1 (June, 1955), 157.

Hollabaugh, M. A. "Patents and Antitrust Laws," *University of Cincinnati Law Review*, 25 (Winter, 1956), 43.

"Impact of the Antitrust Laws on Patents and Trademarks in Foreign Commerce, The," Report of the Round Table Discussion Presented as the Afternoon Program of the Meeting of the APLA in Philadelphia, March 21, 1952. *George Washington Law Review*, 21 (June, 1953), 663-709.

Derenberg, W. J., et al. *Ibid.*, pp. 665-667.

Diggins, B. A., et al. *Ibid.*, pp. 667-677.

Oppenheim, S. C. (Moderator), et al., *Ibid.*, pp. 663-709.

Timberg, S., et al. *Ibid.*, pp. 67-694.

Kahn, Alfred E. "Fundamental Deficiencies of the American Patent Law," *American Economic Review*, 30, No. 4 (September, 1940), 475-491.

This article is widely quoted in economic literature concerned with the patent system. Since the author's views are not based on empirical investigation, it should be read critically by all students of the patent system.—JWM\*

Lorz, R. M. "Inventions Face Big Initial Risk," *Iron Age*, 178 (May 13, 1954), 73-4.

Only 2.5 per cent of all patent applications reach money-making stage; a drive to bring business and inventors together is desirable; teamwork necessary to market the new invention.—JNB\*

Malley, J. W. "Patent Antitrust Problems and the Attorney General's Report," *George Washington Law Review*, 24 (October, 1955), 20-33.

Markham, J. W. "Economics and Antitrust Law Administration," *Journal of Public Law*, 4 (September, 1955), 127.

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"The Report of the Attorney General's Committee on Antitrust Laws," *Quarterly Journal of Economics*, 70 (May, 1956), 193.

Massel, M. S. and R. J. Gormley. "Business Methods and Antitrust Policy: The Automatic Canteen Case," *Antitrust Bulletin*, 1 (November, 1955), 361.

Mitman, H. A. "Economic Aspects of Invention and Legal Monopolies," *Mississippi Law Journal*, 26 (March, 1955), 149.

Montague, Gilbert H. "Limitations on What the U. N. Can Do Successfully: The Proposed U. N. Program on Restrictive Business Practice," *Antitrust Bulletin*, 1 (December, 1955), 441.

Neumeyer, F. "Swedish Cartel and Monopoly Control Legislation," *American Journal of Comparative Law*, 3 (Autumn, 1954), 563.

Norwig, E. A. "Bibliography of Articles on Patent Law—1939-1948," *Journal of the Patent Office Society*, 32, No. 1 (January, 1950), 44-69.

Oppenheim, S. C. "Federal Antitrust Legislation: Guideposts to a Revised National Antitrust Policy," *Michigan Law Review*, 50 (1952), 1139.

———. "A New Approach to Evaluation of the American Patent System," *Journal of the Patent Office Society*, 33 (1951), 555, 564-565.

———. "Highlights of the Final Report of the Attorney General's National Committee to Study the Antitrust Laws," *Antitrust Bulletin*, 1 (April, 1955), 6.

———. "Patents and Antitrust: Peaceful Coexistence?" *Michigan Law Review*, 54 (1955), 199-218.

Plant, Sir Arnold. "The Economic Theory Concerning Patents for Inventions," *Economica*, New Series, No. 1 (1934), 30-51.

This challenging article grants that the patent system must induce greater efforts toward the development of inventions of a patentable type but doubts whether such output induced by this means has any greater claim to be regarded as more generally useful than the output that would have been induced by free market conditions. The author decries the lack of a theoretical principle behind the patent system and argues that the system may lead to too much invention of the wrong kind and too much obsolescence and displacement of specialized ability. The article demonstrates the need for the type of objective empirical research undertaken by the Foundation.—JWM\*

Polanyi, Michael. "Patent Reform," *Review of Economic Studies*, 11, No. 2 (Summer, 1944), 61-76.

This is an interesting article by a well-known English chemist who in recent years has devoted much time to the field of economics. In the article, the author cites the possible evils arising under the operation of the patent system. However, he favors patent protection on the grounds that its absence would "cause graver inequities and more serious damage to the general welfare than is caused both by the use and the occasional abuse of patent monopolies." Reasons for this opinion are then enumerated.—JWM\*

Robillard, George N. and Beverly Smith. "Are We Stifling the Inventors," *The Saturday Evening Post*, 223, No. 50 (June 9, 1951), 22.

The authors believe that under existing laws and regulations inventors who work for the government or those who invent in defense as a rule do not get proper compensation. It is believed this lack of incentive has reduced important inventions to maintain our technical superiority. There is need, the authors believe, to remedy this situation before it is too late.—BSS\*

Schmookler, Jacob, "The Age of Inventors," *Journal of the Patent Office Society*, 38, No. 4 (April, 1956), 228-232.

Patentees were selected randomly from all those who received U.S. patents during the period November 10 to December 1, 1958. The figures when reduced to rates of inventiveness suggest the highest concentration of inventiveness at age 30-39 for most outstanding inventions but an age of 40-49 for current inventors representing a cross-section of patented inventions.—BSS\*

Stocking, G. W. and W. F. Mueller. "The Cellophane Case and the New Competition," *American Economic Review*, 45 (March, 1955), 29.

Study of "Compulsory Licensing and Dedication of Patents as Relief Measures in Antitrust Cases," *George Washington Law Review*, 24 (December, 1955), 225.

*Symposium on the Report of the Attorney General's National Committee*, American Bar Association Annual Meeting, Phila., Pa., August 22-24, 1955. (American Bar Association, Chicago).

- Diggins, B. "Analysis of Chapter V: Licenses, Cross-Licenses and Interchanges," p. 106.
- Ooms, C. W. "Analysis of Chapter V: Remedies," *Ibid.*, p. 114.
- Lyons, L. S. "Analysis of Chapter V: Infringement and Suits and Patent Misuse," *Ibid.*, p. 111.
- Pugh, H. R., Jr., "Analysis of Chapter V: Patent Acquisition and Non-Use," *Ibid.*, p. 101.
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- "U. S. Antitrust Abroad," *Cartel*, 6 (April, 1956), 66.
- Wood, L. I. "The Problem of Patent Interchange and the Report of the Attorney General's National Committee," *Antitrust Bulletin*, 1, No. 3 (June, 1955), 165.

#### REPORTS AND HEARINGS

*Antitrust Problems in the Exploitation of Patents. Staff Report to Subcommittee No. 5 of the H. of R., Committee on the Judiciary.* October 15, 1956. 25 pp.

This report concludes antitrust laws offer no threat to "integrity of the American patent system" and that there is no basic incompatibility.—JR\*

*Bigness and Concentration of Economic Power—A Case Study of General Motors Corporation, Staff Report of Subcommittee on Anti-trust and Monopoly of the Senate Committee on the Judiciary, 84th Cong., 2d Sess., Washington, 1956.*

This report, a "preliminary" but "detailed factual analysis," may be followed by others which more adequately treat certain "topics which were touched upon, such as profitability. . . , intracompany sales, purchasing policies, . . . the relationship of efficiency to size, research and development, and problems of the full line."—IHS\*

*Final Report of Select Committee on Small Business. H. of R. H. Res. 114, 84th Cong., January 3, 1957.*

This report states on page 84 that government patent policy is a probable villain in helping industry concentrate economic power by having government pay for research but not getting title to the patents.—JR\*

*Progress Report by the Cabinet Committee on Small Business.* Washington, August 7, 1956.

This is the "first progress report" submitted to the President by the Cabinet Committee on Small Business, which was appointed on May 31, 1956. It offers policy recommendations with respect to taxation, procurement, financing and technical aids, mergers and antitrust, and the paperwork burden.—IHS\*

*Proprietary Manufacturing Know-How and the Requirements of National Defense, Machinery and Allied Products Institute and Council for Technological Advancement.* Washington, no date.

This pamphlet consists of two statements submitted by the Machinery and Allied Products Institute to the Office of Assistant Secretary of Defense (Supply and Logistics). These statements comment on a procurement regulation intended to clarify Defense Department policy governing the acquisition of manufacturers' proprietary technical data.—IHS\*

Publications of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, 85th Cong., 1st Sess.

#### PATENT STUDIES

- No. 1. Bush, Proposals for Improving the Patent System (1956).
- No. 2. Frost, The Patent System and the Modern Economy (1956).
- No. 3. Patent Office, Distribution of Patents Issued to Corporations, 1939-1955 (1956).
- No. 4. Federico, Opposition and Revocation Proceedings in the Patent Cases (1957).
- No. 5. Vernon, The International Patent System and Foreign Policy.
- No. 6. Palmer, Patents and Nonprofit Research.

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Hearings, American Patent System, October 10, 11, and 12, 1955.

Hearings, Inventor's Awards, June 7, 1956.

Hearings, Patent Extension, May 4 and June 13, 1956.

Report, Review of the American Patent System (S. Rept. No. 1464, 1956).

Report, Patents, Trademarks, and Copyrights (S. Rept. No. 72, 1957).

*Science and Engineering in American Industry*. Final Report on a 1953-1954 Survey, Prepared for the National Science Foundation by the U. S. Department of Labor, Bureau of Labor Statistics.

Information regarding costs and personnel for research was obtained through questionnaires sent to a stratified sample of employers employing eight or more persons. The information regarding expenditure for research and development was obtained by interviews of research directors of 200 of the largest companies.—BSS\*

## Annotated Bibliography of Student Papers

THE FOLLOWING ANNOTATIONS, except for one, refer to student papers selected from the Foundation's first seminar and lecture series on the patent, trademark, copyright and related systems, established jointly with The George Washington University Law School.<sup>1</sup> These papers, though not ready for publication, are believed to contain useful information and are available for examination in The Patent, Trademark, and Copyright Foundation's library. The Foundation invites educational and research institutions to submit informative student papers on the patent, trademark, copyright and related systems to be considered for annotation in this section.

Bouton, Charles E. "An Analysis of the Development of the International Convention for the Protection of Industrial Property." 16 pp.

Gives brief historical background of the International Convention. Construction of the Convention is noted as having taken place through the interchange of ideas expressed by representatives of several nations at four major conferences beginning in 1873.

Brown, Charles E. "A Comparison of Certain Aspects of Damages in Patent Infringement and Declaratory Judgment Cases." 22 pp.

Examines the methods of determining the amount of damages to be awarded to patentee for infringement by comparing controlling statutes from 1870 to the present. Considers the protection offered an allegedly infringing manufacturer from excessive loss of profit or excessive damages under the Federal Declaratory Judgment Act of 1934. The economic factors that influence decisions are discussed.

Brown, William S. "A Study of Certain Chemical Patent Cases." 18 pp.

A presentation of six recent cases dealing with chemical patents. *Hooker Electrochemical Co. v. Watson, Commissioner of Patents*, 107 U.S.P.Q. 78; *Pierce v. Muehleisen*, 107 U.S.P.Q. 74; *Sterling Drug, Inc. v. Watson, Commissioner of Patents*, 108 U.S.P.Q. 37; *In re Gruskin*, 110 U.S.P.Q. 288; *Hartford National Bank and Trust Co. v. E. F. Drew and Co., Inc.*, 111 U.S.P.Q. 147; *In re Megat*, 112 U.S.P.Q. 317. The cases were selected with the following questions in mind: (1) Are the standards of patentability set by the courts excessively high? (2) Are non-technically trained judges capable of analyzing prior art so as to pass judgment on a technical inventive contribution?

Canady, Donald W. "Consideration of Grant-Back Clauses in Patent Licenses." 20 pp.

Examines different types of grant-back clauses and discusses the antitrust considerations involved in the use of such clauses.

<sup>1</sup> See Student Papers Section in this *Journal*, p. 159.

- Cooper, Eugene S. "Remedies in Patent Antitrust Cases from the Standpoint of the Norms of the Patent System of the Norms of the Patent System." 23 pp.

Discusses the broad relationship between patent and antitrust laws and illustrates how patent practices may result in illegal restraint of trade. Court decrees are compared and their possible effects considered.

- Crickenberger, Ira T. "An Analysis of the Provisions Regarding the Patentee's Exercise of Exclusive Rights Under the International Convention for the Protection of Industrial Property." 32 pp.

The concept of compulsory working is discussed and the historical development of the various provisions of Article 5 (a) is traced through the six Conferences of Revision. Tables of the Convention membership and working requirements in various Convention countries are included.

- Frazier, Roy D. "A Comparative Study of the Treatment by the Circuit and Supreme Courts in the Last Ten Years of Chemical and Other Patents." 16 pp.

Examines the decisions of the Circuit Courts and the Supreme Court for the 10-year period of January 1947 through December 1956 and compares the treatment in those decisions of chemical patents with other patents.

- Helling, Donald C. "Patent Licensing Problems Arising from Government Employer-Employee Relationship." 46 pp.

A survey of decisions bearing on the relative rights of the Government and its employees in inventions made by Government employees; an examination of the Report and Recommendations of the Attorney General to the President, Investigation of Government Patent Practices and Policies (1947); and the provisions of Executive Order 10096.

- Hilderley, Clifton, T., Jr. "Aspects of Employer-Employee Patent Licensing in Industry." 17 pp.

This paper highlights the controversy in industry between employers and employees

with respect to patent rights. A brief coverage of cases is included. A suggestion is made that problems could be simplified by applying basic contract principles.

- Kain, Wallace M. "The Doctrine of Equivalents and the Supreme Court." 19 pp.

Discussion of doctrine of equivalents based on recent Supreme Court decisions. Consideration is given to the effect of strict and liberal claim interpretation.

- Krizov, Paul C. "Effect of Certain Antitrust Decisions on Foreign Licensing." 33 pp.

Discusses the interaction between the patent system and the antitrust laws experienced by United States manufacturers who trade abroad. Territorial limitations of patent rights and antitrust laws are contrasted and the relative freedom of action in certain respects of foreign companies is noted.

- Main, George H. "A Re-examination of Certain Patent Cases before the Supreme Court in the Last Ten Years." 44 pp.

An examination of certain aspects of seven cases involving patents decided between 1947 and 1957. *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127 (1948); *Mandel Bros., Inc. v. Wallace*, 335 U.S. 291 (1948); *Jungersen v. Ostby and Barton Co.*, 335 U.S. 560, (1949); *Graver Tank and Mfg. Co., Inc. v. Linde Air Products Co.*, 336 U.S. 271 (1949); *Faulkner v. Gibbs*, 338 U.S. 267 (1949); *The Great Atlantic and Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147 (1950); *Crest Specialty v. Trager*, 341 U.S. 912 (1951). A consideration of underlying factors that might have some bearing on the courts' decisions in patent cases.

- Meland, Creighton R. "Prior Knowledge as a Bar to a Patent Where the Knowledge Has Been Suppressed by Reason of Government Security." 19 pp.

Certain cases dealing with the concealment of a new invention from the general public are discussed. Publication is compared with the restriction of information by government for the purpose of security.

Rothstein, Seymour. "An Analysis of Treaties Dealing with Patent Matters Before and Under the Union for the Protection of Industrial Property and Suggestions for an International Tribunal." 23 pp.

A discussion of particular aspects of certain treaties, including the Union for the Protection of Industrial Property; changes from 1883 to the present are noted.

Stearman, Joel. "Certain Aspects of Design Protection for Three-Dimensional Articles." 27 pp.

A limited investigation into the possibilities of, requirements for and comparisons between the protections afforded to three-dimensional articles under the Design Patent Statutes, the Copyright Law and Trademark Act of 1946. Attention is directed to the implications of certain recent decisions in the three fields, including the *Brunswick* case (110 U.S.P.Q. 481), the *Maser v. Stein* case (100 U.S.P.Q. 325), the *3-M* case (92 U.S.P.Q. 74), the

*Lucien Lelong* case (75 U.S.P.Q. 302) and the *Caron* case (100 U.S.P.Q. 356).

Ziems, Robert F. "A Reconsideration of Certain Mechanical Cases in the 7th Circuit Court of Appeals." 12 pp.

Discussion of three recent 7th Circuit cases holding improvement patents invalid. *Keuffel & Esser Co. v. Pickett & Eckel, Inc.*, 86 U.S.P.Q. 124; *Powder Power Tool Corporation v. Powder Actuated Tool Co.*, 108 U.S.P.Q. 155; *Anderson v. The Phoenix Products Co.*, 107 U.S.P.Q. 66. Author queries whether court appreciated the importance of the technical advances.

Zinn, Donald E. "Technical Information and the General Electric Lamp Decree." 29 pp.

Discusses the *Lamp* case. *United States v. General Electric Co.*, 115 F. Supp. 835 (D.N.J. 1953). There is a comparison of the subject decree with other consent decrees involving patents.



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## NOTES

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### Annual Public Conference

The organization and content of the second Annual Public Conference program was explored at a meeting recently of the members of the Foundation Staff. In addition to the presentation and discussion of the Foundation research projects, it has been decided, as suggested at the meeting, to introduce a new feature at the 1958 Conference, a special session devoted to current issues in the fields of the Foundation's interest. This session will be so organized as to encourage the maximum participation from the floor.

The Conference will be held on June 19 and 20 at the Sheraton-Park Hotel

in Washington, D. C. The Conference fee will be \$50 and includes the Conference, two luncheons, reception, and dinner. The Conference fee will be \$20 for students working toward a degree and persons primarily engaged in teaching at a college or university. Guests attending the reception and dinner only will be charged \$10.50.

We are asking our members, participants, and other persons interested in making the Conference a success, to send in their registrations to the Foundation Office in advance.

### Second Seminar and Lecture Series

The second Foundation seminar and lecture series is being conducted during the 1958 spring semester by Executive-Director L. James Harris, Professorial Lecturer at The George Washington University Law School. Among the Foundation's Research Staff serving as discussion leaders for this semester are: Dr. Robert B. Bangs, Dr. J. N. Behrman, Mr. George E. Frost, Professor James N. Mosel, Dr. Joseph Rossman, Dr. Barkev S. Sanders, and Dr. Irving H. Siegel.

In conjunction with the lectures, preliminary papers are orally presented by the students and discussed during the meetings. These oral presentations are developed into written papers by the end of the semester.

Students are introduced to the patent, trademark, and copyright systems as functioning legal, social, and economic institutions. The thought is that the best in this type of teaching is achieved when the students are close to and advance with the progress of research.

### The Foundation's Library

The Foundation is planning to organize a library devoted to the fields of education and research in which it is engaged. Such a specialized library

should eventually become an important storehouse of published and unpublished literature for the curricular reference and the needs and interests of

enrolled students, patent specialists, teachers of the law, research workers in the physical and social sciences, professional people, and others. The library collection will be housed at The Patent, Trademark, and Copyright Foundation, on the campus of The George Washington University. It is intended that the library will contain collections in the Foundation's particular fields of interest to supplement the rich library resources in Washington and add to the unusual opportunity for specialized research in the Nation's Capital. This repository will also contain student manuscripts noted in the Annotated Bibliographies section of The Patent, Trademark, and Copyright Journal of Research and Education.

Individuals and organizations are invited to contribute, as loans or permanent gifts, books, materials, and manuscripts in the various disciplines, such as economics, statistics, law, psychology, sociology, and engineering, relevant to the objectives<sup>1</sup> of the Foundation set forth below:

"To gather and disseminate knowledge regarding the principles, the facts, and the practical operations of the patent, copyright, trademark and related systems

of laws of the United States and other countries.

"To convey to the public the relation of these systems to American industrial and social progress.

"To develop a perspective of the part played by the patent and related systems in the creation of new products and industries, in the investment of capital, in community growth, and in technological research.

"To organize educational programs on the systems for use in courses of instruction in all stages and fields of study.

"To study the place and operation of the systems in relation to incentives to advance science and the arts and to rewarding creators of industrial and intellectual subject matter.

"To provide the legal profession with the means of intensifying their knowledge of the laws and administration of the systems, the decisions of administrative bodies and the courts thereunder, and the relation thereto of the antitrust and trade practices laws.

"The foregoing objectives are but part of an over-all objective of conducting systematic research, so that from an analysis of the facts, the principles and actual operations of the systems may be accurately evaluated in the light of the dynamic arts, sciences, and technology as part of the American political and economic structure."

## Books Received

Eddy, J. P. *The Law of Copyright*, Statutes Supplement No. 100, Butterworths Annotated Legislation Service. London: Butterworth & Co. (Publishers) Ltd., 1957. 356 pp.

Leeper, W. J. *Copyright and Performing Rights*. London: Stevens & Sons Limited, 1957. 231 pp.

Smith, Arthur M. (ed. and comp.). *Supplementary Material in Patent*

*Law*. Ann Arbor, Michigan: Overbeck Co., Publishers, 1954. 238 pp.

Smith, Arthur M. *Patent Law—Cases, Comments and Materials*. 2 vols. Ann Arbor, Michigan: Overbeck Co., Publishers, 1954. 1484 pp.

Waite, John Barker. *Cases on Patent Law*. Ann Arbor, Michigan: Overbeck Co., Publishers, 1949. 324 pp.

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<sup>1</sup> The Patent, Trademark, and Copyright Foundation Bulletin, 1956-1957, p. 6.

## The 1958-59 Bulletin

The 1958-59 Bulletin of the Foundation has been prepared for publication and will be issued shortly. This Bulletin contains, with other things, an outline of the organization of the Foundation, including the present members

of the Advisory Council, Area Committees, and Research Staff; the educational program of the Foundation; a description of current projects; and an up-to-date list of Foundation members and donors.



# Licensing Abroad Under Patents, Trademarks, and Know-How by U. S. Companies

## Report on a Survey of Problems and Practices and Their Relation to the American Patent and Trademark Systems

J. N. BEHRMAN, Principal Investigator\*

### SUMMARY

THIS IS A REPORT ON THE results of the pilot study (Project 5a) of the relation of U. S. patents, trademarks, and know-how and U. S.-owned foreign patents and trademarks to their use abroad under licensing arrangements. Our purpose was to determine whether a large-scale study could profitably be made on this subject. We have now developed some empirical information and surfaced the major problems. The topics discussed here include: I. Significance and Scope of the Study, II. Governmental Policies, III. International Convention, IV. Exclusivity and Antitrust, V. Taxation, VI. Profitability and Incentives, VII. The License Contract, and VIII. Implications.

The study has been restricted initially to the U. S. side of the licensing picture and even more narrowly by excluding the problems of business organization supporting licensing programs. We have concentrated on the larger framework—the relation of licensing to patent systems and foreign commerce in general. To obtain empirical data, we interviewed 65 companies and circulated questionnaires to nearly 400 more. A tentative picture of U. S. licensing practices has been put together from the 180 companies replying (orally or in written questionnaire).

Some of the results of the present investigation have been published in the December and March issues of the *Journal*.<sup>1</sup> This report condenses the results relating to governmental policies, the international convention for the protection of industrial property, antitrust legislation and restrictive business practices, U. S. taxation, profitability and the incentives to license and the general practices of the responding companies as to provisions of the license contract. We conclude with a review of some of the implications of the study thus far.

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\*Acknowledgment is made of the contribution to this study by Jerome Jacobson, who served as Consultant; by John Lindeman, who initiated it; by W. E. Schmidt, Lawrence Eckstrom, Joe S. Cardinale, and Wilbur Fugate, who commented on part or all of the manuscript; and to members of the executive and research staff of the Foundation, who offered technical advice and criticism.

<sup>1</sup>PTCJRE, I, No. 2 (December, 1957), pp. 220-243; and II, No. 1 (March, 1958), pp. 137-158.

Continued study of the special problems of licensing and of the impact of foreign, judicial, and legislative policies will be made by the Foundation. Additional empirical data on U. S. operations abroad will be sought also. Further study of the incentives and obstacles to foreign licensing will be required to provide a basis for policy recommendations to governments; these aspects have been reviewed in a previous issue of the *Journal*.<sup>2</sup> More precise information as to what types of commodities are appropriately licensed (or wanted) abroad will also be necessary to guide policy formation; a report in the December issue of the *Journal*<sup>3</sup> examined this aspect of the over-all problem. It is hoped that the publication of this report will stimulate researchers abroad to investigate their own systems in a similar manner.

## I. SIGNIFICANCE AND SCOPE OF THE STUDY

### A. PURPOSE AND SCOPE

THE FOUNDATION'S PILOT STUDY on foreign licensing was conceived as an examination of the relation of U. S. patents and trademarks and U. S.-owned foreign patents and trademarks to their use abroad. We were interested initially in the ways in which the results of the U. S. patent and trademark systems are extended abroad. Obviously, U. S. patents and trademarks confer no rights as to manufacture abroad. But they are usually the basis for filing and registration in foreign countries. It is only after the foreign rights are obtained that the U. S. company can license the use of these rights to foreign firms. To this extent foreign licensing of patents and trademarks is an outgrowth of the U. S. systems for protection of marks and inventions.

The subject of licensing cannot be restricted to patents and trademarks. It must encompass the transfer of technical know-how. "Know-how" includes whatever *unpatented* or unpatentable information the licensor has developed and which the licensee cannot readily obtain on his own and is willing to pay for under the agreement; such as techniques and processes, the trade secrets necessary to make and sell a patented (or other) item in the most efficient manner, designs, blueprints, plant layouts, engineering specifications, product mixes, secret formulae, etc. Transfers of know-how most frequently accompany a patent license and sometimes are important in making a trademark license valuable to the licensee. This investigation has, therefore, encompassed all three types of transfer of intangible industrial property rights from the United States to foreign companies under license agreements.

Basically there are four types of licensing agreements, though they are usually

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<sup>2</sup>PTCJRE, I, No. 1 (June, 1957), pp. 145-158.

<sup>3</sup>PTCJRE, I, No. 2 (December, 1957), pp. 220-243.

found in combination. The agreement may transfer rights to *patents*, (either for products, processes, or machines) which have been obtained abroad by the U. S. firm. It may be a means of granting rights under U. S.-owned *trademarks* registered abroad. It may be an arrangement to make available or sell *know-how* relating to either technical or managerial skills or both. A fourth type adds to any of these types a reciprocal arrangement under which certain rights are extended from the foreign company to the U. S. company; this sets up a *cross-license* seldom involving payment of royalties or fees. Any of these types may extend the right to merely manufacture, or to use, or to sell, or any combination of these.

The initial study has been restricted to the U. S. side of the picture in order to limit the scope of investigation to one which could be covered within a reasonable period of time. A full-scale study would require examination also of *foreign* patent and trademark systems, legal protection, commercial and financial regulations, anti-monopoly policies, taxation, and governmental attitudes toward licensing. A larger study would also encompass the problems foreigners face in licensing U. S. companies to produce in the United States and the extent to which such activities affect U. S. licensing abroad.

#### B. METHOD

We have not been able to rely on secondary source materials, for literature on the subject is sparse. We have gathered information through interviews and questionnaires directed to corporation and government officials. Some 65 companies in the United States were interviewed at length about their experience and most significant problems. Questionnaires were sent to 387 companies, but because of subsidiary relationships, the total was only about 370. We made no attempt to canvass each major industry or to "structure" the sample except to choose large-size companies which we had reason to believe would be so widely engaged in foreign operations as to have licensing arrangements abroad.

We phased the mailing of the questionnaire over four periods in order to benefit from suggestions for its improvement. However, only 30% replied to the question asking for comment on the questionnaire. Half of these considered it well adapted; the other half suggested improvements, all different. We therefore left the questions unchanged so as to maintain a maximum of comparability among the replies. The questionnaire was published in the December *Journal*. Nearly 40% of those sent questionnaires replied, and 115 filled them out.<sup>1</sup> Adding the results of the 65 interviews, we have experiences of 180 corporations. Not every respondent answered *all* questions posed. One or two questions were passed by a large number of the respondents. Most questions received no more than 10%

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<sup>1</sup>This is a slightly higher proportion of completed questionnaires than that of a National Industrial Conference Board study published recently; they received responses from 131 licensors out of 460 addresses (28.5%). We received 115 from 370 addresses (31.7%). The form of the Foundation's questionnaire may have offset the advantage which the NICB may have had in reaching its already established "clientele."

"no comment." We have not attempted to set forth statistical arrays for each answer; a specious preciseness would have resulted and, in any case, this pilot study has aimed mainly at surfacing problems, determining their relative importance, and obtaining some information on policies used to meet them.

The results obtained may be influenced by the fact that more than 40% of those answering the mailed questionnaire were lawyers; they were either heads of patent (or legal) departments, patent lawyers, or legal counsel. Nearly 20% were vice presidents; 12.5% were presidents (or their assistants); and another eighth were secretaries (or their assistants). The remaining 15% were managers or engineers in international operations, exporting, merchandising, production, or administration. A larger study could provide a sample large enough to test the hypothesis (which some officials say is the case) that widely different attitudes (and even information) are held by different officials according to their roles in their companies.

It should be noted that we have assured all interviewed officials and all those responding through questionnaires that their replies will be kept *strictly confidential*. A few illustrative experiences and cases are given, but they are taken wholly from published sources.

#### C. EXTENT OF FOREIGN PATENTING AND LICENSING

In order to determine the economic significance of the subject studied, we requested data from our respondents upon the extent to which they patented inventions abroad, registered their trademarks abroad, and licensed either to foreign companies.

Few, if any, U. S. companies patent all their patentable developments in the United States; relatively few of those patented in the United States are patented abroad. Less than 2% of the companies we interviewed or questioned asserted that all of their U.S. patented inventions were patented abroad; and such was the case *only* when the company had relatively few patents. About 20% patented none of their inventions abroad (or had no U.S. patents). Within the extremes, the experience shows the following distribution: about one-fourth of the companies applied abroad for between 1-25% of their U.S. patented inventions (about half of these applied for 10% of them abroad); another fifth applied for between 26 and 50% abroad (most of these being at the 50% level); surprisingly, about a fifth applied for between 65 and 95%.

A higher proportion of U.S. trademarks was registered abroad than was the case with respect to patent applications abroad on U.S. patented inventions. Nearly one-fourth of those responding indicated that they registered all of their marks in one or more foreign countries. Another fourth registered abroad between 76 and 95% of their U.S. marks; and a third quarter registered between 25 and 75%, with most of these being at the 50% level. Less than a fifth registered under 25% and only about 10% indicated that they did not register any of their



U.S. marks abroad. The heavy registration of marks abroad is probably a reflection of a general rule that they should be registered even before exporting.

The significant number of patents obtained and of marks registered abroad would indicate that these companies had considerable foreign assets which could produce income through licensing. But, this was not the main objective of foreign patenting or registering for most respondents. The primary objective in four-fifths of the cases was to obtain protection. The protection was for the company's own exports, for sales of its subsidiaries, or against the nuisance of having to deal with poachers abroad. Though protection was the primary consideration, about 75% of the respondents replied that future licensing was at least a secondary (though minor) factor.

Several companies, however, indicated that their patenting and registering abroad was done wholly in the light of future licensing. Others said they paid no attention to the possibility of future licensing. Other reasons for patenting or registering abroad were: to improve its opportunities for cross-licensing, to keep open the door for foreign expansion itself in the future, and to gain benefit in the form of advertising and prestige.

The growing attention paid to licensing has made many companies more cautious about their policy on foreign patenting and registering. While the costs of maintaining many and widespread foreign patents and trademarks is extremely high, it has happened that one item has returned the costs of all foreign protection and more. Some companies have missed protecting that item. Because of the cost of maintaining patents, many firms review their foreign positions periodically. They seek to discover why licensing under a patent has *not* occurred and whether it is to be expected. If not, it may be dropped or assigned to a foreign company contingent upon the payment of royalties if the item involved is ever produced.

Use of the patents obtained abroad and trademarks registered in other countries is shown by the following data on the proportion licensed by the responding companies:

PER CENT OF RESPONDING COMPANIES	PER CENT OF FOREIGN TRADEMARKS LICENSED	PER CENT OF RESPONDING COMPANIES	PER CENT OF FOREIGN PATENTS LICENSED
13	0	17	0
22	1- 5	15	1- 5
10	10	7	10
20	11-49	15	11-49
15	50-95	20	50-95
20	100	16*	100

\*Licensees were usually subsidiaries or the licensors held only a few foreign patents.

There is no way of calculating the proportion of know-how licensed abroad. Thus, we had to be satisfied with a subjective evaluation by the respondent of its relative importance. By far the majority of U. S. companies questioned replied that know-how was much more important to them as an asset which could be

successfully licensed than were patents or trademarks; it was much more sought after by potential licensees. When asked to rank these according to importance, know-how licenses were placed first two times out of three; the other first place listings went more to patents than to trademarks. A mild predominance fell to patent licenses in the second place slot, and a strong predominance of third place listings fell to trademarks.<sup>2</sup> In a few cases, however, the respondent indicated that only one of the three was important to his company. Others showed that trademarks were of no value in their licensing, but that patents and know-how went together hand in hand; still others coupled trademarks and know-how.

### 1. *Postwar Expansion of Foreign Licensing*

The increase in licensing since World War II has been reflected in greater activity by companies already licensing and a rise in the number of companies entering into licensing programs. Among the companies interviewed and questioned, some have been licensing abroad as long as 50 and 60 years, but these are relatively few. Nearly 20% of the companies have been licensing more than 30 years. The largest proportion (about 40%) have been licensing abroad between 15 and 30 years. About 15% began foreign licensing during World War II, and nearly one-third began after the war—most during 1947 and 1948.

Nearly 95% of the companies responding indicated an increase in their licensing activities since World War II. The predominant rise was in licensing of know-how—nearly twice as great as increases in licensing of patents and nearly three times as significant as the rise in licensing of trademarks. Again, this experience is not the same for all, but increases in licensing of know-how were given a first place ranking by nearly three to one over either patent or trademark licensing. Patents and trademarks received an equal number of second place votes, but trademarks nosed out patents for third place honors (refer to question A-4 in the questionnaire).

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<sup>2</sup>The reasons given for these attitudes may be enlightening:

*Trademarks* were given first rank when the commodities involved were those close to the ultimate consumer; they were considered important in increasing sales, raising prestige, and getting the eye of the consumer.

*Patents* were considered most important in the experience of some for these reasons: higher royalties were gained from patent licenses than from other types; cross-licensing could be more effective under patents than under know-how exchanges; only patents provide the government protection desired by many licensees; foreign licensees respect patents more than simple know-how agreements; the existence of patents eases the licensing negotiations and provides some tax advantages; and, patents are a positive asset while trademarks are usually defensive.

*Know-how* attained much of its importance by making each of the other types of agreements more effective; in licensing subsidiaries, the licensee generally receives rights to patents automatically and thus is more eager for the know-how to use with it. In many instances, the know-how of the licensor was considered unique; in others, the large amount of engineering involved made technical knowledge indispensable. Where the art of the industry had been developed over a long time and manufacturing could not be carried on without it, know-how was of first importance. Also, patents do not disclose all development; the additional know-how makes the license worthwhile, but the existence of the patent provides the means of ensuring that the licensee will have to make payments during the period of use of the know-how; that is, without a patent, the licensee may take know-how and then cancel the agreement. Some companies considered know-how licensing a less expensive substitute for licensing of patents. They felt foreign companies seek know-how licenses because of the complexity and expense of obtaining know-how on their own.

Main factors affecting the postwar increase in foreign licensing were three: a policy decision of the licensor to become more aggressive, expansion of commercial activity abroad, and increased interest shown by potential licensees. Respondents were asked to rank these factors and add (and rank) any other significant ones affecting their own postwar expansion. The results indicate that expansion of licensing in the postwar period was only partly a result of an aggressive policy by U.S. business; the initiative was in the hands of the potential licensee—about half the time.<sup>3</sup> However, many licensors took positive decisions to expand their licensing operations once commercial conditions improved abroad. It is difficult to draw a precise line between these various factors since they have tended to meld together in a large number of instances. The remaining enumerated factors affecting the increase in licensing were of first importance to less than 10% of the respondents; they were almost wholly factors which we discussed in the article in the March *Journal*.<sup>4</sup>

## 2. Countries of Licensees

There is little information as to the countries in which licensing occurs by American companies, but the information obtained through the questionnaire shows a pattern not too dissimilar from the educated guesses of some of the persons interviewed. Only 20% of the companies responding to the questionnaire refused to answer the question on the number or area of licensees. Most respondents supplied precise information. Several had over 100 licensees in a group of more than 20 countries, and the physical work of listing them was too great. Only further investigation will bring a clear picture.

The countries having the most licensees of U.S. companies were found to be the most highly industrialized: England, France, Germany, Canada, Australia, and Japan. Canada might well be in first place but for the fact that subsidiary operations predominate there, and these may not be formally licensed. Some of the more rapidly developing countries came close behind: Mexico, Brazil, Italy, Argentina, and South Africa. Further down the list of the number of licensees came the countries in Europe which are smaller and more specialized in their industrial production: Belgium, Netherlands, Sweden, and Switzerland. Although the above rankings were the order of the countries according to numbers of licensees (see the following table), nothing can be said by the investigators at this time about the *value* of the returns from these licensees.<sup>5</sup>

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<sup>3</sup>"Expansion of commercial activity abroad" usually ranked first, followed by a "policy decision of the company," and then "increased interest of the licensee." "Commercial expansion abroad" was indicated as first 3 times to 2 for a "policy decision of the company" and 2 to 1 for "increased interest of the licensee"; "commercial expansion abroad" was also given the highest number of second-place votes, being 5 to 4 over each of the others; whereas "interest of the licensee" was in third place—2 to 1 over "policy decision of the company" and 3 to 1 over "increased interest of the licensee."

<sup>4</sup>II, No. 1 (1958), pp. 137-158.

<sup>5</sup>One group of company officials guessed that France was the most important licensee country in terms of royalties, but it is far below Britain both in number of licensees and in number of U.S. companies extending licenses.

Many of those interviewed orally did not have the time to provide a country breakdown of their licensees; and some of the respondents merely wrote that they

COUNTRY	NUMBER OF U.S. COMPANIES REPORTING LICENSEES*	NUMBER OF LICENSEES REPORTED*	RANK BY NUMBER OF LICENSEES
<i>Europe</i>			
United Kingdom	70	190	1
France	42	95	2
West Germany	37	87	3
Italy	25	38	9
Belgium	16	23	11
Netherlands	12	19	13
Sweden	13	16	14
Switzerland	10	16	15
Spain	11	12	17
Denmark	7	8	---
Norway	4	5	---
Austria	4	5	---
Portugal	4	4	---
Finland	3	3	---
Greece	2	2	---
Turkey	1	1	---
Iceland	1	1	---
Liechtenstein	1	1	---
Canada	45	77	4
<i>South America</i>			
Mexico	34	47	7
Brazil	30	39	8
Argentina	21	24	10
Colombia	8	10	19
Venezuela	5	9	20
Uruguay	5	6	---
Chile	5	5	---
Peru	4	5	---
Cuba	3	4	---
Ecuador	2	2	---
Salvador	2	2	---
<i>Middle East and Africa</i>			
South Africa	15	22	12
Israel	3	3	---
Egypt	1	1	---
Southern Rhodesia	1	1	---
<i>Asia and the Pacific</i>			
Australia	46	69	5
Japan	30	48	6
India	7	13	16
New Zealand	10	10	18
Philippines	4	5	---
Pakistan	1	2	---
World-wide licenses	4	4	---
	100*	823	

\*As reported by the 100 companies replying with a specific number of licenses; some few gave over-all totals or "more than" figures.

had "more than 75" or "about 175" licenses, but we have estimated that the companies reporting had agreements aggregating well over 1,500 in number.<sup>6</sup>

The *percentage* distribution of the companies reporting *both* the number of their licensees and the countries was as follows:

NUMBER OF COUNTRIES	NUMBER OF LICENSEES				
	1- 5	6-10	11-15	16-20	>20
1- 5	37	8	-----	-----	-----
6-10	-----	16	4	6	-----
11-15	-----	-----	-----	3	4
16-20	-----	-----	-----	-----	-----
>20	-----	-----	-----	-----	4

The distribution cannot be considered more than indicative that most companies have less than 10 licensees in as many countries; and, of these, the majority have less than 10 licensees in five or less countries.

Statistical reporting on the volume of licensing abroad is made difficult not only because of the differences in "value" of licenses but also because one licensee may be given the right to manufacture, use, or sell in more than one foreign country. Thus, a British company may have rights in the entire British Commonwealth; and a French company throughout the French Union. In addition, several companies license only *through* their subsidiaries; others license their subsidiaries themselves and permit some sublicensing. A more accurate picture would require an examination of the subsidiary relationship as well as the *value* of the licenses in the various countries.

### 3. U.S. Companies as Licensees

Although it was not an integral part of the project to study the extent of licensing of U.S. companies by foreign enterprises, we included a question to determine whether one flow or the other was relatively more important. Slightly more than one-third of our respondents indicated that they were a licensee of a foreign company. In some instances, the licensor was their own subsidiary. In some cases, the field of the license was not related to the area of the U.S. company's own licensing program. We did not attempt to determine the nature or extent of cross-licensing, for a host of problems arise in that area which would have extended the study too greatly.

Among those indicating that they were a licensee, one-tenth were unable or unwilling to state whether or not their payments under the licenses were greater

<sup>6</sup>The larger number of licenses represented may account for the discrepancy in the order of countries in the Table with that found by the NICB in its report relating to only 483 licensees. (NICB, *Foreign Licensing Agreements*, 1958, p. 14).

or less than their receipts from those they extended abroad. One firm stated that its payments were 10 times its receipts; another reported payments twice receipts. And two stated that both receipts and payments were zero; this occurred when the relationship was with a subsidiary and where the payments were replaced by an agreement to purchase materials or component parts.

For 80% of those who were also licensees, payments under these agreements were anywhere from one-for-one, compared to receipts under the licenses it extended abroad, to "infinitely" smaller than receipts. Two stated that receipts equaled payments; one firm indicated a 5 to 4 ratio of receipts over payments; several reported receipts twice the size of payments; several 4 and 5 to one, and several 9 and 10 to one of payments. Three reported receipts 15 to 20 times payments, and three showed them at a ratio of 100 to one, while a final three reported the payments at zero compared to large-scale receipts.

On the whole, payments by U.S. companies to foreign licensors probably aggregate no more than 15% of their receipts as licensors. The relative insignificance of such payments has not made us feel the study was improperly restricted by our having excluded the reverse licensing situation. However, a full-scale study would have to take these contracts into account, for they are not only important in the over-all picture but they also are important in that some of them arise as part of the payment for licensing by U.S. companies through the return of improvements. And some of them are part of significant patterns of cross-licensing, which have historically been the basis for extensive international business cooperation.

## II. GOVERNMENTAL POLICIES

### A. U. S. GOVERNMENT ENCOURAGEMENTS

In a policy statement relative to the international exchange of patents and know-how, the U. S. Department of State announced a policy of encouraging foreign licensing:

The success of national and collective and programs for the defense of the free world depends in considerable measure on the effective production of equipment and materials for the armed forces of the United States and other free nations. Such production can be expedited, as well as improved in efficiency and economy, by the interchange of technology among the free nations. An effective interchange program depends particularly upon the cooperation of industries of countries resolved to defend their freedom.

Other statements have indicated that the Administration considers the economic growth of the free world important also and that this growth can be facilitated by licensing.<sup>1</sup>

The U. S. Government enters in the arena of foreign licensing in several ways: it licenses government-owned information; it requires security clearance before some inventions may be patented abroad; it facilitates licensing between private

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<sup>1</sup>For reasons behind this view, see PTCJRE, II, No. 1 (March, 1958), pp. 137-158.

parties and foreign governments; it protects proprietary rights through international "interchange agreements;" it provides informational services; and it extends guarantees on returns of royalties.<sup>2</sup> These practices can be divided for purposes of presentation into those related specifically to the defense effort and those which support normal commercial transactions.

### 1. *Commercial Encouragements*

Although there is a widespread understanding among Government officials that the policy of the U.S. Government is to encourage foreign licensing, the techniques employed are few and passive. That is, they rely almost wholly upon the initiative of the private U.S. licensor.

American licensors themselves feel that the U. S. Government does little to encourage foreign licensing in comparison to the encouragements of foreign investment (some of which apply to licensing). Only 15% of the respondents to our questionnaire asserted that the Government had given any special inducement to licensing abroad. The remainder asserted flatly or emphatically either that there were no encouragements, or that they knew of none, or that none applied to them.

The divergence of opinion may be a result of different interpretations as to what constitutes an encouragement or merely of the fact that some have availed themselves of existing encouragements while others have not. Thus, nearly 10% cited the guaranties and the double taxation conventions as being of some encouragement to licensing. These are available to all who license in the appropriate countries abroad; either the countries were not the usual recipients of licenses or the inducements were considered insignificant in the eyes of the respondent. Also, only 10% mentioned the informational services of the Departments of Commerce and State; yet these are available to all.<sup>3</sup> It may be that these services are hardly considered as "encouragements."

The only specific encouragements mentioned were those arising out of the activities under the foreign aid programs. One respondent reported that the technical missions visiting in the United States had increased inquiries and eventually his licensing agreements. Another replied that the Government had both officially and unofficially sponsored licensing contacts, while a few others had received inquiries from the Government as to the company's interest in licensing in particular countries. Still another licensor had found that the military offshore procurement programs had made licensing more attractive, and two additional respondents asserted that licensees had been enabled to conclude agreements as a result of U.S. Government aid to the foreign country.

One might think that the lack of encouragements from the Government would lead to a widespread demand for greater action here. A bare majority of those replying did assert that the Government should do more; over 40% of those

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<sup>2</sup>These last two methods have been discussed in the *March Journal*, *ibid.*

<sup>3</sup>*Ibid.*

answering the question of whether the Government's encouragements were sufficient replied in the affirmative; they desired a "hands-off" policy.

Of those insisting that the Government could and should do more to encourage overseas licensing, one-third mentioned the granting of tax relief. Tax credits were considered most important, but some emphasized assistance in the development of profits sanctuaries, extension of the concept of the Western Hemisphere Trading Corporation, or easier treatment of transfers of assets to foreign subsidiaries; (these topics are examined in Section V of this report). One out of eight desiring more encouragement urged the relaxation of antitrust policy, especially the adoption of a "hands-off" approach towards practices which were legal abroad; for example, permission to participate in foreign patent pools, which were legal in the foreign country, was desired. (These problems are examined in Section IV of this report.)

In a more positive fashion, some requested consideration of ways to help promote licensing agreements with foreign governments, of means whereby the government could contact foreign firms without revealing the potential American licensor, of ways to expand business credits and reduce the cost of foreign insurance, and finally of the publication of trademark requirements of foreign countries.

Some few respondents considered that the U. S. Government could do more to remove obstacles abroad. Several mentioned that tariff barriers abroad were impediments to licensing, as were currency restrictions; the U. S. Government, they held, should put pressure on the foreign governments to remove them. And one executive urged that the Government should stop the Germans from imposing a tax based on income which is not actually an income tax. These suggestions require examination, but only a larger study can go into *foreign* patent, trademark, and tax systems.

## 2. Governmental Clearance and Disclosure

### a) Security clearance

A license from the U. S. Patent Office is required to file a patent application abroad on any U. S. invention, before the expiration of six months from the date of applying for patent in the U. S. After six months from the U. S. filing, such a license is not required and the normal procedures of filing and licensing may be followed. For the average invention such license is a simple formality. However, if the invention is ordered kept secret, through the Patent Office, an application cannot be filed abroad at any time except by special action of the defense department concerned. (A license from the Department of State is also required in the case of inventions of subject matter on its munitions list.) In such cases additional problems of protection and exploitation of the invention arise, for the Government takes over the responsibility for disclosure.



*b) Disclosure*

The government has the right, of course, to disclose information in which it has proprietary rights. It obtains such rights through governmentally supported research or governmental contracts for production of new products or development of new processes. Information which is not restricted for security reasons is licensed freely to all applicants. That which is restricted will be disclosed to selected applicants only.

Various legal and equity questions arise when the government has a part interest in a commercial development and wishes it to be made available in a foreign country or when security considerations prevent commercial exploitation of an invention which the Government wishes to disclose to a foreign government. There is no single policy of the U.S. Government in treating these questions. Each agency interprets the broad policy much as it sees fit, and American companies and licensors are often at sea as to where they stand with reference to proprietary rights in which the government has a joint or security interest.

The Navy's policy, for example, is to use commercial channels for the disclosure of information in order to minimize the liability for unauthorized disclosure of proprietary information, or technical information known or claimed to be proprietary. The use of commercial channels also provides for recognition and protection of proprietary rights in technical information. If commercial disclosure violates security considerations, however, the use of government channels is authorized for the release of the information.<sup>4</sup>

The Navy's procedures are different according to whether the information is classified or unclassified and proprietary or not. Thus, the Navy's acquisitions of unclassified technical information are subject to disclosure to foreign governments without further notification of the sources supplying the information, unless the information is known or claimed to be proprietary. When the information is classified, the private sources supplying it will be notified in a separate communication covering each proposed disclosure to a foreign government, and written permission requested; the communication offers assistance in filing foreign patent applications where appropriate and indicates the conditions of release of the information.

If consent cannot be obtained for release of classified information or unclassified in which there is a proprietary interest by private parties, release may occur without the consent of the owner upon (a) notification of the disclosure, (b) identification of the recipient (unless security considerations prevent), and (c) notification that the recipient has been informed that the information may be privately owned and contain proprietary rights or commercial reservations and thus may be used only for indicated purposes. Release of information without consent is restricted generally to military equipment, including the information essential for its operation, maintenance, and repair—but only then with the approval of an assistant or deputy chief of bureau or office concerned.

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<sup>4</sup>F. R. Doc. 55-2724, *Federal Register*, April 2, 1955.

An examination of the problems arising from these practices of the government will require extended study by a staff thoroughly familiar with the legal aspects of government-business relations.

*c) Interchange agreements*

The Government has, however, attempted to institutionalize procedures and increase the protection to the owner of patent and informational rights through the negotiation of "interchange agreements" with the members of the North Atlantic Treaty Organization (NATO). The problem arises mostly with reference to security information and thus where the licensee is a government or the contact is made through the foreign government.

These agreements are intended, *inter alia*, to facilitate the exchange of technical information of a proprietary nature by (a) recognizing the rights of owners in such technical information disclosed by the U. S. Government to foreign government; (b) assuring owners that foreign governments will treat such technical information as disclosed in confidence and that their rights will not be prejudiced; and (c) recognizing the right of owners to receive compensation if damage to the owners results from an unauthorized disclosure or use of such information. The U. S. Government itself may become liable if damage to the owner results from acts of the United States or its officers or employees which constitute an unauthorized disclosure of the information.

The types of information covered by the agreements include information which may be disclosed in equipment, technical reports, drawings, blueprints, or however presented, whether patented or copyrightable, so long as the information is in the exclusive possession of the owner and those in privity with him and is subject to protection as property under recognized legal principles.

These interchange agreements have been negotiated with Belgium, Denmark, France, Germany, Greece, Italy, Japan, Netherlands, Norway, Turkey, and the United Kingdom. The agreements follow the policy of the U. S. Government's freely licensing its own inventions. They provide that each contracting government will make government-owned inventions available to the other government for defense purposes without cost except to the extent that there may be liability in respect of private interests in the inventions. In the case of privately-owned patents and technical information, the agreements provide that the rights of the private owners should be fully recognized and protected in accordance with applicable law.

The agreements recognize that technical exchange may occur in one of three ways: between private commercial firms, between a private company and a foreign government, and through the U. S. Government to a foreign government. In each case, the proprietary rights of the U. S. firm must be protected. Where possible, the preferred method is between private enterprises, leaving the initiative and determination of terms to them. But, since governments are necessarily involved because of the security nature of these particular commercial relationships, frequent government consultation is recognized as necessary in some cases.

Also, the governments are expected, in some instances, to call to the attention of respective private parties the desirability of a licensing arrangement. Governments are also concerned, even when arrangements are private, that the fees be reasonable so that defense costs will be kept low and so that the licensing arrangements permit flexibility enough to take account of the changing needs of military production.

When the licensing contract is between a private U.S. firm and the foreign government and is negotiated directly, the parties can hardly bargain at arm's length. A joint Committee has been established to recommend to governmental parties what means might be employed to assure "prompt, just, and effective compensation" for any use or disclosure of technical information. The governments also agree to help the owners of the property rights to protect and preserve those rights.

When the U.S. owner operates through the U.S. Government in disclosing information to a foreign government, procedures for redress in the event of unauthorized disclosure by the foreign government have been established.

The technical exchange agreements also provide security safeguards through an attempt to gain permission in foreign countries to hold patent applications secret when disclosure might endanger security. Finally, the agreements contain a provision that arrangements involving the transmission of privately-owned technical information which is classified as security information shall be subject to the applicable laws and security requirements of both governments.

The program outlined under the agreements is administered by a bilateral technical Property Committee; in the United States, the committee comes under the Department of State. The program is oriented toward national security through Section 413 of the Mutual Security Act which encourages the extension of free enterprise and the participation of private firms in strengthening the nations of the free world by improving their technical efficiency in production. The contacts which are made through licensing of military production items will, no doubt, involve licensing of non-military products, sooner or later, thereby contributing additionally to the economic growth of the free world.

A thorough study of the possibilities of licensing would have to take into its scope the impact of these agreements, especially the extent to which they have directed licensing activities of U.S. companies into first military and then commercial areas abroad.

#### B. FOREIGN GOVERNMENT REGULATIONS AND ENCOURAGEMENTS

The subject of the attitude of foreign governments toward licensing from abroad requires an analysis of the entire gamut of restrictions placed upon trade and investment, of tax policy, and of the various relaxations or inducements employed to reduce the impact of taxation and regulations. The pilot study has

attempted only to surface the type of problems which need study, to determine whether information can be obtained, and to indicate the broad outlines of future investigation. The importance of the foreign government's attitude is pointed up by the fact that an adverse policy of the government can overwhelm any number of other factors which might make licensing appear desirable or profitable. Or, a more adverse policy by the foreign government towards U. S. exports or foreign investment may make licensing seem relatively attractive.

The significance of the government's regulations and encouragements is altered if there is political instability. When the government has adopted a fairly liberal policy toward foreign economic relations, the fact that it may not stay in power long reduces the long-run impact of its encouragements. However, if the country has had a long tradition of hands-off of business matters, governmental turnover might not be so significant. But, under present circumstances, political stability is an important factor in weighing prospects for a profitable long-run business relationship abroad.

### 1. *Legislation and Regulations*<sup>5</sup>

#### *a) Currency restrictions*

The regulation of remission of currency is still probably the most widespread governmental control over foreign business operations. Exchange restrictions are imposed on the return to the United States of earnings in foreign countries so as to ration scarce holdings of foreign exchange. These regulations apply to earnings from exports, investments, or licenses. They deter each activity—though not always with equal impact. In many countries it is still necessary to obtain permission of the foreign government with respect to currencies to be returned before given transactions can be consummated. In the case of licensing, this means that the governmental agency controlling exchange operations must approve the financial provisions of the licensing contract. Through this procedure, the government imposes a sort of surveillance, ascertaining whether it considers that the know-how or other rights obtained by the licensee are worth the potential drain on foreign exchange reserves. Colombia limits royalty remittances based on patents, processes, and trademarks to no more than 10% of gross sales or production; usually only 2 to 5% is permitted after a review of the need for the enterprise. The Spanish government limits royalties to 5% of sales by the licensee. The French government does not restrict royalty percentages, but it permits conversion of royalty returns at different rates depending on the essentiality of the items involved.

Of the respondents to our mailed questionnaire, about 35% reported that they were frequently required to submit financial provisions for approval by a government agency. A very few indicated that they voluntarily sought approval,

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<sup>5</sup>Some additional discussion of this topic was given in the PTCJRE, II, No. 1 (March, 1958), pp. 151-153.

sometimes on other phases of the agreement, such as tax questions; one respondent sought approval of "all phases" of the agreement. A few found it necessary at times to obtain approval of the agreement to protect its legality, especially as to exclusivity provisions, and less frequently the agreement had to be approved as "in the national interest" of the foreign country. Where approval was not mandatory but advisable, some American licensors have not obtained approval, only to find it difficult to get funds out of the foreign country. Even so, nearly *two-thirds* of our respondents indicated that they did not submit agreements to foreign government for approval at all. (This does not preclude the licensee from having sought and obtained the necessary approvals, which was apparently the more frequent practice.)

*b) Limitations on foreign influence*

The fear of a return of "colonialism" has induced a large number of foreign countries, especially those newly developing, to impose restraints on the entry of foreign capital and personnel into their lands. Whether or not they are doing themselves great harm is not examined here. The *results* of such action require examination elsewhere; the *fact* of such restriction is important to decisions on licensing abroad.

In addition to having broad limitations on the penetration of foreign firms, several developing countries have legislated restrictions on the percentage of foreign capital which may be invested in new companies and over the number of foreign personnel which may be hired at the various levels of responsibility. For example, a 1948 policy decision was made by the Indian government that "major ownership and effective control" of any new company should be in the hands of Indians. Some countries require that their nationals control any company exploiting national resources or engaged in communications or public utilities. For example, foreign ownership of Spanish companies is limited to 25% in the case of manufacturing or extractive industries. And Swedish companies capitalized at more than about \$100,000 (equivalent) must have three or more members of the board of directors, and two-thirds of the total must be resident Swedish citizens. While many of these regulations are being relaxed, a closer examination of their impact on prospects for licensing should be made. It is conceivable that U.S. licensors would feel safer in their licensing were a foreign licensee controlled by Americans; however, this feeling may be irrational or restricted to countries which have not displayed native enterprise.

Another means of reducing the penetration of the foreigner has been imposed by several countries through regulations on the number of administrative and technical personnel which may come from abroad. Many countries require permits for the foreigner to enter and work; the permit states the purpose, duration, and location of the stay and may require proof of expertise on the part of the foreign entrant. Venezuela requires that three-fourths of the total personnel of enterprises be citizens of the country. In Mexico, only 10% of the total labor force in a company may be foreign—up to the level of chief engineer; techni-

cians can work only a stipulated period of time, at which date Mexican technicians are supposed to take over. Cuba permits foreign technicians to be hired only with governmental consent, only when local skills are lacking, and then only for a period of two years during which local men are to be trained. And even France requires that in any foreign company the chairman of the board, the accounting secretary, and two-thirds of the board be French. Not in an effort to reduce foreign interest, but to plan more effectively, the Chilean government has at times declared industries "closed" to new enterprises (domestic or foreign); though there is no limit on foreign participation, approval is more likely if domestic and foreign interests are joined in the new venture. And Mexico has adopted a policy of favoring companies which manufacture their own components rather than assemble imported items. Once again, the pervasiveness of these regulations and their impact on the attractiveness of licensing should be investigated.

### *c) Import controls*

Still another means whereby foreign influences are reduced and domestic activity is fostered is that of import controls. These restrictions over the amount and types of imports are employed also to ease balance-of-payments difficulties. In either event, they reduce the volume of direct U.S. exports to many countries. This reduction of U.S. exports is a factor in the increase in foreign licensing during the postwar period.

Import controls can also dampen licensing activity, however. If the licensee requires component parts from the U.S. licensor, the drain on dollar reserves may be found too large at times. One U.S. licensor, finding that a component usually imported by an Australian licensee was prohibited because of lack of exchange, finally had to *give* the licensee several thousand dollars worth of the item in order to permit the continuation of production; even the gift had to wind through miles of red tape. U.S. manufacturers who have occasion to ship parts or components to Australian partners have found it desirable to obtain a firm commitment from the Australian Department of Trade to permit the imports before they have put money into the project. Thus, some licensors seek assurances that controls will not be made more stringent. If they are already too stringent, the government may extend a special dispensation to encourage the agreement if considered in the national interest. The same deterrence may arise in the case of imports of raw materials, whether from the United States or another country. Some countries give preference to those firms using large amounts of domestic materials.

Although the impact of import controls may be important only in a few specific instances, their existence has caused some potential U.S. licensors to become so wary of foreign ties as not to examine the opportunities abroad. Conversely, their removal has given rise at times to demands for tariff protection from U.S.-licensed companies who previously entered manufacturing behind the quotas. The effect of such controls must therefore be investigated in the light of experiences of selected companies in the countries employing such restrictions.

Where import controls have been an important factor in causing licensing arrangements to be established, it would be useful to examine whether their removal would eliminate the profitability of continued licensing.

*d) Taxation and wage regulations*

The licensor is usually not directly concerned with the level of taxation or with legislation concerning wages and fringe benefits, bonuses, holidays, and social security payments. However, France imposed an 8.5 percent tax assessed on licensors (and not on investors) which can be avoided only by proof that the licensor (or its employees) made the invention licensed at its own risk and expense. Japan also taxes royalties—at 15%, though a 10% rate is permitted under certain circumstances; these rates compare with 20% imposed on interest and dividends. Venezuela taxes royalties at 5%. Also these factors may become the concern of the licensor indirectly in an evaluation of the profitability of the licensee's operation or of the desirability of establishing a subsidiary (which would then be licensed). The level of taxes and the required wage payments may be such that production is made unprofitable, especially during the early years of getting the business on its feet.

Though an examination of the tax systems of the many foreign countries in which U.S. licensors have partners is outside the scope of the present study, a larger study taking into account the problems of licensing subsidiaries, would have to investigate those facets of domestic legislation which impinge on the decision to produce abroad.

## *2. Inducements and Encouragements*

Inducements offered by foreign governments to encourage licensing in approved areas have included special tax treatment, subsidies, additional protection from imports, and favorable exchange rates in either purchase of required imports or remission of royalty fees. These inducements may already exist or may be extended to the licensee upon suitable application.

Of the hundred-odd respondents to the mailed questionnaire, 42% asserted that they had received no encouragements of any sort from the government of the potential licensee. Ten per cent failed to answer this question, and the remainder listed a variety of ways in which foreign government directly or indirectly encouraged licensing.

The means most frequently listed (by one-third of those receiving encouragements) was that of ready approval of remittance of royalties or fees and/or more favorable treatment of royalties than of dividends. Whether the other respondents would consider the relaxation of restrictions an encouragement in replying to the question or would consider the restriction itself as a discouragement cannot be told save through personal questioning of the respondent.

Special tax relief was listed as a positive means of encouragement by one in every eight of our respondents: Norway, for example, permits royalties to be re-

mitted tax free to U.S. licensors, though it may rescind the privilege if the fees are too high (dividends to foreign shareholders are taxed at a rate of 25%); Peru exempts royalties from the excess profits tax.

One in eight of our respondents received tariff protection which they considered as a special inducement. One in ten of those receiving encouragements was the beneficiary of direct assistance from the government in obtaining competent licensees; in a few instances, the interest of the government was in establishing a cheaper source of supply for its own requirements; and, where the government is the owner and operator of the industry in question, it obviously has provided inducements (such as in the oil industry). Additional encouragements listed by various licensors included the granting of import licenses for required raw materials, assistance in training personnel, relaxation of restrictions on entry of sample products, direct solicitation by the government, extension of the life of a patent, and even provision of physical facilities. In one instance, the over-all development program of the licensee country (Puerto Rico) was cited as bringing about such improved conditions as to induce the entrance of the U.S. licensor.

An interesting technique has been adopted by Japan (see *Business International*, March 1, 1957, p. 7). The government permits a U.S. licensor to license many small firms in a package contract. An association of Japanese producers becomes the licensee and in turn sublicenses its members. RCA was thus able to serve companies which had long sought licenses and was encouraged to ask lower royalty rates as a result of the larger anticipated volume of licensed sales.

More favorable treatment is frequently extended to protect a licensee than is given to encourage foreign investment. Germans and Japanese are said to prefer licensing to investment by Americans. French government officials turned down some American projects to establish subsidiaries on the ground that existing French producers were capable of supplying the market of the industries concerned; but the same officials have welcomed licensing arrangements in the same items with established French firms, *especially* when the licensed rights improved the chances of French exports. The justification for this type of discrimination by some developing countries is usually that licensing is not exploitative—whereas direct investment is still considered so—and adds to the productive capabilities of the country.

Among those countries which have relaxed their restrictions over foreign investment, some have gone even further to provide some tax relief and to liberalize their requirements concerning the proportion of equity capital which may be owned by foreigners. And a few governments have directly solicited the establishment of foreign owned or licensed plants in their jurisdictions. The motives have been usually those of obtaining cheaper products for use by the government or expanding exports so as to ease the balance of payments. Australia, for example, gives more ready approval to the establishment of a foreign-owned manufacturing firm if it is planning to export, even if the item is not essential. And Holland is reluctant to encourage establishment of a foreign company unless it anticipates exporting three-fourths of its Dutch production.



Encouragement to exports is also an indirect means of encouraging production within the country. For example, the fact that many economies are short of dollars requires them to turn to third countries for goods similar to dollar imports. If they can be produced and exported profitably with government inducement, the arrangement becomes profitable for all concerned in the transactions.

One way of making exportation cheaper is for the government to relax its restrictions on imports of needed raw materials or component parts. Some governments have done just this and have also permitted a conversion of foreign currencies earned into the domestic currency at especially favorable rates. Or, they have sometimes permitted the exporting firm to retain a portion of its foreign exchange earnings ("retention quotas") for use abroad or for sale on the free exchange market.

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There has been no international agreement on ways to promote foreign licensing, but the International Chamber of Commerce has proposed that certain principles should be adopted by all countries concerned to encourage it. A resolution in 1950 asserted that the ICC considered "the granting of patents licenses from country to country should be encouraged in the interests of international trade and of the greatest possible development of technical resources." It proposed the adoption of the following principles to this end:

- a) Parties to a license contract should have the greatest possible freedom to decide on their mutual obligations.
- b) The patentee should have the assurance that the clauses of the contract can and will be respected by the licensee.
- c) Some States limit the freedom of the parties in respect to the licensing of patents. This has a discouraging effect upon the issuance of licenses and the exchange of inventions and skills. The limitation of freedom of licensing should be kept to the minimum consistent with the public interest.
- d) No State should hamper the exchange of licenses by means of autonomous measures, such as prohibiting territorial limitations or levying discriminatory taxes on royalties for revenue purposes.
- e) Every State should authorize the transfer of royalties and all other charges by assimilating the transfer of royalties or charges arising out of industrial property rights to that of such sums as may be due from the exchange of goods.
- f) International conventions should not contain any provision likely to cause the patentee to fear that the licensee will be unable to perform his obligations in full.
- g) The policy of liberalizing the exchange of goods which is becoming more generally recommended on the international plane, should be applied to license contracts.\*

The nearest thing to an agreement on foreign licensing practices is the International Convention on the Protection of Industrial Property. Although it covers more than patents, trademarks, and know-how and thus much more than licensing agreements, some provisions are specifically concerned with the maintenance of patent positions through "working" requirements. National laws on the "working" of patents are in important instances incentives for U.S. owners to license them abroad; this aspect of foreign licensing is discussed in the following section.

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\*"Means for Promoting the Grant of Patents Licenses on the International Plane," Brochure 143, August 1950, p. 6.

### III. INTERNATIONAL AGREEMENTS FOR THE PROTECTION OF INDUSTRIAL PROPERTY AND THE PROBLEM OF COMPULSORY WORKING OR LICENSING\*

Although suggestions for an international agreement on ways of promoting foreign licensing have not been fruitful as yet, there are some long-standing international agreements covering the treatment of industrial property rights. Forty-five nations have signed the International Convention for the Protection of Industrial Property, which provides equality of treatment to citizens of all signatories as to the rights set forth in the agreement. This section reviews the provisions of the international agreements relating to the protection of patents and trademarks and to their licensing. It also discusses the problem of compulsory working or licensing. We did not question our respondents on the issues involved, but we hope that this presentation will stimulate discussion so that a broader consensus may be obtained.

#### A. INTERNATIONAL AGREEMENTS

##### 1. *The Convention*

The Paris Union Convention of 1883 was initially agreed to by eleven nations in an effort to codify action among themselves concerning various forms of industrial property<sup>1</sup>—namely, patents, utility models, industrial designs and models, trademarks, commercial names and indications of origin, or appellations of origin. The convention was also aimed at repressing unfair competition in trade. It grew out of a pressure to protect the world's inventors which was greater than the fear of monopoly.

There were variations of considerable significance in the patent and trademark systems then in existence, and the legal effects of registration varied greatly, presenting obstacles to protection of marks abroad. Patent regulations also differed on questions of the subject matter which was patentable, the requirements which might be imposed upon applicants, etc. Equality of treatment was sometimes provided, however, on a reciprocal basis; that is, any foreigner would be given the same treatment as a national provided that *his* country extended the same privilege to foreign nationals. Prior filing abroad was not recognized as establishing rights for an applicant in any other country. Conversely, a foreign patent might be declared invalid if the patentee's same invention was declared no longer patented in the home (or any other foreign) country, for whatever reason (even nonpayment of taxes or fees).

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\*Some of the material in this section is based on a paper "The Provisions Regarding the Patentee's Exercise of Exclusive Rights under the International Convention for the Protection of Industrial Property" written by Ira T. Crickenberger for a seminar of The George Washington University Law School and sponsored by the Foundation.

<sup>1</sup>The definition of the term "industrial property" was given the broadest meaning—to include also agricultural and extractive industries and all manufactured or natural products.

In 1856, the vice president of the English patent office toured the continent in an attempt to arouse interest in unification of the patent laws, and writers in England and Germany urged the unification of the laws of France, Great Britain, and Prussia. But international comity as to patents reduced the pressure to establish even bilateral conventions. Provisions covering patents were included, however, in the Treaty of Commerce between Germany and Austria-Hungary in 1881 and in the Customs Convention between Austria-Hungary and Liechtenstein in 1876. Prior to the International Convention in 1883 there were 69 separate bilateral agreements concerning the protection of a foreigner's rights in industrial property. Most of these provided for protection of marks, but only the two mentioned above covered patents, and about one-third contained provisions for the protection of industrial designs and models.

Despite the number of agreements, there was a large area of uncertainty as to precisely who was protected under them e. g., what protection under an agreement was provided a resident of one country who was still a citizen and subject to the sovereignty of a third country? A question also arose as to whether protection under one bilateral agreement could be extended through an agreement between second and third countries even though the third country had no agreement with the country of residence (the first).

The first of four international meetings was held in Vienna in 1873 in conjunction with the Exposition of that year. Immediate pressure for a conference arose from the hesitation of many inventors to display their works without adequate protection. Thirteen countries discussed the problems of diverse treatment of inventor's rights. The group remained primarily interested in strengthening the inventor's position in order to advance the mechanical arts and to discourage emigration of inventors and artisans. Resolutions of the group pointed to the need for reform and laid down some principles on which patent laws should be based.

During the exposition in Paris in 1878 an International Congress on Industrial Property was organized by the Minister of Commerce of France. The countries of Germany, Spain, the United States, Hungary, Italy, Luxembourg, Russia, Sweden, Norway, and Switzerland were represented by over 500 delegates. It considered the unification of European law on patents and trademarks, designs and models; but the variety of views of the participants prevented more than an attempt to find ways in which an inventor could more readily receive protection in a foreign country. The conference suggested three ways: central registration, transmission of the registration documents to other countries, and extension of a priority right based upon the first filing. The right of priority was eventually accepted in the convention of 1880 drawn by delegates of 18 countries in Paris; yet no country at that time extended such a right to foreign applicants. The protocol of 1880 was not adopted in that year since many delegates had not been given the authority to sign an agreement. It was finalized in Paris in 1883; the Convention went into effect on July 7, 1884, after 11 countries had signed it. The Union of States under the Convention includes 45 members, the more important

industrialized countries of the non-Soviet world.<sup>2</sup>

Six conferences of revision have been held since 1883,<sup>3</sup> and a seventh is scheduled for Lisbon in late 1958. The results of each revision have been to strengthen the Union by adding to and modifying the agreements. Each revision requires unanimity of the delegates, but no country is bound to approve the newly amended Convention. If a country did not ratify the new convention, it was still bound by the former Convention. Ratification for most Continental countries meant that the Convention becomes superposed upon their own laws. The United States, Norway, Sweden, and British Commonwealth, however, regarded the Convention as an agreement between the different countries which required substantiating domestic legislation.

The 19 articles of the Convention include the following, which relate to patents and trademarks:

Art. 2: the provision of national comity

Art. 4: a right of priority in applications for patents or for registration of trademarks, which right shall be extended into subsequent filings in other countries within one year, thus preventing loss of rights by intervening acts

Art. 4 *bis*: the independence of patents which are obtained in several countries

Art. 5: the prevention of abuses of patents—e.g., failure to use—and the application of compulsory licensing; and regulations concerning use of trademarks, registration of different forms of the same mark, joint ownership of a mark

Art. 5 *bis*: payment of fees to governments

Art. 6: refusal or cancellation of marks by governments; independence of each trademark registered in each country

Art. 6 *quater*: assignment of trademarks

Art. 9: seizure of illegally marked goods

Art. 10: fictitious use of a trade name, or use of a name with intent to defraud

Art. 10 *bis*: protection against unfair competition

Art. 11: the provision of temporary protection during expositions or fairs

There is no strong evidence that the members of the Union wish to unify patent legislation, as was the original justification for the meetings. The Convention seems, rather, to have met only two other objectives: the reversal of the de-emphasizing of patent protection which seemed to be rising in mid-19th century and the provision of some means whereby inventors could secure the benefits of an invention or maintain control of the use of the invention in foreign countries also.

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<sup>2</sup>Members of the Union as of January 1, 1958, were the following: Australia, Austria, Belgium, Brazil (H), Bulgaria (W), Canada, Ceylon, Cuba (W), Czechoslovakia (H), Denmark, and Faroe Island, Dominican Republic (H), Egypt, Finland, France, Germany, Great Britain and Northern Ireland, Greece, Hungary (H), Indonesia, Ireland (W), Israel, Italy, Japan, Lebanon, Liechtenstein, Luxembourg, Mexico, Monaco, Morocco, Netherlands, New Zealand, Norway, Poland (H), Portugal, Romania, Spain, Sweden, Switzerland, Syria, Tunisia, Turkey (H), Union of South Africa, United States, Viet Nam, Yugoslavia (H). (Designation by (H) means that the country is bound by The Hague text of 1925; (W), by the Washington text of 1911; all others are bound by the London text of 1934.)

<sup>3</sup>Rome in 1886; Madrid, 1890; Brussels, 1897; Washington, 1911; The Hague, 1925; and London, 1934.

The Convention and its articles have not stood without criticism; changes have been proposed for many of them. While it is currently outside the scope of this pilot study, an expanded project should include an analysis of the provisions of the Conventions, their ratification and application in national systems, and the appropriateness of the technique of international agreements in providing protection.

## 2. *Bilateral Treaties Outside the Convention*

The Convention does not prevent the extension of additional rights in private industrial property between member states on a bilateral basis. Most of the agreements which existed before 1880 were superceded; new ones were still entered into afterwards. Many of the principles of the Convention were re-iterated in bilateral agreements, but some agreements went beyond the Convention. For example, bilateral treaties which abrogated on a mutual basis the right of revocation of patents for non-working were entered into by Germany on the one hand and the United States, Greece, Switzerland, and Austria, on the other; in the last two agreements, the abrogation of revocation was conditional on the working of the invention in at least one of the contracting countries.

Some countries considered that the provisions of the Convention did not provide sufficient protection as to indications of origin. They therefore entered in the Arrangement of Madrid for the Prevention of False Indications of Origin of Goods (April 14, 1891); it now has 28 members. A second agreement at Madrid covering the International Registration of Trademarks (April 14, 1891) provided for deposit of a domestic registration of a trademark with the International Bureau at Berne, which deposit would then provide protection in all countries of the Arrangement. A third Arrangement was concluded in The Hague in November 1925 for the International Deposit of Industrial Designs and Models; it sought to achieve uniformity in regard to designs and models by a single deposit at the International Bureau at Berne; only 13 countries are now members of this Arrangement. A Pan American Convention on patents was signed in 1910 by the United States and 12 Latin American countries, mostly non-members of the Union; it incorporated the principles of national treatments, right of priority, and independence of patents in member countries. Two special Arrangements were made at the end of the two World Wars to facilitate restoration of private industrial property and protection of patents and trademarks; these were supported in the United States by the Nolan Act (46 Stat. 1313) and the Boykin Act (60 Stat. 940).

It would be part of a larger study to examine the bilateral agreements and the Pan American Convention to determine the appropriateness of incorporating them in a single international Convention.

### B. COMPULSORY WORKING OF PATENTS

One of the most controversial and at the same time more substantive articles of the Convention is the fifth, dealing with the obligation of the patentee to

"exploit" or to "work" his invention in the country of the patent. The following remarks are not presented as a complete analysis of the problem nor as a compilation of views of our respondents, but to provide a background for discussion preceding the coming Lisbon conference.

### *1. Concepts of Compulsory Working and Licensing*

"Working" a patent involves making whatever commercial use of it (e.g., manufacture) in the country required by the laws of the protecting country. Paragraphs 2, 3 and 4 of Article 5 reflect the conflict between the interest of the national economy as a whole and that of the patentee. The interest of the economy is to make certain that it benefits from the right of exclusion which it extends to the patentee through having the invention available in the market. The interest of the patentee is that of realizing the maximum benefits from his patent, and this may mean that he merely desires to preclude production by competitors and not to produce the item in every country. This conflict has been at the heart of many debates over the principles of the Convention.

Since the object of patent laws is to promote industrial progress through the use of inventions, most patent laws include provisions requiring that a patentee must work his invention within a specified period or give up its exclusivity (that is, undergo compulsory licensing) or give up the patent itself (revocation). This requirement stems logically from the socio-philosophical position that the exclusive right is one stemming from legislation; legislation extends a right to exclusive use in a reasonable manner, but it also withholds a right to abuse. The derivation of the word "ab-use" includes not only the meaning "to use wrongly" but also that "to abstain from use." Thus, the individual must not deprive the community of an important developmental asset through not working his invention.

While many countries have found that requirements to work an invention through production under penalty of revocation are too stringent, they have introduced a penalty of compulsory licensing to prevent the patentee from voluntarily withholding it from the market. Even if he does not wish to enter production, he must offer it to society through another entrepreneur if one exists who is willing to undertake production or to use the process.

Considerations dictating the shift from "revocation" as a penalty to "compulsory licensing" include the fact that many inventions cannot be brought into commercial use until extensive experimentation and development for the market have been carried out. Many patents have expired before they could become commercially feasible. If commercial use is too costly, an offer of licensing will not be taken up by anyone, but the offer does make certain that an interested entrepreneur is not willfully excluded. If an enterprising businessman thinks he can create the market or adapt the product or process to market demand sooner than the patentee considers it feasible, it may be desirable to let him have a chance. It may also, however, not be desirable to let just anyone tamper with the consumer demand by throwing the product onto the market before it is ready. Thus, many

patent laws permit the patentee to prove that he is taking reasonable strides toward working before he is required to open the invention to compulsory licensing.

The patentee may be relieved of the obligation to exploit (work) if extenuating circumstances can be shown: e.g., that there is a lack of capital, that manufacturing facilities do not exist, or that there is not an adequate market. Proof of such contentions usually consists of what is called a "nominal working"—that is, the offer of the patentee to license a reputable applicant, the offer being made through technical or commercial journals. If no applicants arise, it may be inferred that the patentee's decision not to work the patent is justifiable; such nominal working is not sufficient in many countries, however.

## 2. *Special Problems of Foreign Patenting*

When the patent under consideration is one granted to a foreigner rather than a national, additional problems arise. The patent may be worked in the country of the patentee and imported into the second country of patent. In this way the product is made available to the market in the second country of patent, but production there is precluded. Three policy problems are raised in this circumstance: (a) that of the international allocation and use of resources; (b) that of the allocation of resources nationally; (c) and that of the political (including security) implications of importation as compared to domestic production.

### *a) Allocation of resources internationally*

The problem of the best international allocation of economic resources is that of whether the production of the invention would be most efficiently accomplished in the one country or the other (or both) from the standpoint of the world community. That is, is specialization in one or a few countries desirable? National governments have not been wholehearted in permitting this decision to be made by the private businessman, and it cannot usually be demonstrated that a decision to produce in the country where the invention was first patented is more than the result of "an early start" there. It may be that, had the item been patented first in another equally industrialized country, it would have been produced there—or, if the decision of location of production were made quite apart from the personal location of the patentee, production might take place (most efficiently) in still a third country. But decisions concerning production are seldom made completely apart from the national location of the inventor and patentee. Therefore, there is some justification for the country of second patent to question whether the accident of production in the country of the original patent coincides with the best allocation of resources internationally.

An international benefit would arise from production in the second country if it happened that the country of second patent were the one which was comparatively more efficient in the production of the item (or use of the patented process). Its comparative efficiency could arise from a proximity to the largest market, an

abundant supply of necessary raw materials, a corps of technically skilled laborers, or a relatively more abundant supply of capital. If the country is concerned that its resources be employed in the most efficient manner—as all assert that they are—the government may legitimately insist that the invention be worked in its country. This argument would not hold, of course, for *all* inventions—only those in which the country did actually have a comparative advantage.

*b) Efficient use of resources nationally*

Even if the country of second patent did not have a comparative advantage, there may be economic conditions (disregarding the most efficient use of international resources) why it would want to employ the process or work the invention domestically. If there is unemployment, or if the invention is an integral part of an industry which would stimulate economic development *within* the domestic economy, the government may legitimately argue that it is in line with the best use of *national* resources to require the invention to be worked in its country.

*c) National security considerations*

Apart from problems of the most efficient use of resources marketwise, the invention may be one which the government considers should be worked domestically for political or security reasons. If, for example, the invention were basic to the development of an iron and steel industry—which industry was considered necessary to the prestige of the nation—the requirement to work would seem justified in the eyes of the government. Working requirements are readily justified in terms of security needs; in the cases of dyes, combination of metals, electronic equipment, nuclear power, military material and the like, there is little doubt that the government would insist that the inventions be made available domestically (either to itself or an approved entrepreneur).

The above three considerations, however, do not support a blanket justification for compulsory working or licensing. They provide justifications for the requirement, but they are specific to particular circumstances. The circumstances are frequent enough in occurrence and significant enough economically to prevent national governments from giving up the requirements. Individual patentees, however, are strongly opposed to compulsory working clauses. They consider them a breach of the monopoly grant and a pressure to introduce an invention possibly before it would be profitable to do so. The conflict between patentee and government has been carried to the floor of the conferences concerning the International Convention.

### *3. Convention Attitudes and Amendments*

The general position taken by the opponents of compulsory licensing is that the penalty is both useless and injurious: it is useless because the government is not in a position to enforce by law the working of an invention unless it wishes



to enter production itself; it is injurious because, if the government were successful in inducing production of a product (or use of a process) before it was commercially feasible, it would eliminate the profit in taking out a patent. This latter circumstance would then defeat the purpose of the patent system, which is to provide protection against unauthorized use of an invention and thus reserve the fruits to the inventor.

The Conference at Vienna in 1873 approved a provision in the proposed Convention which stated that failure to work should not lead to "revocation of the patent if the patented invention has been worked at all and if the opportunity is assured to persons within the jurisdiction of that country to acquire and work it." But the Paris conference in 1878 approved the right of a state to revoke a patent if manufacture was not undertaken in the country within a specified time, unless the patentee could justify his nonworking; it did reject compulsory licensing for failure to work, however. The justification for this position was as follows:

The exclusive right that is granted to a patentee can only be legitimately recognized on condition that he effectively works his invention and that it is thus made to profit the country in which he has obtained his patent. The provisions of the law which impose forfeiture of the patent for failure to work are sufficient guarantee that it will be worked. There are two possibilities: one that the patentee introduces articles manufactured abroad in such small quantities that it does not interfere with serious exploitation of the invention in the country where the patent was taken out; the other that the importation takes place on a large scale and consequently there is no working, or at any rate only a mock working. In the latter case, forfeiture for failure to work can be enforced and that will be sufficient to protect national industry.

At the time of the 1883 Convention, many countries revoked patents if they were not worked within the country, regardless of whether importation took place in conformity with the patent. That is, mere availability of the invention was not sufficient in their view. Yet, in many countries, the conditions of production were such as to make production unprofitable. The text of Article 5 of the Convention attempted to remedy the situation; it stated:

(1) The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the countries of the Union shall not entail revocation of the patent.

(2) Nevertheless, the proprietor shall remain subject to the requirement to work the patent in conformity with the laws of the country where he imports patented articles.

These provisions hardly removed the difficulty in the way of the inventor who wished protection but did not find production abroad profitable—especially not in *each* country within which he patented the invention. Such a requirement, if enforced, would soon remove entirely the benefits of international specialization and trade, which nations supposedly prize so highly (in principle if not always in practice).

During the first conference of revision, held in Rome in 1886, the French and Belgian delegates attempted to amend the text of the Convention but in opposite fashions. The French wished to remove paragraph 1—this article had been aimed at a peculiar provision in the French law under which a patent would be revoked if a *single* patented article was imported by the patentee—and to strengthen the

obligation to work the invention domestically. The Belgians wished to retain the first paragraph but to delete the second entirely; they proposed a clause asserting that "The Owner of a patent who works his invention in one of the countries of the Union cannot be deprived of his rights in other countries for failure to work." No agreement between the opposing views was reached, and the text remained unchanged—unanimity in amendments being required. The objection of France to the Belgian position prevented any change during the second conference in Madrid in 1890, despite the support to Belgium given by the United States, Norway, Sweden, Italy, and Great Britain.

In 1900, at the third conference of revision at Brussels, the International Bureau proposed an amendment to be acceded to by a "restricted union of states." The proposal was to add a third paragraph to Article 5, asserting:

However, a patent can only be revoked in any country for non-working after a minimum period of three years, and only if the patentee cannot justify his failure to act.

The fact that the patentee has offered, through sufficiently well-known publications, to grant licenses on equitable conditions, and that these offers have been ineffective, will be considered an adequate reason by which he can justify his failure to act.

The proposal reflected a more liberal attitude, but the restricted union was not formed. The text of the Convention remained unchanged once again.

By the time of the fourth conference at Washington in 1911, the sides had altered somewhat. The United States and Germany pressed for the abolition of compulsory working, but they were opposed by the British, Dutch, Spanish, Australians, and French. A proposal by the Bureau to substitute compulsory licensing for compulsory working was rejected by a majority. But, a period of grace was added in a third paragraph to permit the patentee not to work his invention for a period of three years; after that period, if the patentee was required to justify his nonworking.

The expansion of membership in the Union of the major industrial states by the time of the fifth conference of revision (at The Hague in 1925) made it virtually impossible for a patentee to work his invention in all countries. The principle of substitution of compulsory licensing for revocation in the event of nonworking was readily accepted from the force of the economic arguments; and had Japan, Poland, and Yugoslavia not objected, the compulsory working requirements would have been removed completely at this conference. The amended article permitted governments to compel licensing after three years and revoke the patent if it should be proven that the license did not prevent the abuse of the exclusive right granted the patentee.

Efforts were made at the London conference (1934) to remove compulsory working requirements completely, but the conference was deadlocked on the issue once again. The only action which could be taken was to clarify the procedures for compulsory licensing and for revocation as a last resort; the clarification in effect extended the period of grace before revocation is possible to a minimum of five years. The revised Article provided the following, incorporating the previous changes:

(1) The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the countries of the Union shall not entail revocation of the patent.

(2) Nevertheless each of the countries of the Union shall have the right to take the necessary legislative measures to prevent the abuses which might result from the exercise of the exclusive rights conferred by the patent, for example, failure to work.

(3) These measures shall not provide for the revocation of the patent unless the grant of compulsory licenses is insufficient to prevent such abuses.

(4) In any case, an application for the grant of compulsory license may not be made before the expiration of three years from the date of the issue of the patent, and this license may only be granted if the patentee is unable to justify himself by legitimate reasons. No proceedings for the revocation of a patent may be instituted before the expiration of two years from the date of the granting of the first license.

Paragraph (2) would permit the revocation of a patent if that were the law of the given Union member, though paragraphs (3) and (4) are qualifications to that right, requiring first an application for compulsory licensing only after three years and then proof after three years that this licensing did not remove monopoly abuses. It may also be questioned whether paragraph (4) applies only to those applications for compulsory licensing which arise out of failure to work or monopoly abuse. For example, Parke Davis lost a suit in the English Court to prevent an application for a compulsory license of medicines from being granted before the three-year period. The court's position was that the Article 5 does not apply to patents issued for foodstuffs or medicines. It was argued that these latter are not dealt with by the Convention but are under Section 41 of the English patent law which permits a compulsory license being granted at any time for a patent on a substance used as a medicine. The decision was upheld by the House of Lords: (Parke Davis and Co. v. The Comptroller General of Patents and British Drug Houses Ltd.; 61 R.P.C. 169, 1954). However, the Swiss government applies paragraph (4) to any application for compulsory licensing.

The practice of each Union member as to Article 5 should be examined as to purpose and stringency. A brief chart of national policies including non-Union countries, is the following:

POLICY	COUNTRIES
(1) Patent will lapse unless worked or nominally worked	Panama, Liberia
(2) Revocation may occur unless patent is worked actually or nominally	Argentina, Bolivia, Brazil, Costa Rica, Cuba, Ecuador, Honduras, Mexico, Nicaragua, Peru, Spain, and Venezuela
(3) Revocation may occur at request of third parties if not worked, regardless of nominal working	Belgium, Burma, Ceylon, Dominican Republic, France, Iran, Iraq, Italy, Jordan, Kashmir, Lebanon, Pakistan, Syria, and Turkey.
(4) Revocation unlikely, but compulsory licensing if not worked	Australia, Austria, Canada, Denmark, Egypt, Finland, West Germany, Holland, Ireland, Israel, Japan, Luxembourg, New Zealand, Switzerland, Union of South Africa, and the United Kingdom.
(5) No revocation, but compulsory licensing may be required if not worked	Bahamas, Barbados, Bermuda, Guatemala, Iceland, India, Norway, Paraguay, Philippines, Portugal, Sweden, and Uruguay.
(6) No revocation, no working requirements, and no compulsory licensing	Belgian Congo, Chile, Colombia, El Salvador, Greece, Haiti.

The arguments for compulsory working should be re-examined. There are those who still wish to abolish it entirely, permitting only compulsory licensing. A proposed amendment to be placed before the Lisbon conference in late 1958 would extend the period of grace for compulsory licensing also to five years after date of application or three years after date of grant, whichever is longer. It may be found, after examination, that compulsory licensing would suffice to protect the national interest and also that of the inventor. There are, of course, situations under the control of the patentee which might dissuade potential applicants for a license; for example, the patentee may threaten destructive competitive power through a subsidiary relationship with a foreign company producing other items in its line but not the particular patented invention in question. The subsidiary could threaten to go into production at any time and thus prevent entry despite a public offer of licensing. To compel the patentee to work the invention under such circumstance might not be a desirable solution either. The problem becomes one of market control rather than of patent licensing. The counter-threat of the foreign government to institute operations on its own under compulsory licensing may be the action which is required. Or, it may be that the government does not fear monopoly so much as it fears the absence of production. In this event, the requirement of compulsory licensing and the threat of government competition may bring forth private production (monopolistic or not).

These kinds of questions should be resolved in order to determine whether the movement to abolish the right of revocation is sound in terms of the national policy of members.

#### C. A TRIBUNAL FOR INTERPRETATION OF THE CONVENTION

An international tribunal to interpret the principles of each provision of the Convention has been suggested by various members. It would not be caught in the litigation of private disputes but would presumably be limited to interpreting the provisions when questioned by governments; its decisions would not be retroactive. Its decisions would bind only those states which wished to be bound, but it is presumed by proponents that the prestige of the judges would provide adequate suasion even in those countries not legally bound.

It has been suggested that the present International Court be appointed as the body to oversee the Convention and rule upon differences of interpretation among the contracting parties. So long as many nations were not members of the Permanent Court under the League (as the United States was not), such a proposal was not readily received. But now that most nations are automatically members of the International Court through membership in the United Nations, this objection has been removed.

The International Bureau would not be able to bring cases before the Court, but it would provide information to the Court on cases brought before the Court by individual member-states. The increasing complexity of relations among Union members on the subject of the Convention and under the specially restricted Arrangements within the Union make it more than ever desirable in the

eyes of the International Bureau that the International Court be relied upon. Conciliation and arbitration would presumably be used first in an attempt to resolve any disputes under the Convention; the Court would be used only if these methods broke down.

Various convention meetings have found support for the idea of a jurisdictional clause. The Congress of the IAPIP in Berlin in 1936 confirmed the resolution advocated by the International Bureau of Industrial Property, and previously passed by the London Congress, concerning the *competence* of the Permanent Court of International Justice, but it did not activate the Court in disputes under the Convention. The Institute of International Law at Brussels in 1936 agreed that it would be desirable to place in the Union's Conventions an obligatory jurisdictional clause to insure unity of interpretation of the Articles of the Union, especially those concerning industrial property and artistic and literary property. The IAPIP in Paris in 1950 adopted a resolution which was similar to those approved at The Hague Conference in 1947 and endorsed by the Executive Committee of the IAPIP in London in 1948.

The recommendation proposed by the International Bureau for adoption in Lisbon is similar to that in the Convention for the Protection of Literary and Artistic Property (Article 27) as revised at Brussels in June 1948:

Any dispute between two or more countries of the Union concerning the interpretation or the application of the present Convention, as well as the Arrangements for the Restricted Unions, which is not settled by means of negotiations or other international means of conciliation, shall be brought before the International Court of Justice which shall decide the matter.

The Unionist countries which are not members of the United Nations organization or which have not adhered to the Statute of the Court shall deposit with the Clerk of the latter, within one year from the date of ratification, the required declaration of acceptance of the jurisdiction of the Court.

The International Bureau shall be informed by the Plaintiff country of the dispute brought before the Court. It shall inform the other countries of the Union and may present to the Court the information provided for in Article 34 of the Statute of the Court.

#### IV. EXCLUSIVITY, ANTITRUST, AND INTERNATIONAL RESTRICTIVE BUSINESS PRACTICES

There are many types of restraints upon the competitive freedom of either party that may subject the licensing agreement to scrutiny and the parties to penalties under the antitrust laws of the United States. We have not attempted a full analysis of the impact on foreign licensing of antitrust legislation. In order to delineate the antitrust problems which U.S. businessmen face in licensing abroad, we have examined the reasons advanced by businessmen for the various restraints which each party might wish to impose in the agreement. Preliminary to a larger study of what the law on antitrust violations is, and the counsel given by legal departments relating to licensing operations, we have sought also, to determine the problems concerning which legal opinion is required in view of

the antitrust laws. The importance of legal counsel in decisions on licensing is exemplified by the following colloquy before a subcommittee of the U.S. Senate Committee on the Judiciary:

Mr. Ladas. I have here 3 or 4 letters of various companies telling me that they are not entering into [licensing] agreements because of the Timken decision.

Mr. Burns. Is it your conclusion with respect to Timken that while students of the law and practicing lawyers might construe the decision in such a way as to not invalidate these practices, that nevertheless, because of the language of certain of the Justices, business is, in fact, concerned, and that the decision is resulting in retarding agreements which might otherwise be entered into?

Mr. Ladas. That is right.<sup>1</sup>

In view of the divergence of anti-monopoly policies in foreign countries as compared with those of the United States and the necessity of U.S. business competing abroad, we present in this section some of the views concerning an international agreement on restrictive business practices. Many U.S. businessmen consider it too difficult (and even inequitable) to have to operate abroad in competition with others not under antitrust restraints. Yet if the United States does not impose restraints on the foreign operations of its companies, not only may its imports and exports be adversely affected but indirectly also its domestic production and sales. The background for the various attitudes toward an international coordination of national antitrust policies is given to stimulate discussion of the problem.

#### A. BUSINESS MOTIVES FOR IMPOSITION OF RESTRAINTS

The restraints which either the licensee or the licensor sometimes wish to place in the agreement relate to the actions of each other in the market. They are restrictive of competition in some way, such as dividing the market, setting prices, sharing production quotas, or limiting entry of third parties. While it is legally dangerous to use the license as a front for a "naked" restraint of competition, the reduction of potential competition through licensing may be a strong motive for the agreement in the first place. Both the licensor and the licensee may have an interest in reduced competition, but it will not always be to the interest of each to permit the other the particular restraint he wishes. The following presentation of motives is a summation of views of officials we interviewed and stresses their interest in a more "reasonable" interpretation of antitrust law. It should be emphasized that not all of the officials interviewed expressed a desire to impose the types of restraints discussed below. Nearly half of the companies we questioned held the view that both they and the licensor benefited from competition with others, and a few considered that competition from them kept the licensee on his toes. Most of these officials found that they could bargain away restrictive clauses with changes in royalty rates. Thus, the agreements below reflect the views of only those companies using such provisions and willing to discuss their motives with us.

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<sup>1</sup>"A Study of the Antitrust Laws," Hearings before the Subcommittee on Antitrust and Monopoly, Part 4, 84th Cong., 1st Session, Sept. 13-15, 1955, p. 1725.

### 1. *Motives of the Licensee*

There are three broad circumstances which may give rise to a desire on the part of the foreign licensee to restrict his competition: either he is unsure of his position in the market and would like to have a period of "infant-industry" protection to warrant the initial investment; *or* his market under competition would be too small to serve efficiently; *or*, he is accustomed to operating and selling in a monopolistic (or cartelized) market and wishes to have the same situation with reference to the product covered by the license. Each reflects a desire on the part of the licensee to increase the value of what he has obtained through the license by eliminating competition of the licensor or others in the market.

The competitive weakness of the licensee may be in comparison to the dominance of the licensor or in comparison to companies in third countries. He may be protected against each by tariffs, currency restrictions, shipping costs, or quantitative import restrictions. If so, the desire for exclusivity under the license will be less. Without these protections, however, he may feel that the only way in which he can obtain a period of grace is under an exclusive provision in the licensing agreement.

The desire for "infant-industry" protection may stem, however, from the fact that the manufacture of the licensed product requires a large amount of capital investment. In order to induce the licensee to make such heavy outlays, it may be necessary to provide him a respite from immediate competition in a given market. The economic justification for such protection stands on all fours with that for commercial tariff protection under similar circumstances; it is subject to the same criticisms, however, as far as general economic policy is concerned.

A third justification for exclusivity, at least for an initial period of development, is that the internal market may be so small as to accommodate only one manufacturer at efficient levels of operation. If the licensee has to share the market with others, his portion may be such as to keep his costs high and prevent him from enjoying the benefits of larger scale production and prevent the consumer from having a lower priced commodity. On the presumption that his costs would fall with a larger market, the licensee is justified in asking for exclusivity at least for the time necessary to prove his ability to supply the market at reasonable cost.

If it is considered that even the domestic market is too small for the more efficient scale of operation, the licensee may also request a share in third markets, or even an exclusive portion of them.<sup>2</sup> This request has sometimes been supported

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<sup>2</sup>The following report in a statement by the American Chamber of Commerce in Paris is illustrative: "In many industries the French market is comparatively small, and it is essential to have an exclusive license for a period of at least a few years in order to build up the business and supply the market without danger of having it cut into by others. In some instances, with mass production techniques, even the entire French market is not large enough to support economical production. In such instances, a French company would require an exclusive license in one or two other European countries in order to assemble a large enough market to make production economical. It was pointed out that the size of some European countries is smaller than some American States and that an American company would hesitate to have its sales limited to any

by the government if the economy is in need of foreign exchange and if the right to a larger market would expand exports into a desirable area.

The above reasons for exclusivity stem from conditions which may be short-run and may, thereby, justify only a temporary privilege of exclusion of competitors. However, as with tariff protection, the history of exclusive clauses during the prewar period seems to be dominated by those which were either intended to be permanent or which were continued long after the initial justification was past. The second major justification—that of continuation of a desirable privilege of market control—became the dominant one.

The monopolization of a market is permitted in foreign economies while it is not legal (save in a few instances) in the United States. When a potential licensee has been operating under cartelized conditions both at home and in his own foreign markets, it is difficult for him to understand the reluctance of some American licensors to extend exclusive privileges. And, from his own view, there is no justification for such recalcitrant behavior. The laws of his land and the administration of his government permit and sometimes encourage restriction of competition; so do his business mores. When such a licensee feels strongly that he must continue to operate in the same milieu as before, he may insist on exclusive provisions. The mere fact of his insistence—to the extent that without exclusivity the contract will not be written—may become adequate justification in the eyes of the U.S. licensor for the inclusion of the privilege. In this case, the license, even with exclusive provisions, creates more production and commerce (though not necessarily U.S. trade) than would have occurred without the license.<sup>3</sup>

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one State. Until such time as there is a United States of Europe, the entire European continent must be considered in determining the extent to which patent licenses should be limited to particular areas.

"They claim the hesitancy of American attorneys in allowing their clients to grant exclusive rights to manufacture in France has caused losses to the American companies. One instance which was cited was where a French company would not risk manufacturing under the American invention without an exclusive license, so that particular product was not made for several years. Finally a German company came along with a process similar to the American company and granted the exclusive license to the French company. The result of this hesitancy on the part of the American lawyers was to deprive their client of the benefit of royalties for several years, while depriving the French consumer of the benefit of the product. These products were absent from the French market because of the uncertainty of the American antitrust laws. The product was one which could not have been imported into France at the time." ("Foreign Trade Conferences," *Committee Print*, Committee on the Judiciary, U.S. Senate, 84th Cong., 1st Sess., 1155, pp. 15-16.)

Although not all the relevant facts are given, it may be questioned whether the American attorney's advice was sound in this case. Depending on the circumstances (such as whether there would be a substantial effect upon U.S. commerce resulting from exclusivity), exclusivity can be well within antitrust interpretations. Thus, if a patent was held in both the United States and France, the licensor could have given an exclusive license under the French patent and have been protected from exports by the French company through its American patent. Conversely, the French licensee would have been protected from imports into France by virtue of its French (licensed) patents which it could have asserted against the imports.

<sup>3</sup>Analysis of bilateral trade agreements in the postwar period shows that *restricted* trade may be larger than *free* trade when conditions of stress exist, as occurs where foreign exchange is scarce. R. F. Mikesell and M. N. Trued, "Postwar Bilateral Trade Agreements," International Finance Section, Princeton University, 1955, pp. 80-89). See also J. E. Meade, *The Theory of Customs Unions*, (Amsterdam: North Holland Publishing Co., 1955) on the trade-creating and trade-diverting effects of restrictions.



## 2. Motives of Licensor

Two of the same motives are behind the licensor's desire for restraint of competition: to protect himself against creation of a strong competitor from abroad or to gain the benefits of monopoly in the market. *But*, the U.S. licensor's justification for these are quite different. In the case of the former, he cannot claim "infant-industry" status, and in the case of the latter, he cannot claim to have acquired the habit of monopoly operation.

Economic justification for restraining competition arising from the licensee is nevertheless asserted by some U.S. businessmen. It is that the licensor did not, in the first place, have to give birth to the licensed production and was therefore, *ex ante* license, not subject to the competition which might ensue *ex post* license. However, in several antitrust cases and in the recent Combustion Engineering consent decree, the Supreme Court frowned on a license provision which prohibited, in positive language, the licensee from exporting to the United States.

Once again, the strength of the licensor's desire for restraints rests on his own competitive position. If he is operating behind commercial protection by the government or under conditions which provide him a competitive advantage in production, shipment, or selling so that he need not fear sales from abroad, then his desire is likely to be weak. However, if the licensor is a small firm, producing (e.g.) only one item in a large product line, and sharing the market at home with foreign firms, *and* if the potential licensee is a large, strong firm and is already in the domestic market of the licensor though in other products of the line—then, the licensor may feel justified in requesting that the licensee restrict his operation in the product concerned to other markets. One must be careful, however, not to generalize too quickly that low labor (or other single factor) costs in the country of the licensee automatically provide him with such competitive strength. It is widely held that low labor costs abroad are a *prima facie* justification for restraining the licensee for he thereby has a competitive advantage. Such statements do not withstand close scrutiny; the foreign firm may be more efficient and thereby a stronger competitor than the licensor; but, if so, that strength rests on the *entire* agglomeration of cost factors, including managerial techniques and inventiveness, *in comparison with* the same aggregate cost factors in the United States—not just on a comparison of labor-costs, which themselves may be low in money terms abroad but high in terms of labor's productivity.

The U.S. licensor may, however, be strong enough to withstand the competition of his foreign licensee (or even be operating behind protection) in the home market and still wish to restrain the activity of the licensee(s); the motive then is higher profits from restriction of competition abroad. Such action may not come under antitrust laws, since the antitrust legislation covers only U.S. commerce. However, recent decisions and decrees have implicitly defined "U.S. commerce" quite broadly.

It is quite true that in certain types of markets, the profits (sales price, and therefore the royalties) may be greater if the volume or production is limited.

If the licensor extended the privilege of production abroad to any and all companies applying, he might well cut the profit margin so low, without increasing the total value of sales, that his royalties would be less than if he restricted the number and activities of his licensees. He may, for example, extend the privilege of production and sale to *one* licensee, urging him to take advantage of his monopoly position. Or, he might divide territories among several licensees so as to provide the same advantages over a larger market.

Whether or not the licensor attempts this type of restraint is largely a reflection of the company philosophy rather than of any economic or market analysis which shows the existence of demand relatively unresponsive to price. Market conditions may be such that an expansion of production should be encouraged to reach the point of maximum returns, but if the licensee has been given an exclusive privilege on the basis that he can maximize profits through restriction of sales, it is unlikely that he will attempt to expand production. Yet, it is not at all certain that the licensor and licensee can discern the precise conditions which would make restriction of sales profitable to them both and thereby justify exclusive licensing.

The special conditions of international commerce today do give rise to another set of conditions which might make it profitable to extend exclusive licensing. These arise from the currency and trade restrictions imposed by numerous governments. Many governments favor trade with certain other countries, providing greater premiums in prices (or favorable exchange rates) and permitting larger volumes of imports and usually discriminating against dollar goods. *If* the division of third markets is involved in the licensing program of the American company, and *if* the licensor can determine what the currency and trade picture will be for the duration of his license agreements, it is possible that he would want to assign certain territories to licensees in a country which is treated most favorably in those territories, thus making their sales larger and increasing his royalties. His action must be qualified, however, by the fact that, in turn, the currency of the licensee must be converted into dollars; the "gain" which the licensee made in terms of third-currency prices and sales may turn into a "loss" when translated into dollars at the rate provided the licensor. Once again, then, the special condition which would seem to justify an effort at discriminating monopoly may be quite difficult to discover or to turn into profits.

Finally, in both of the last two situations it may be necessary to control not only the territories but also the sales volume and prices (as well as the quality) of the products sold by the licensee. Unless this is done—with the licensor coordinating the actions of all licensees—the advantages of discriminatory pricing may be lost. Such provisions in licensing agreements are, however, violations of antitrust legislation if there is the requisite effect on U.S. foreign commerce.

It must be admitted, however, that exclusivity which is aimed at maximizing the benefits of specialization and large-scale production may be economically appropriate. Thus, if the entire European market is required in order to increase the size of the market to a level where production of an item becomes efficient,

the licensor may wish to extend the privilege of production of one item in his line to a manufacturer in Germany, and of another item to a company in England, and still a third product to a company in France. In each case, exclusive rights to the whole European area would be provided. Also, the licensor's reasons for exclusivity when a large number of licensees exist is to prevent destructive competition, especially in the early stages, from co-licensees in the home market of each licensee.

Finally, as indicated in the section concerning the licensee's motives, the licensor may be "blackmailed" into extending exclusive rights through the insistence of either the licensee or the government of the licensee that there will be no agreement without such a provision. It is not suggested, however, that even a large number of licensees are so recalcitrant as to reject a good opportunity merely because they cannot obtain exclusive privileges. Many U.S. licensors have found that this provision is subject to bargaining against others—especially against the royalty rate.

### *3. Methods to Restrain Competition*

The methods (legal or not) of restraining business competition through licensing arrangements vary from tacit acceptance of restraints to specific restrictive provisions. The fact that each party recognizes the benefit to each from a restriction of operations to "home territory" may be sufficient to cause them to act in that fashion, in the absence of an express provision embodied in the agreement. In addition, however, when licensing involves patent rights (or trademarks), the extension of a privilege to use the rights under a given patent (or mark), filed in a given country, itself limits the licensee; the licensee must stay out of countries in which the licensor has patents (or marks) under which he has not received rights. In this fashion, the patent (or trademark) itself divides the market.

Where the licensor does not wish rigidly to restrict the operations of the licensee but at the same time does not wish to encourage an expansion of the latter's area of operations, the license may provide that a higher royalty be paid on sales outside of the country of the licensee. Such action, however, has brought one firm under a recent consent decree on the ground that a "penalty" was imposed on the foreign commerce of the licensee. Finally, some earlier agreements spelled out the precise areas in which the licensees could and could not operate; some leniency was extended through separating the rights to manufacture, use, and sell in different territories.

#### **B. PROBLEMS FACED BY LICENSORS IN VIEW OF ANTITRUST LEGISLATION**

From our questioning of business officials responsible for the management or legal aspects of licensing, we have compiled the following problems which have to be answered before the licensing contract is written. Many of them are deter-

mined *in principle* so that the problems are not re-considered for each licensing arrangement. All of them are related to restrictions on either party and are decided by legal counsel in the light of antitrust law. Some of the problems may be answered categorically in the light of antitrust decisions; others are less certainly determined.<sup>4</sup> Further investigation will be directed toward discovering how these questions are in fact answered by those who make business policy.

### 1. Questions to Be Answered

The questions which came up repeatedly may be broken down into those concerning licensing under patents on products or processes, under trademarks, and of know-how.

#### a) Patents

(1) While it seems apparent that a patent license extended exclusively to one firm in each country under the patent filed in each country will effectively divide the market, should the licensor retain a right to sell in his licensees' markets to avoid any implication of restriction of U.S. commerce?

(2) Is it appropriate to include *additional* restrictions on territory besides that under the patent license as in (1)? Will an *explicit* statement of an *inherent* restraint affect the legal position of the contract?—e.g., the assertion that markets are restricted to the areas in which patents are held?

(3) What restrictions on price, product quality, production, volume, or terms of sale are legal? Is there a difference in antitrust interpretation when *one* license is concerned compared with a group of similar licenses?

(4) May the licensor legitimately require the licensee to purchase unpatented components or complementary items produced by the licensor?

(5) Does domestic law on licensing provide a precedent for foreign licensing? Is the law on foreign licensing likely to be more lenient?

(6) What is the import of the "ancillary doctrine" for licensing contracts?

(7) What is the import of insistence by the licensee on the insertion of restrictive provisions (e.g., exclusive territories), without which the license would not be

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<sup>4</sup>The major postwar cases concerning foreign operations which have provided insights into the attitude of the courts are the following:

United States v. Aluminum Co., 148 F. 2nd 416 (1945)

United States v. National Lead Co., 332 U.S. 319 (1947)

United States v. General Electric Co., 80 F. Supp. 989 (S.D.N.Y. 1948)

United States v. General Electric Co., 82 F. Supp. 753 (D.N.J. 1949)

United States v. Minnesota Mining & Mfg. Co., 92 F. Supp. 947 (D. Mass. 1950)

Timken Roller Bearing Co. v. United States, 341 U.S. 593 (1951)

United States v. Imperial Chemical Industries, Ltd., 100 F. Supp. 504 (S.D.N.Y. 1951); *opinion on relief*, 105 F. Supp. 215 (S.D.N.Y. 1952)

United States v. Holophane Co., 119 F. Supp. 115 (S.D. Ohio 1954); *aff'd* 352 U.S. 903 (1956)

In addition to these cases, the courts have obtained a number of consents from defendants to the decree of the court before or during the trial. These consent decrees show an attitude of the courts and have an important bearing on the trend of the courts' thinking. It has not been possible to review all of the decrees, but it is hoped that a larger study will permit the examination of all decrees relating to foreign operations in an effort to determine the direction in which the courts are moving.

concluded, for the justification of restraints in the agreement?

(8) Are any and all restrictions upon commerce between second and third countries permissible, so long as U.S. commerce is unaffected?—e.g., if the restriction is on sales in third markets where patents are *not* held by the American licensor?

(9) What relationships are required between the patented and unpatented products for a tie-in sale provision to be legal?

(10) What restraints are permissible for the licensor to impose on the sale in his country of products produced abroad under his foreign process patents?

(11) What legal dangers are involved in extending rights to future patents under the licensing agreement? Is it legally appropriate to extend the promise to future patent rights beyond the scope of the line of products (or processes) covered currently in the license? Does this act magnify any restriction?

(12) Is the judicial attitude toward licensing of a package of patent rights (i.e., the entire gamut of patent rights in a line or by a company) different from that toward licensing single products or processes?

(13) May cross-licensing legitimately introduce restraints which are prohibited in one-way licensing?

(14) Are all patent pools illegal? Can they be used to enforce other restraints, such as price-fixing or such as a territorial division of the pooled patents?

(15) If patent improvements are developed by the licensee, may they be granted back exclusively? or must the grant back be non-exclusive? Is there any distinction when the grantback is royalty free? Can grantbacks be extended to fields not directly related to the initial patent rights?

(16) What is the legal position of a licensing agreement covering exchange of a process patent which had the effect of restricting entry into the United States of a commodity which had previously been imported but produced by a different process?

(17) To what extent has the Justice Department been able to obtain evidence from outside the United States for the prosecution of antitrust indictments in foreign operations? on a voluntary or involuntary basis?

#### *b) Trademarks*

(1) Is it permissible for an American manufacturer to license his trademark to a foreign manufacturer whose product was substantially identical and importable into the United States, and thus to prevent importation into the United States?

(2) What different antitrust problems are raised by trademark licensing as compared to know-how licensing?

(3) What powers of restraint are permitted under patent licensing which are not permitted under trademark licensing (or vice versa)—e.g., will one type justify a raising of the royalty rate on export sales by the licensee?

c) *Know-how*

(1) Does the fact that know-how enjoys a smaller degree of inherent exclusivity than does a patent or trademark make a licensing agreement covering it more subject to violation of antitrust legislation?

(2) Under what conditions are restraints against disclosure of unpatented information permissible?

(3) Are limitations on territorial competition permissible? Does the "ancillary doctrine" apply? How does the licensing of the know-how affect the decisions as to the justification for restraints?

(4) What is the position of a restraint which goes beyond the products whose production is supported by the licensed know-how?

(5) How would the answers to No. 3 and No. 4 be changed if the know-how covers only a *part* of a product or *one* of the processes?—e.g., could the licensor restrict export of the *entire* product?

(6) What effect on the answers would the fact of multiple licensing have?—i.e., suppose that one licensor wished exports to the United States curtailed while other U. S. companies licensing under patents on other parts or processes involved wished to encourage exports to the United States?

(7) What is the role of "intent"?

(8) Does the public availability of the know-how licensed affect the ability to impose restraints? Is availability different according to whether the country of the licensor or that of the licensee is considered?

(9) Although a licensor may divulge a "trade secret" exclusively to one licensee, how far can he go in restricting what the licensee may do with the technology?

(10) Does the duration of the restraint affect its justification? i.e., if it is longer than the secrecy of the information transferred?

(11) Is it permissible to include restraints on production by the licensee which is *not* made possible by the licensed information?

(12) Is it permissible to include tying provisions requiring the purchase of materials, equipment, or components from the licensor?

(13) What is the position of provisions barring the licensor from exporting or investing or from additional licensing in the country of the initial licensee?

(14) Is mutual restraint justifiable under the law?

(15) Are reciprocal exchanges of know-how looked upon more stringently than one-way licenses? Are mutual covenants of non-disclosure justifiable?

(16) Does the coupling of know-how with patent licensing to extend the restraints over a longer period increase the possible jeopardy under the law?

(17) Is it permissible to require the licensee receiving know-how to employ the licensor's trademark and that mark alone?

(18) Is it legal for an American firm to extend the right to the licensee to distribute the product made under a know-how agreement to third countries? That

is, may the right be positively expressed and yet not be considered a division of territory?

(19) What is the distinction under the law between the case in which an American manufacturer voluntarily withdraws from his previous market abroad as the result of extending a license to manufacture and one in which he extends a license in order to be able to get into the country, having previously been prevented because of competition or government restrictions?

(20) What import does the fact that the licensor may have a controlling interest in the licensee have for antitrust violation? in the case of merely a minority interest?

(21) Is there a double standard in the apprehending and treatment of large and small companies by the Department of Justice and the courts?

It would be important to discover what each answer to the above questions means for business policy; that is, do executives listen to counsel and then disregard it? Or are counsel's interpretations of the law closely followed by executive decisions?

## 2. Business Policy

Uncertainty exists in the minds of businessmen as to where the monopoly permitted under a patent or trademark stops and what the prohibited restraints are in foreign business operations. That this uncertainty is significant in business policy is evidenced by the report of the Department of Commerce that some U.S. manufacturers have modified their licensing program because they are afraid that they are prohibited from (1) restricting the licensed foreign company to selling only outside the United States, (2) restricting a foreign licensee to selling only in his domestic market, (3) giving exclusive sales territories for the same product to each of several foreign companies, and (4) agreeing with a foreign company not to export to the country of the licensee.<sup>5</sup>

An illustration of the importance of the attitude of legal counsel is provided by the view expressed by some French businessmen that

"it was very difficult to make patent licenses with American companies due to the great deal of confusion with respect to the antitrust laws. One company found great difference of opinion among American lawyers as to exclusive licenses, nonexclusive licenses, or exclusive licenses with the right to sell its own products in the country of the licensee. Lawyers for some American companies will not permit their clients to make exclusive licenses, while others do. This makes it very confusing for the French businessman in trying to negotiate the terms because it is difficult to know to what extent the American is acting in good faith in declining to grant an exclusive license in France to the French company."<sup>6</sup>

In view of the heavy emphasis in some quarters on the impact of antitrust legislation in dampening U.S. business activity abroad, it is somewhat surprising to find that two-thirds of the respondents to our mailed questionnaire consider

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<sup>5</sup>*Factors Limiting U.S. Investment Abroad*, Part II, 1954, p. 32.

<sup>6</sup>"Foreign Trade Conference," *Committee Print*, Committee on the Judiciary, U.S. Senate, 84th Cong., 1st Sess., 1955, p. 14.

that their licensing programs have not been adversely affected by tax or antitrust legislation. Only one-third indicated that they had altered their programs in any way or had suffered as a result of either type of legislation.

The way in which most of this third were affected was through the necessity of changing provisions of their existing or contemplated agreements; 65% of those affected mentioned this impact. The provisions most commonly changed were those concerning sales territories and exclusivity. One respondent has gone to the length of extending free, non-exclusive licenses, when the arrangement has been questioned, in order to prevent a possible violation.

One in seven of those affected indicated that the number of their agreements had been reduced as a result of taxation or antitrust. High taxes abroad or absence of sufficient tax credits at home was mentioned by a few, but the more predominant reasons stemmed from possible antitrust violations. Either foreign firms were reluctant to enter a contract which might be involved in litigation in U.S. courts, or the U.S. licensor was reluctant. This possibility was reflected also in the answers of those who stated that negotiations were sometimes made difficult by the different views between the licensor and licensee on the importance of avoiding provisions which might be considered in violation of antitrust. Foreign licensees sometimes do not comprehend the U.S. antitrust mentality and consider that the U.S. negotiators are dragging their feet, especially as to provisions on exclusivity. Potential licensees do not wish to sustain competition from the licensor; yet, the licensor hesitates to write in such a restriction. Several respondents asserted that they now watch the provisions of their contracts much more closely than before the war.

Antitrust interpretations figured also in the responses of several licensors to the effect that (1) they would now prefer to license only wholly owned subsidiaries as a result of the *Timken* case, (2) they find it difficult to operate abroad either against or with cartels, (3) antitrust interpretations seem to show that assignment or sale of the foreign patent is favored over licensing, (4) participation in foreign patent pools is frowned upon yet is sometimes desirable, (5) cross-licenses and exchanges of technical information are too readily interdicted, especially under consent decrees.

Concern with antitrust policies has not led many companies to seek prior "clearance" of their agreements.<sup>7</sup> Only one-tenth of the total responding to the written questionnaire submitted their agreements to any government agency. *None* of these admitted having sent an agreement to the Department of Justice; half of them sent agreements to the Department of State, mostly for political clearance or to support an application by the licensee for funds under aid programs. One or two sent theirs to the Treasury Department for tax clearance. The remaining few did not indicate where they sent theirs. Only half of those admitting to having sent agreements to any government agency for clearance an-

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<sup>7</sup>See PTCJRE, I, No. 2, (December, 1957), pp. 232-236 for a discussion of the proposal on "clearance" and the attitudes of our respondents to it.



swered whether the procedure was helpful. Of these, three said that it was "sometimes," and the others replied "never."

### C. COORDINATION OF NATIONAL ANTI-MONOPOLY POLICIES

The United States is not the only country which has enacted legislation concerning the encouragement of competition and prevention of monopoly. But many U.S. businessmen feel that U.S. antitrust activity is much more stringent than foreign practice and discriminatory against their overseas operations. Efforts have been made, by the U.S. Department of State through the United Nations and in concert with governments of many other countries, to coordinate approaches to international business restrictive practices. An agreement was drafted but did not receive the support even of the U.S. Government. It has come under fire from some quarters but has been given strong support in others. This section sets out the background of the agreement, describes it briefly, and illustrates some of the opposing attitudes towards it. The importance of the agreement for foreign licensing stems from the fact that in many instances German, French, and British firms are out-competing U.S. companies as licensors largely on their ability to grant exclusivity and agree on market sharing techniques.

#### 1. *National Policies*

Historically the European policies towards business combinations or cartels have been much more lenient than that of the United States. International cartels have been sanctioned, and even participated in, by the governments which wished to support the domestic industry. Price fixing, sales quotas, territorial allocation, joint selling agencies, profit sharing, etc., were all part of the agreements. And the governments strengthened the hand of the national industry at the bargaining table by erecting trade barriers into that country, thus providing the industry with a secure market at home on which it could capitalize.

Especially since World War II, however, many of the industrialized nations of the Western world have become convinced that part of their difficulty in keeping up with the rising productivity of the United States has been a result of market rigidities arising from cartellization at home and abroad. They have begun to consider that competition will bring innovation and that mobility of men and resources will foster more rapid and appropriate economic growth. To obtain mobility and competition requires a breakdown of long-standing supports to monopoly or quasi-monopoly practices.

The U.S. Government in Occupation assisted this move in Japan through laws similar to the American antitrust legislation. After Japan's independence, the government retained considerable portions of the American-fostered legislation. Japan's antitrust law dates from 1947, but it has been amended in 1949 and 1953 to make it more suitable to Japanese conditions; whether or not it has been strengthened or weakened would require an analysis of the courts' handling of cases under it and the increase in competition which might be attributed to the law's merely being on the books.

Under U.S. occupation, Germany had a de-cartellization law but the experience under it did not show a determined move to eliminate cartels. However, the government of West Germany has, within the past several years, made strong efforts to liberalize its economic and business activity. Effective on January 1, 1958, it passed a law against restraint of competition (July 27, 1957), but most recently there has been strong pressure to obtain *de jure* recognition of the *de facto* situation that German industry is re-concentrated and is likely to stay that way.

Britain has been studying the impact of monopolies on its economy for several years under the U. K. Monopolies Commission; its reports have been similar in some respects to those made by the U.S. Federal Trade Commission. Out of these studies has come legislation for the control of restrictive business practices under the Restrictive Trade Practices Act of 1956. France issued a decree in 1953 relating to the maintenance and restoration of free competition and in considering further legislation. Denmark passed an act in 1955 concerning the control of monopolies and restriction of competition, while Italy still rests on regulations promulgated in 1942 and 1947.

Sweden, Canada, and even France to some degree, have already declared illegal the practice of resale price maintenance (though the U.S. Government is still trying to do so). And Sweden has two laws on the books, dated 1946 and 1953, concerning the supervision of restrictive practices. The above European countries are joined by Norway, which has had regulation of trusts since 1926 and has recently amended the law to cover various aspects of pricing agreements.

The entire group of countries participating in the European Coal and Steel Community have directed the establishment of a common (or free) market in the coal and steel industries. This industry was the most heavily cartellized before World War II, and the accomplishment of competition within this market will be a strong evidence of a determined move away from monopoly privileges. Belgium, the Netherlands, Denmark, and Finland are also considering appropriate anti-monopoly legislation, and Ireland has recently adopted laws for the encouragement of competition.

Outside of Europe, the Union of South Africa passed a law in 1955 providing for the regulation of monopolistic conditions. It has been joined by Canada in 1952 in an act providing for the investigation of combines. And both Argentina and Brazil have laws providing penalties for acts tending to establish monopolies or for acts considered as crimes against the public economy.

While it may be claimed that the administration of these acts is not as developed as in the United States, the fact that they are on the books and that the governments concerned have shown interest in an international agreement demonstrates a trend of sentiment at least. It must be noted, however, that the procedure in most countries other than the United States is through an investigating body. For example, Britain, France, Norway, and Sweden have governmental agencies which investigate the charges and make reports and recommendations to the governments. In only a few instances is there a criminal action.

A thorough study of the importance of antitrust legislation for licensing would

require an examination of the treatment of foreign nationals under the foreign laws, of U.S. nationals under the same laws, and a comparison with the treatment of each under U.S. antitrust. The scope of the present project did not permit such an extensive piece of research, but it is a feasible project for study and should be done before firm conclusions are drawn as to the appropriateness of given international agreements. The lack of adequate knowledge of the practices in other countries has been a source of the reservations made in many quarters to the international agreement on restrictive business practices drafted in the United Nations.

## 2. *The Draft Agreement*

The driving force behind the international agreement has been the U.S. Government's desire to restrain the postwar activity of international cartels. It considered that cartels were all too strong in the prewar world and that international cooperation was required to curtail them. Unsuccessful in the attempt to impose restraints through the Havana Charter for an International Trade Organization, it turned to the Economic and Social Council of the United Nations. The problem of restrictive business practices was studied there during several sessions, and agreement was obtained in September 1951 concerning a proposed resolution which should be transmitted to the representative governments.

Its main provisions relate to the definition of restrictive practices and the procedure for investigation of complaints. The agreement defines the activities with which it is concerned as "business practices affecting international trade which restrain competition, limit access to markets, or foster monopolistic control." Among these practices are, specifically, exclusion from markets, market sharing, territorial allocation, price fixing, price discrimination not related to quality, quantity, or delivery terms, production quotas, and abuses of patents, trademarks, and copyrights.

The agreement does not provide for the establishment of a judicial agency to decide cases and hand down judgments. The agency to be set up would be neither judicial nor legislative and in no sense sovereign. Its powers would be restricted to study, consultation, and investigation and, eventually, to preparation of a report containing recommendations to member governments. The agency would investigate the activity of a commercial enterprise (whether private or public) only if the enterprise possessed "effective control of trade among a number of countries in one or more products."

It would not be permitted to study actions and conditions on its own initiative, but a written complaint would have to be received from a member government. The complaint would have to document the practice objected to and the reasons why the activity was allegedly "harmful" to the expansion of production or trade. After investigation, the agency would issue a report which showed its examination, analysis, and information gathered as evidence, and its decision as to the

harmfulness of the activity. Recommendations would also be given to the governments concerned as to remedial action which would be appropriate.

The report and the recommendations would not be effective as orders and there would be no sanction other than that of publicity and aroused intelligent opinion. Member governments would *undertake*, however, to supply information required by the agency in its investigations, and they would *agree* to take measures to implement the recommendations of the agency and to keep the agency informed of their actions.

### 3. *Attitudes Toward the Agreement*

Opposition to the draft agreement was quickly formed. It was initially based on the view that the success of such an agreement depended primarily upon similar domestic legislation existing in each country. Rather than nations having domestic legislation with the same purpose and of equal stringency, many nations did not have any antitrust legislation at all. The contention of those opposed is that these nations would not be affected at all by the draft agreement, for the members are not *required* to implement the recommendations of the agency but will put them into effect on their own volition and, in the words of the agreement, "in accordance with their respective laws and procedures."

Proponents of the agreement argue that it will put heavy pressure on those without adequate legislation to introduce it domestically and that the difference between actual practice in the major countries as to antitrust is not as wide as the legislative statutes would lead one to believe. After all, they assert, the exercise of antitrust restraints by the U.S. Government is not heavy, while the practice of restrictions by private enterprise is significant, as evidenced by the fact that the Department of Justice filed over 40 indictments against U.S. companies for participation in international cartels since World War II. A firm conclusion on these contentions must rest, not on assertions but, on a more thorough investigation of the gap between the laws and practices of the various nations.

A second disapproval of the agreement arises from the fact that it is allegedly based on the Havana Charter of the International Trade Organization, which was never approved by the Congress. In reply to this objection it has been stressed that the defeat of the ITO was based on its tariff and commercial policy provisions and not on those relating to restrictive business practices.

Thirdly, some have argued that the agreement would discriminate against private enterprise as compared with state-owned or operated enterprise. The public enterprises are permitted a "consultation procedure" before investigations are launched under complaints, while private enterprises are subject to investigation immediately. Also, complaints against governments can be filed only by governments, whereas complaints against private enterprises can be initiated by either individuals or governments. In reply, the supporters of the agreement argue that this situation is only realistic since governments are sovereign and must be treated differently from private companies. In addition, they point out, while only gov-

ernments can bring complaints, they may do so on behalf of individuals or private enterprises. Though there is a difference in treatment of government enterprises and private companies, the assertion is that this is not discrimination since the two types of enterprise are not equal in other rights and privileges either.

Fourth, opponents point out that inadequate protection of the rights of parties is provided in the agreement. For example, there is no statement of the right of an opportunity to be heard or of the right of representation by counsel. Supporters argue that this is a misreading of the agreement: the agreement does not provide for a tribunal which indicts and judges handing down penalties; rather, the international agency operates as a grand jury proceeding which determines whether an indictment should be made; *then*, trial is supposed to take place within the domestic courts of the enterprise involved and with the normal protection of those courts. The international agency would make only findings and recommendations—not judgments.

In sum, those who still oppose the agreement assert that the main effect would be to place U.S. enterprise continually in the position of defendant. Only U.S. laws are stringent enough so that domestic indictments would be brought, and the result would be that foreign jurisdictions would be continually helped in bringing suit against U.S. firms while they avoided indictments by leaning toward public enterprise.

The proponents of the agreement declare that it is directly in line with over-all U.S. foreign economic policy, that large and significant results come from small beginnings, that the desirability of appropriate domestic legislation in other countries would be emphasized, that the agreement would aid the U.S. foreign trader and investor by tending to equalize treatment, that it would narrow the gap in antitrust practice by raising other's standards rather than lowering those in the United States, and that it would give a needed boost to what is now an inadequate enforcement of U.S. antitrust against international cartels.

With reference to the last point, it is asserted that the agreement would help remedy the difficulty of getting jurisdiction over foreign offenders since foreign governments would be committed to assist in getting evidence and bringing offenders before the bar of justice. It would help relieve the problem when a government is an offender under antitrust or when they support a domestic firm in its cartel arrangement. It would help bring an offender to justice even when the action reprehensible to the United States took place wholly outside of the United States because the U.S. Government would no longer have to prove that the foreign firm was trying unreasonably to restrict U.S. commerce—rather, the foreign government would consider the action reprehensible also. Finally, proponents assert, the agreement would help remedy the difficulty in obtaining adequate relief, which has been a problem even with an airtight antitrust case.

Despite the fact that the agreement was largely a result of U.S. persuasion within the United Nations ECOSOC, when the vote on the resolution came up in the UN during 1953, the U.S. administration voted against it. The main reason given was that the agreement could not be successfully implemented so long as

wide disparities exist among national policies toward antitrust. Instead of the draft agreement, a resolution was passed urging the need for wider and more concerted domestic action followed by international agreement.

Since there is some evidence that national governments are moving in the direction of stronger antitrust policy, the provisions of a possible international agreement should be widely discussed by the business and legal communities in order to determine whether such a technique is appropriate and, if so, what provisions should be agreed upon.

## V. TAXATION BY THE U.S. GOVERNMENT

There are only a few problems concerning taxation of income from royalties which are not also common to taxation of any foreign business income.<sup>1</sup> The tax problems facing most U.S. businesses having foreign licensing programs involve (a) the assignment (or sale) of proprietary rights compared to permitting their use abroad under licenses, (b) the use of rate provisions which require payments by the licensee *net* of foreign taxes, and (c) the use of profit sanctuaries; a related question is (d) how appropriate the Western Hemisphere Trading Corporations might be for licensing activities.

### A. TAXATION OF ROYALTY INCOME VERSUS CAPITAL GAINS

The inclusion of royalties in taxable income from without the United States is provided for in Sec. 862 (1954 Code) which counts as foreign income "... royalties for the use of or for the privilege of using without the United States patents, copyrights, secret processes and formulas, goodwill, trademarks, trade brands, franchises, and other like properties." Royalties, and other foreign income, are added to the domestic income of the recipient to determine the total taxable income. In the case of a corporation, receipts from licensing qualify for capital gains treatment only if two conditions are satisfied: (1) the corporate owner of the patent has granted an exclusive license, and (2) the patent was not held for sale by the corporation in the ordinary course of its business.

Under Sec. 1235 (1954 Code) which applies also to foreign patents (though not to design patents), payments received by an *individual* owner of a patent under a license extending "all substantial rights" or "an undivided interest therein" to a foreign licensee are not considered as royalties for the purpose of taxation but as "the sale or exchange of a capital asset held for more than six months."<sup>2</sup> This

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<sup>1</sup>The general problems of U.S. taxation of income arising from patents are being studied under a separate project of the Foundation. The problems of taxation of income of a foreign corporation arising from licensing its patents in the United States are left to a later study also.

<sup>2</sup>Thus, the receipts by an individual who owns a patent (or an individual who has invested in an invention) from the sale or exclusive licensing of a foreign (or U.S.) patent which has not yet been reduced to practice will be subject only to capital gains and not to income taxes; similarly, any damages for infringement after the transfer of such a patent are treated as capital gains. The period of applicability of this clause has been extended back as of June 1, 1950.

privilege is extended whether or not returns are received periodically over the term of the license<sup>3</sup> or are "contingent on the productivity, use, or disposition of the property transferred."

Clarifying regulations adopted on November 5, 1957, (T. D. 6263) define some of the significant phrases above as follows: "All substantial rights to a patent" means all rights which are clearly of value when any rights in a patent are transferred. The circumstances of the whole transaction, rather than the particular terminology used in the instrument of transfer, shall be considered in the determination.

The phrase "undivided interest in a patent" does not include "a license limited geographically, or a license which covers some, but not all, of the valuable claims or uses covered by the patent. A transfer limited in duration by the terms of the instrument to a period less than the remaining life of the patent is not a transfer of an undivided interest in all substantial rights to a patent."

The phrase concerning geographical limitations has given rise to several problems with reference to an individual's licensing of patents. Suppose that the licensor has obtained a patent in the United States and then patents the same invention in other countries; is the license exclusive if given to a French company under the French patent and then to others in their respective countries under the other patents? Would the tax result be different if the individual had taken out one patent in the United States, registered that patent in other countries, and then given exclusive licenses for certain territories to different concerns abroad?

Another problem under Sec. 1235 arises when the patent application covers several claims, some of which are denied though some granted. Are some of the payments made by the exclusive licensee under the patent attributable to the disallowed claims? If so, would they be considered as capital gains or income taxable at the regular rate?

The advantages of Sec. 1235 are not *legislatively* extended to the corporation, but similar interpretations have arisen out of several court cases. In them, taxpayers have been successful in convincing the courts that a patent license to manufacture, use, and sell was an assignment and should not be subject to royalty taxation, even though the payments were based upon production or sales and paid periodically.<sup>4</sup>

The above problems and those arising out of the adjudicated cases concerning exclusive licenses extended by corporations will require detailed examination in a larger study.

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<sup>3</sup>Under Mimeograph 6490, the Commissioner of Internal Revenue asserted that receipts from assignments would also be considered royalties if based on production or sales or paid over a period of years. The interpretation has not been upheld in most of the court cases subsequent to June 1, 1950—the effective date of the Mimeograph.

<sup>4</sup>In the Supreme Court Decision in the case *Waterman v. MacKenzie* (138 U.S. 252), the dictum was laid down that the grant of an exclusive right under a patent within a certain district must include the right to make, the right to use, and the right to sell in order to constitute a sale or assignment of the patent.

An exclusive right to manufacture, use, and sell extended under a foreign patent for the life of that patent would seem to constitute a sale of the patent for purposes of taxation, given no retention of other substantial rights by the transferor. Presumably such a sale or assignment would then come under capital gains taxation rather than under taxation of foreign income, despite the fact that the returns were received over a period of years. Any extension of rights less than the above apparently will be treated as the transfer of rights giving rise to royalty income, when a patent is involved. Whether or not an exclusive license would, because of the tax situation, be more or less favorable than a license retaining a substantial right in the hands of the licensor would depend largely on the effect of exclusivity on the total returns possible, compared with licensing others also to manufacture, use, or sell.

If the capital gains provisions are not applicable, the major tax problems facing the licensor are those related to the reduction of the burden of foreign and domestic taxation. The techniques available involve tax credits, profit sanctuaries, and the possible extension of the concept of the Western Hemisphere Trading Corporation—these are discussed below.

#### B. TAX RATES AND CREDITS

Foreign income received by a U.S. company is extended a tax credit by the Treasury Department for all or part of the amount of foreign taxes paid (by or for the U.S. receiver) on that income.<sup>5</sup> This credit is deducted from the U.S. tax bill, which is calculated at 30% on the first \$25,000 and 52% of *net* taxable income (domestic and foreign) above \$25,000. If there are expenses related to the foreign income, these must be deducted first, *before* the tax credit is applied to the foreign income; that is, the U.S. tax is calculated on *net* taxable income from abroad. Under the decision of the *International Standard Electric* case, expenses incurred in the operation of licensing agreements abroad are *required* to be set against *foreign* income and not against total (or domestic) income. The tax credit on income received by the U.S. firm from each country is limited to the proportion of the total U.S. tax which the foreign income bears to total taxable income of the taxpayer. This prevents any credit being obtained for taxes greater than 52% and may even prevent full credit for taxes paid abroad less than 52%. Thus, suppose that the American licensor has \$100,000 domestic taxable income and that it receives \$25,000 from a French licensee, on which it pays \$12,000 in French taxes, and a \$50,000 loss on operations in a third country. Its tax bill might be calculated as follows:<sup>6</sup>

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<sup>5</sup>The tax conventions which the U.S. Government has signed with various countries exempt royalty (and other) income earned in the foreign country by non-resident aliens or non-resident foreign corporations from taxation in the country where the income is earned. Such agreements have been signed with Belgium, Denmark, Finland, France, Greece, Ireland, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom.

<sup>6</sup>Extreme caution is advised; tax computations are seldom as simple as this example; expert tax advice should be sought by the licensor.



Domestic taxable income.....	\$100,000
French licensee .....	25,000
	<hr/>
	125,000
Less loss in 3rd country.....	50,000
	<hr/>
Net taxable income.....	\$ 75,000
U.S. normal tax at 30%.....	\$22,500.00
Surtax at 22%, of	
\$75,000-\$25,000 .....	11,000.00
	<hr/>
U.S. tax, before credits .....	\$33,500.00
Tax credit:	
Limitation on French credit.....	11,166.67
(25,000/75,000 x 33,500)	
Net tax payable .....	<hr/>
	\$22,333.33

The deduction of expenses related to the foreign operation from the foreign taxable income increases the tax revenue of the U.S. Government when the foreign tax paid is greater than 52% of *net* taxable foreign income but less than 52% of gross foreign income. If these expenses are set against the *domestic* income, the tax bill is minimized. For example, suppose that foreign income from licenses in a given country is taxed at 25% and that the royalties aggregated \$100,000 from that country. If the licensor pays the tax of \$25,000, he is entitled to a tax credit. If he does *not* allocate his expenses on the licensing program to the foreign income, he would have a tax credit of \$25,000 subject to the per-country limitation illustrated above. He would then pay a U.S. tax of \$52,000 less \$25,000, or \$27,000, on the foreign income. If he had sustained expenses amounting to \$50,000 during the same period connected with the licensing programs in the foreign country, he should have deducted these from his income, leaving \$50,000 *net* taxable foreign income. The tax credit would still be \$25,000 (subject to the per-country limitation) since it is not greater than 52% of \$50,000. But, if expenses of \$60,000 were incurred and deducted, a tax credit would be allowed of only \$20,800 (52% of \$40,000). (Foreign taxes greater than 52% are deductible only up to the 52% level.) Thus, the setting of expenses connected with foreign operations against *domestic* income permits the deduction of more of the foreign tax—as a result not only of the greater likelihood of the foreign tax being under 52% of the reported taxable income but also of the fact that foreign income will be a greater proportion of total income, thus pushing up the per-country ceiling. The purpose of the per-country limitation is to make certain that no credit is allowed against the U.S. tax on domestic income (only on the portion of the U.S. tax applicable to the country in which such income was derived).

It should also be noted that, in the above example, we stipulated that the licensor paid the foreign taxes on his royalty income. Such income transfer taxes are imposed by almost all foreign jurisdictions (as does the U.S. Government). Though the rate on royalty income is frequently less than that on dividends remitted abroad, the average foreign tax runs to around 15% of royalties paid. In order to avoid tax problems, many licensing agreements stipulate that the royalties paid shall be net (or free) of all foreign taxes. That is, *if* the rate of payment

under the royalty provision is 5% of net sales and if the taxes imposed by the foreign government on the royalty transfer must be borne (according to the license contract) by the licensee, the licensor is guaranteed the same 5% of net sales. Though such a provision would seem to simplify operations for the licensor, it raises several problems for him, as well as for the licensee, and for the governments of the countries of the licensee and of the licensor.

The impact on the government of the country of the licensee is partly a result of the impact on the licensee himself. That government receives the tax revenue exactly as planned, since the tax rate is imposed and collected. But, it is borne by the licensee rather than the licensor; thus, the profit rate of the licensee is reduced. Unless he can pass part of it on in higher prices or reduced payments to other factors, he bears the full impact of the tax; (it must be considered, however, that payment of existing or potential taxes is probably taken into account in the licensee's determination of the royalty rate he agrees to pay; thus, the licensor may actually bear part of the tax through a lower rate). If the licensee bears the full impact, his incentive is dampened and he may reduce his production of an item which the country has found to be a good export or an import-substitute. If he attempts to pass on the tax through higher prices, his competitive position may be harmed, reducing his (or the nation's) earnings. Because of these results, some foreign governments have not found it desirable to impose *new* taxes on the transfer of royalties; the old ones were already in the calculations of the parties to the license.

The requirement that the licensee withhold the tax and remit royalties *net* of taxes means that the licensee pays a tax on the tax. That is, in order to remit \$500,000 net of taxes when a 20% local tax is imposed, the licensee must record gross royalties, not of \$600,000, but of \$625,000 to be paid the licensor.

This same provision requiring the licensee to pay (or withhold) the foreign tax raises some interesting possibilities on the U.S. side. If the licensor records the foreign income as being the income received *sans* foreign tax, he will not be accorded a tax credit and will pay 52% as the full U.S. tax rate. There are, apparently, a significant number of U.S. licensors who adopt this procedure—neither applying the tax credit nor setting expenses incurred in the foreign licensing programs directly against royalties received.

But, application of the tax credit procedure both reduces the taxes paid to the U.S. Government and raises the net royalty retained by the U.S. licensor. For example, suppose that the licensor has an agreement that the licensee will withhold and bear any and all taxes imposed on royalties by the government of the licensee; that is, the licensor is to receive a stipulated rate of return *net* of foreign taxes. Suppose that a foreign tax of 20% on royalties has been imposed and that the return on net sales at 5% is calculated at \$5,000. In order to remit \$5,000 net of taxes, the licensee must "pay" gross royalties of \$6,250, withholding \$1,250 in taxes for the foreign government. The U.S. licensor then declares his foreign income as \$6,250 and requests a tax credit of 20%, or \$1,250; his net tax to the U.S. Government is thus \$2,000 (\$3,250-\$1,250; that is, 52% of \$6,250 less the tax

credit). His returns after taxes equal \$3,000, \$400 larger than if royalties were declared *ex* foreign tax (\$5,000), for the net tax credit is available.

The situation for the American licensor *improves* as the *foreign* tax rate rises to 52%. At that rate, to remit \$5,000 net of local taxes, the licensee must declare a payment of \$10,416.67 and pay taxes of \$5,416.67. The U.S. licensor then records foreign income of \$10,416.67 and requests a credit of 52%; he pays *no* U.S. tax (presuming the amount is within the per-country limitations) and thereby retains the *full* \$5,000 royalties remitted. Any further increase in foreign tax rates does not harm the U.S. licensor (nor benefit him) directly, though it may harm him indirectly by cutting the sales of his licensee who may attempt to pass the taxes on in higher prices.

Thus, the imposition of a *new* foreign tax on royalties is beneficial taxwise to the U.S. licensor who has a provision in the license agreement that he shall receive royalties *net* of foreign taxes. The additional results are that the burden of foreign taxation is borne directly by the foreign licensee and indirectly by the U.S. Treasury, which sustains a cut in its tax revenue. The final impact is borne by all U.S. taxpayers, who must increase payments of other taxes to make up the loss in U.S. Government revenue from this source—that is, under the tax credit extended by the U.S. Government the U.S. licensor actually receives *more* returns after taxes *when* the foreign government imposes a new tax on royalties paid to U.S. companies *and* the licensee is required under the contract to bear the tax.<sup>7</sup> The effect of a “net of taxes” payments provision in the license contract is to raise the return to the licensor at the expense of the U.S. Treasury when taxes are raised abroad and when a tax credit is available.

#### C. PROFITS SANCTUARIES

Another means of reducing the impact of U.S. taxes is to establish a “tax” or “profits” sanctuary—that is, a corporation formed under the laws of a foreign country which does not tax, or gives deferential treatment to *foreign* income received by that corporation. Since the objective is to avoid payment of U.S. taxes, the user of such a sanctuary must be willing to accumulate earnings in the foreign corporation—or at least not bring them into the United States. Since accumulated earnings may reach considerable proportions—otherwise the U.S. tax saving is too small to warrant the effort—the foreign country must be one which does not limit or prevent the accumulation of surplus or undistributed profits nor taxes them. This feature is less important the more the earnings are used for investment, promotion of exports, or development of licensing abroad. The technique does permit a much more advantageous use of earnings since it *defers* the U.S. tax on foreign income and thus leaves more of the earnings to be employed in expansion of foreign operations—a declared objective of U.S. foreign economic policy.

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<sup>7</sup>This result does not occur if the foreign tax, *before* it was increased, was already at the 52% level, exhausting the U.S. tax credit.

The British Government has promulgated a law permitting the formation of Overseas Trading Corporations to conduct business outside the United Kingdom; no taxes would be imposed by Britain until dividends were paid; thus, earnings could be accumulated for use abroad in expansion of investments or exports and avoid the trouble of incorporating in a sanctuary country. U.S. companies are invited to avail themselves of the same privileges in the United Kingdom.

In order to provide a tax haven, the foreign country must be one which either does not tax incomes of its corporation or incomes earned in or without that particular country (e.g., laws of Bermuda, Tangiers, or the Bahamas); or, if it has an income tax, it should not impose one on income from sources outside of its own territory (e.g., laws of Brazil, Panama, Colombia, Venezuela, or Liberia); or, if it does tax foreign income as well, it should exempt special types of corporations (e.g., laws of Uruguay, Canada, Liechtenstein, Luxembourg, and Switzerland). Among the countries providing such havens, Panama is the most popular, though the others mentioned are desirable.

The use of such a profits sanctuary for licensing income would require that the foreign corporation either own the foreign patents and trademarks under which the licenses are extended, or acquire the rights to use them via license from the parent with the right to sublicense, or at least provide the services which are extended under the license. Under the first arrangement, the parent company must transfer to the foreign subsidiary those patents and trademarks it wishes to license abroad. Any such transfer requires prior approval of the Commissioner of Internal Revenue; with his permission the transfer may be made without becoming subject to valuation procedure and a capital gains tax. In practice, the Commissioner has stopped permitting such transfers without payment of the capital gains tax. In the case of transfer of patents and trademarks, the valuation of assets which are receiving continually varying returns from several licensees, in several countries or within the same foreign country, is a most difficult problem and would make the parent liable to a re-opening of its tax liability.

If foresight were adequate, it might be possible for the subsidiary to take out the foreign patents and trademarks in its own name, thus avoiding the problem of transfer of assets. But many companies consider that it is unthinkable to let the ownership of patents, and particularly of trademarks, go outside of the United States. If this view is held, the subsidiary can provide the services called for under the technical assistance portion of the licensing agreement; a division of the royalty payments among the patent and service departments could be made to maximize the returns to the foreign subsidiary. In this fashion, a significant portion of the royalties remain outside the tax jurisdiction of the U.S. Government yet the licensee had a direct contract with the U.S. firm, which is sometimes considered highly desirable by the licensee.

If the problem of transfer of assets can be overcome or if one of the other two procedures can be adopted, the advantages of having the tax haven may be considerable. The main one, of course, is having 52% of the royalty returns available for use rather than going to the U.S. Treasury. (It is possible under some condi-

tions for the profits to be "brought back" into the United States by having the tax haven corporation conduct operations in the United States as a foreign corporation.) Even if the funds accumulated abroad are not "used" it may be desirable to permit them to remain outside the United States until a more favorable tax situation develops. For example, a favorable situation will arise when the foreign operating subsidiary pays taxes on operating income to the government of that country and remits dividend payments to the parent by using royalty income which it has received as a result of licensing operations in third countries. For example, if the operating subsidiary in Switzerland earned \$200,000 before foreign taxes and received an additional \$50,000 from royalties (free of income taxes in that country), it could pay the \$50,000 as dividends. (Under U.S. tax laws, this \$50,000 is considered as a share of all income received by the corporation during the taxable year and not merely as a dividend arising from royalties; it therefore is counted as taxed abroad as *all* income of the subsidiary is taxed.) If the tax rate abroad were 20% on operating income, the subsidiary would have paid \$40,000 to the foreign government. The U.S. tax credit is the percentage of the foreign tax to *total* income of the foreign subsidiary times the dividend paid to the U.S. parent—that is, \$40,000 divided by \$250,000 times \$50,000; or, 16% of \$50,000, which is \$8,000. If the royalties had been received directly by the U.S. parent, the tax would have been 52% of \$50,000, or \$26,000, leaving \$24,000 net; channeling the funds through the operating subsidiary in Switzerland leaves \$32,000 since a credit of \$8,000 is obtained. But, an even more favorable situation obtains if the royalty income is held and paid out as dividends to the U.S. parent only in years when operating (or royalty) income of the Swiss subsidiary are low. Suppose, for example, that the Swiss subsidiary receives *no* royalties the following year; it then has operating income of the same amount (\$200,000) and pays the same taxes to the Swiss Government. Then it distributes the \$50,000 royalties received *last* year to the U.S. parent as a dividend. The U.S. parent can claim a credit of the percentage that the foreign tax is of total income earned by the Swiss subsidiary, which in that year was 20%. The 20% applied to the \$50,000 raises the credit to \$10,000, leaving a net after U.S. taxes of \$34,000. The maximum benefit under these conditions occurs when the foreign tax is 26%.

This illustration shows how the use of a subsidiary extends to royalty income a higher tax credit since it is merged with income from non-parent activities which usually sustain higher rates of foreign taxation than royalty returns alone. An additional advantage, if the royalties are to be repatriated at all, arises from the fact that, while incomes from different countries may not be aggregated if received by the U.S. parent directly, they may be if sent through a single holding company subsidiary abroad which receives more than 50% of its income from its own operations. They then can be aggregated as that income of the holding company. And, if this company is in a profit sanctuary country, the benefits are multiplied. Also, to get the full benefit of the tax credit, the parent may be able to control the return of profits by the subsidiary so as to receive them at a time when the parent has profits. If the parent receives the dividends when it has

an *over-all* loss position, the foreign tax credit is denied, since it is applicable only on *net* income.

There are usually several advantageous outlets for the use of accumulated earnings; (1) in the expansion of investment of foreign manufacturing or assembling plants, (2) in the establishment of new companies for the same purposes, or (3) in lending to other subsidiaries or affiliated firms. These presuppose that the parent company had additional subsidiaries abroad which are operating companies, or that it is interested in establishing such companies, or that it is interested in acquiring minority interests in third firms. While there are still some severe obstacles to the expansion of U.S. private foreign investment, the practice is growing rapidly; also, many firms consider that funds earned abroad are appropriately re-invested abroad even in somewhat "risky" enterprises which they would not support with U.S. dollars earned at home. While it should be readily seen by the entrepreneurs that U.S. dollars are still U.S. dollars no matter where earned, there is a propensity to discount those earned abroad, especially through licensing or investment. Where a firm is already embarking on a widespread program of foreign expansion, a tax haven corporation could provide additional funds and even an additional inducement through the setting-aside of "foreign earned" dollars.

So long as there are currency restrictions in some countries discriminating against payments in U.S. dollars, the tax-haven subsidiary offers still another advantage. It would be feasible for the licensor to request payment in foreign currency—rather than dollars—which he can use for investment either in the country remitting the royalties or in third countries. Such a provision might induce the authorities in the licensee's country to permit a higher royalty rate, thus increasing the income of the licensor. While there are still a large number of U.S. licensors and investors who have a high propensity for requiring payment in dollars, this desire may prove irrational and costly if non-dollar payments would lead to greater returns and larger investments abroad.

One drawback might arise concerning the return of interest or principal on the non-dollar funds invested in third countries. For example, if the royalties remitted to the tax-haven of the U.S. licensor were Brazilian cruzeiros and these were invested in Argentina, Argentina would probably not permit dollars to be remitted to the U.S. subsidiary as returns on the investment came in. And, there would eventually be the problem of converting these funds into dollars if they were to be repatriated. But, the purpose of establishing the tax haven was to gain advantages from situations under which funds did not need to be repatriated, and it may be highly profitable to "traffic" in currencies which are under different sets of restrictions. Finally, there are evidences of a growing relaxation of currency restrictions, and a wary parent could guide its subsidiary to invest the funds where restrictions were least.

In addition to the above advantages in the use of earnings from foreign operations, the profits sanctuary corporation provides means of retaining income from foreign sales without U.S. taxation. The sanctuary subsidiary can be made the

agent for the parent's sales abroad, retaining the commission without paying U.S. taxes, or it can purchase the parent's products for re-sale abroad. In the latter case, the sale to the subsidiary must be "at arm's length"—that is, it must not be at or below cost—for the parent must earn something like 5 or 10% else the U.S. Treasury will impute such a return to it for tax purposes or may even require the entire profit to be brought back as a penalty for attempted tax evasion. Even arm's length dealing will permit the sanctuary subsidiary to earn a respectable profit for the services it renders in distribution, advertising, servicing, etc. These earnings may be added to those from licensing and direct investment to increase the parent's program of expansion abroad.

One important qualification should be noted in the use of the tax-haven corporation: it is not available to small, family-owned corporations which have only five or less shareholders. Any foreign holding company which is owned by five or less persons, either directly or indirectly through a U.S. corporation, is declared a "Foreign Personal Holding Corporation" unless it receives more than 50% of its income from direct production and sales. This qualification does not affect most of the companies likely to be engaged in licensing, but it must be taken into account for a Foreign Personal Holding Corporation's income if imputed back to its owners for purposes of U.S. taxation.

Presuming that the U.S. corporation qualifies as one which can establish a foreign sanctuary and which can benefit therefrom in supporting its foreign expansion, there remains the question of which country to incorporate within. The major problems surround the political and legislative situation and the economic and commercial location of the country. One authority, Joseph S. Cardinale, has found Panama to be one of the most popular countries.<sup>8</sup> Its popularity stems from a variety of situations which make the operation of tax-haven companies easy and secure. These conditions include—

- 1) A free exchange system, which permits remittances anywhere in any amount.
- 2) A stable currency, with the same value as the U.S. dollar.
- 3) A stable economy, soundly based upon the Panama Canal.
- 4) Relative political stability (including only infrequent "palace revolts").
- 5) Security of its economic and political life, ensured by the necessity of the United States protecting the Canal.
- 6) A location which is athwart main lines of transportation both North-South and East-West and still near the United States; excellent transportation by air and sea, and the existence of free zones which enable light assembly or packaging without duty.
- 7) Good banking facilities provided by branches of U.S. banks.
- 8) No taxation of income from foreign sources and no restrictions on the amount of profits which may be left undistributed.
- 9) A corporation law similar to that of Delaware, permitting maintenance of

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<sup>8</sup>"The Profits Sanctuary Corporation," *Export Trade and Shipper*, May 21, 1956.

records and holding of meetings in foreign countries; also, no limitations on foreign stock ownership nor on nationality of officers and directors, and stock may be nominative or bearer in form; offices may be maintained in any foreign country and be subject to tax only in that country; only a statutory representative is required in Panama; and finally, incorporation is easy and quick at low cost.

Advantages of such a sanctuary corporation are being more closely examined by U.S. corporations contemplating or engaged in widespread foreign operations, since it permits the fullest possible use of foreign income and places the U.S. parent at no disadvantage if and when it wishes to repatriate the earnings. Those companies which have decided to separate responsibility for international from that for domestic operations have already established an administrative set-up which can be readily moved into a foreign incorporated company. It is not even always the case that facilities must be maintained in the profit sanctuary country itself, though an office there is considered desirable by some company officials. But they add substance to the operation, tending to avoid the possibility of the U.S. Treasury "looking through" a paper-type corporation.

Several U.S. companies have transferred all foreign licensing operations to such sanctuary subsidiaries. In one instance, the subsidiary bought the foreign patents of the parent, on which the parent paid a capital gains tax. The licensing subsidiary extends rights to patents and know-how to any foreign participants, including foreign manufacturing subsidiaries of the parent. In another instance, the Internal Revenue Service permitted a tax-free transfer of the right to make and service *new* licensing agreements to a new subsidiary abroad in exchange for the stock of the subsidiary. Extension of technical assistance serves an important part of the subsidiary's operations, in the eyes of the Internal Revenue Service, to demonstrate actual operations by the subsidiary.

#### D. WESTERN HEMISPHERE TRADE CORPORATION

In the event that it is not considered feasible to establish a foreign corporation, possibly because of the undesirability of transferring assets such as patents and trademarks which might be licensed abroad, it is still possible to effect a considerable tax saving through the establishment of a domestic subsidiary to carry out international operations. Under certain conditions, such a subsidiary can qualify under Section 109 of the Internal Revenue Code as a Western Hemisphere Trade Corporation and be granted a maximum tax rate of 38%. Section 109 states the following:

For the purpose of this chapter, the term "western hemisphere trade corporation" means a domestic corporation all of whose business is done in any country or countries in North Central or South America, or in the West Indies, or in Newfoundland and which satisfies the following conditions:

(a) If 95 per centum or more of the gross income of such domestic corporation for the three-year period immediately preceding the close of the taxable year (or for such part of such period during which the corporation was in existence) was derived from sources other than sources within the United States; and

(b) If 90 per centum or more of its gross income for such period or such part thereof was derived from the active conduct of a trade or business.



The tax advantages accruing to the WHTC are considerable, for they include complete exemption from the Excess Profits Tax, a 27% credit against both normal and surtax, and a foreign tax credit on taxes it pays to a foreign government. In addition, the parent company is permitted a credit of 85% of the amount of dividends received from the WHTC and a deduction of \$25,000 for each WHTC before assessment of the surtax.

The use of a WHTC with respect to licensing abroad is strictly limited however by the requirement in part (b) of Section 109. Income in the form of royalties under licensing agreements (or dividends from direct investments) is not considered as income derived from the "active conduct of a business." Such activities cannot, therefore, provide more than 10% of the income of the WHTC. This qualification is so stringent that one authority has concluded that "it would be advisable for a Western Hemisphere Trade Corporation not to be a party to a licensing arrangement or the recipient of dividends."<sup>9</sup> The idea underlying this conclusion is that the income from licensing is likely to be more than 10% and thus disqualify the subsidiary from the tax benefits sought. This may be the case, but it then becomes desirable to examine whether the law might be amended to permit larger receipts from licensing if it is found that such activities should be encouraged.

The activities originally intended to be encouraged were those of branch operations in Western Hemisphere countries engaged in mining and manufacturing. These enterprises were at a competitive disadvantage with foreign corporations because of the stringent tax laws of the United States, and Congress sought to reduce this differential. It may find that licensing and investment are also discriminated against because of U.S. tax legislation and that the WHTC would be an appropriate vehicle by which to remedy the situation. It is conceivable that the concept be extended into a World Trade Corporation for the same purpose.

Until further study can be made of the appropriateness of the technique, it should be noted that one authority has suggested ways of combining licensing procedures with services and equity participation in foreign enterprise so as to benefit from the WHTC status.<sup>10</sup> The possibility of using tax incentives to encourage foreign licensing—independent of or in conjunction with direct investment or equity participation—requires still further study.

## VI. PROFITABILITY AND INCENTIVES

A major motive, if not *the* motive, for foreign licensing is profit. Without a fair estimation of profitability, the entrance of a company into licensing is a complete "shot in the dark." To determine whether it would be more profitable for a firm to enter licensing arrangements than to sell abroad directly, or to invest

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<sup>9</sup>Joseph S. Cardinale, "The Western Hemisphere Trade Corporation," *Export Trade and Shipper*, June 9, 1952.

<sup>10</sup>Although very few employ such procedures, it may be found advisable to permit an extension of WHTC activities to cover licensing more readily.

abroad, there must be adequate or accurate accounting of costs and returns. Once profitability is determined, there are other incentives which may make the licensor more venturesome, and there are some obstacles which may deter him. We have examined the nature and effect of many of these incentives and obstacles in the March 1958 issue of the *Journal*; here we record the reactions of our respondents to the profitability of licensing and its relation to investment abroad.

#### A. PROFITABILITY AND COST OF LICENSING

About 90% of our respondent companies counted licensing as directly profitable; that is, returns were larger than estimated costs. This view was held despite the fact that most of these firms do not calculate costs. The lack of cost calculations was a result of the fact that royalty returns are usually a small *percentage* of total net income—though for many companies aggregate royalties run to six digits and for a few, to seven. Recent information indicates that the value of royalties returned to the United States annually is in the order of \$150 million—*exclusive* of royalties left abroad (received in local currency and spent or invested), royalties coupled with dividends, and returns under cross-licenses.

Nearly 80% of the firms responding to the question on gross income (question C-7)—about half of those filling in the questionnaire did answer this question—stated that their gross income from licensing was less than 2% of their total income, and many of these counted the percentage as less than one. This was the case for both years 1946 and 1955. About 10% of those answering indicated a percentage of licensing income to total gross income in the range of 3 to 5% during 1946, *rising* to between 5 and 8% in 1955. Another tenth of the respondents showed a *rise* in the percentage from the 0 to 2% range in 1946 to the 3 to 5% range during 1955. Only one company reported a decline from the 3 to 5% range to the 0 to 2% range. Thus, licensing is showing greater activity, and as licensees gain standing in their foreign markets, their sales are picking up. Licensing, like investment, is a long-run operation.

Eighty per cent of the companies replying reported royalty returns greater than costs (however calculated). In addition to the direct returns of royalties, one out of every three companies counted an increase in export sales of complementary items or component parts as an indirect return to licensing. This non-royalty return was the entire basis for the statement of 10% of the respondents that their licensing was profitable; they received no royalties at all, having licensed their subsidiaries under contracts but *without* royalty payments. Of course, an increase in dividends also resulted, but no allocation to licensing was made. A final 10% of the companies answering asserted that licensing was not profitable directly to them. One gave no reason for the statement; others asserted that they were still too new in the operation and had not received royalties, though profitable returns were anticipated. One indicated that no royalties were obtained at all from its licenses, since it had only cross-licenses and the benefit came in the form of an exchange of information. A final company pointed out that it was under a consent decree which took all of the profitability out of its licensing programs.

By far the majority of firms interviewed or questioned treat gross licensing returns as *net* income. They agree that the costs of research and development, of patenting abroad, of registering trademarks abroad, and of the engineering and legal departments should be allocated to licensing; but they actually do not do so. A partial justification for this procedure is that these costs would be incurred in any event to support the domestic and foreign sales of the company. Another is that it would be too time-consuming and somewhat arbitrary to make the required allocations. This being so, they count licensing as essentially "costless."

The second largest group of companies responding charges only the "out-of-pocket" costs of direct administrative and technical services connected with negotiating and fulfilling the agreement. The remainder of the royalty returns are considered as a net addition to total profits.

A third group, far in the minority, attempts to allocate the proportionate costs of the engineering and legal departments, of patent costs (including translation, attorney's fees, government expenses, renewal taxes, etc.), and of research and development. To these charges are added the direct costs of technical services, laboratory expenses, blueprints, etc., and the administrative costs of negotiation and fulfillment of the agreement. Where a department of foreign operations (or an international division) exists, a proportionate share of its costs are allocated to licensing.

The precise formulae for allocation of such expenses were not divulged, but it is generally agreed that the procedures are almost wholly arbitrary. One company, after taking pains to allocate expenses carefully among its various overseas operations, decided that the cost of making such calculations was much greater than the benefit from the supposed knowledge obtained, especially when they themselves recognized the arbitrariness of the allocation. They ceased to make the effort because the "netted" figure did not really reflect the profitability of the foreign licensing program.

Almost all of the respondents were satisfied with the procedure for accounting profitability that they used—whether it was to consider all licensing income as net, or not. Only 12 respondents stated that they *should* change their procedure. Of these, two stated unqualifiedly that all costs involved should be charged against royalties. The remainder asserted that they would attempt to do so only if foreign royalties became more important in the income picture. And a few of the latter questioned whether the results obtained would be useful in view of the time consumed and the arbitrariness of the results.

In sum, we may conclude that the majority of companies find licensing directly profitable as indicated by returns greater than "costs" (calculated or not calculated). A few consider the operation unprofitable, despite the fact that they have returns greater than "costs," presumably on the grounds that the *net* returns would be zero or negative if all appropriate costs were charged against royalties. Others, though they estimate costs greater than returns, still consider licensing profitable as a result of an increase in direct exports; this is particularly true of an operation which licenses subsidiaries under contract. And, finally, many com-

panies do not know whether their operation is profitable but would not change their accounting procedures because it would be too time-consuming to do so.

#### B. MOTIVES AND INCENTIVES TO LICENSE ABROAD

To determine why U.S. companies had moved into licensing, we asked them to rank a list of alternative reasons and add others they had found significant. The questionnaire list included: royalty returns, increase profits from subsidiaries, cross-licensing, expectation of future licensing from abroad, attempt to meet currency and trade restrictions by foreign governments, and attempt to aid economic development abroad.<sup>1</sup>

As would be expected, more than 80% of the firms listed as important in *some* rank the possibility of *royalty returns*. Over 50% placed this motive first, and many considered this their only incentive. But for about one-fourth of the firms responding, direct royalty returns were a second-rank motive; it was a third or fourth rank motive for less than 10%. Those companies not indicating royalties as a motive at all were either licensing only subsidiaries, and thus counted *an increase in subsidiaries' profits* as a prime motive, or they licensed only under *cross-licensing* arrangements and listed this first. Thus, more than 20% of the respondents gave *subsidiary profits* as the primary incentive and just over 10% listed *cross-licensing* first. Nearly one-third of the companies ranked *subsidiary profits* first, second, or third, and about one-fifth gave *cross-licensing* either first, second, or third place.

Apart from the possibility of direct returns to the company through royalties, profits of subsidiaries, or rights granted under cross-licenses, the major incentive to license abroad since World War II has been a negative one. *Currency and trade restrictions* of foreign governments have made other means of doing business abroad relatively less attractive. Nearly 60% of the respondents said this situation was an incentive in their licensing program, and more than 40% indicated it was of first importance. (The number of first-rank votes for the various incentives will add to greater than 100% since a few respondents merely checked the factors leaving us to count them of equal rank, while others indicated that two factors were of first-place and equal rank.)

The fifth-ranking motive was *assisting in the economic development of foreign countries*. Despite the derisive laughs of one or two respondents who seemed to think that such motives were "un-American," more than 20% of the respondents indicated that a sincere desire to "help others help themselves" was an incentive of some degree in their licensing programs. One-tenth of the respondents to the mailed questionnaire indicated that this motive was first for their company, and another tenth placed it in second or third position, with a few companies placing it fifth or sixth. The extent to which this motive is important in the over-all foreign economic policy of the United States has been suggested in a previous report.<sup>2</sup>

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<sup>1</sup>See question A-7, PTCJRE, I, No. 2 (December, 1957), pp. 240.

<sup>2</sup>PTCJRE, II, No. 1 (March, 1958), pp. 137-158.

The last-ranked motive among those listed in the questionnaire was using licensing to *open up opportunities* for obtaining licenses from abroad. Only 15% indicated this was a factor in their decision, and less than 10% ranked it first. In the experience of most firms, there is little that foreign companies have to provide American companies in the way of patents, trademarks, or even know-how—at least through a separate licensing agreement. The most valuable returns apparently came through cross-licenses though there are a significant number of separate agreements under which the U.S. company is a licensee. We have not studied this side of the problem; however, it should be part of any future study.

The questionnaire did not exhaust the motives of business firms in embarking on licensing programs abroad. Respondents added nearly a dozen of their own, which were sometimes placed first, second, or third.

We have examined these incentives in a more general discussion in the March issue of the *Journal*. Of special interest, however, is the relation of licensing to direct investment. Some respondents have preferred licensing to investment and others vice versa. Even some foreign governments, such as Brazil and Japan, have at times preferred licensing to investment and/or have strictly controlled both. A group of Brazilian manufacturers recently asserted that they would prefer to see an expansion of licensing over U.S. direct investment because the shipment of U.S. machinery would (1) alter the competitive position if others in the industry could not obtain the same equipment, and (2) lead to overproduction in the industry.

A large number of companies are, reportedly, coupling investment with licensing—or licensing with investment. We asked question C-2 to find the extent to which U.S. licensors are financially related to their licensees and the reasons for any policy position taken. Nearly two-thirds of the respondents reported a financial interest in their licensees. The actual percentage may be greater since some respondents replied that they had no financial interest in licensees but answered in the same question that they licensed subsidiaries. They, therefore, made a distinction between licensing a subsidiary (probably wholly-owned or at least controlled) and investing in an “independent” licensee.

To check on the extent to which subsidiaries were licensed, we asked each of those having subsidiaries to state whether they were licensed and why. Eighty per cent of the respondents to the mailed questionnaire reported that they had foreign subsidiaries. Of these, exactly two-thirds *did* license the subsidiary while the remaining third did not. The reasons for *not* licensing the subsidiary were that the foreign company was wholly owned, and it was thus not necessary, or that licensing was not required in order to assure a return of profits. One of the major reasons for licensing the subsidiary stemmed from the desirability of recording a basis for royalty payments so as to increase returns from the subsidiary; this was a reason in about 15% of the cases where subsidiaries were licensed. The reason given most frequently (in 30% of the cases) was that licensing made for legal preciseness; it gave control over the name, patents, trademarks, and techniques in the event of nationalization, sale of an interest, or even local infringe-

ment. This reason was stated to be even more important when the subsidiary was not wholly-owned, but it was important for many even when it was a trademark that was licensed. Additional reasons given were that licensing permitted the subsidiary to sub-license abroad, that licensing reduced the tax burden for the subsidiary, and that sometimes exchange control regulations required or induced licensing of a subsidiary; in the last instance, the authorities have sometimes become convinced that the royalties are a necessary *expense* which warrant more ready remission. In addition, where profits of the subsidiary are high, it may be desirable to "reduce" them by royalty payments to the parent. This action increases the "expenses" of the subsidiary and cuts taxable income; it also reduces profits as seen by potential competitors, thus tending to cut unwanted competition.

In order to determine the pattern of financial relationships, we requested respondents to indicate the number of licensees which were wholly owned subsidiaries, partially owned subsidiaries, subsidiaries in which they held a controlling interest, and licensees in which they held no financial interest. Rather than give the numbers involved, several respondents merely indicated that the ratio of wholly owned to non-wholly owned was 15:1, 2:1, or 1:10. The statistical picture of those replying quantitatively is as follows:

NUMBER OF LICENSEES	WHOLLY OWNED	PARTIALLY OWNED	CONTROLLING INTEREST	NO FINANCIAL INTEREST
0	25	32	28	7
1-5	31	25	26	15
6-10	4	2	7	13
11-15	2	---	1	7
16-20	1	1	1	5
21-50	---	---	---	1
100/Over	---	---	---	2

As indicated above, a major reason why many subsidiaries were not licensed was the fact that they were wholly owned; the above table indicates that 25 companies reported that they had wholly owned subsidiaries which they did not license; in comparison, 38 companies reported licensees (totaling over 100) which were wholly owned subsidiaries. Thirty-two (not necessarily different) companies reported that they had partially owned subsidiaries which they did not license; 28 reported that they had a controlling interest in subsidiaries which were not licensed. And only seven stated that they had no licensees in which they had no financial interest at all.

The three "investment with licensing" relationships were overwhelmed by that of "pure" licensing. Forty-five companies reported 1 to 5 licensees in which no financial interest was involved; 13 reported 6 to 10, etc., up to a total of 76 com-

panies reporting well over 600 licensees in which they had no financial interest. This compares with just over 200 licensees in which these (and other) licensors had some financial interest.

In order to find the reasons behind the decisions to invest or not to invest in licensees, we asked whether the relationship was a result of an over-all policy position or accidental and *ad hoc*. Those companies which had both types of arrangements (investment and independent licensees) usually did not reply to the question. About 20 firms stated that they had made a definite decision to license only where they had an investment, but five which licensed only when they held an equity interest indicated that no overt decision had been made. The major reasons given by those who had made such a decision was that they desired (1) the added control (especially where know-how was licensed) and (2) the commercial interest (returns) available through investment. Only a few indicated that they had adopted a policy of gradual investment from licensing an independent firm to finally purchasing controlling interest in the licensee. Some stated that they generally licensed only subsidiaries but had no *policy* against investing in independent licensees; it was just that capital was already so scarce that all available funds were needed for expansion of the company's own production. Others reported, however, that they had a strong bias toward investing in licensees and that where they held no financial interest it was because it was impossible to buy into the licensee.

While it might seem odd that companies would license subsidiaries or invest in licensees without taking an overt policy decision, this was the situation with two-thirds of those who stated that they had no financial interest in their licensees. Only one-third of those having no financial interest in licensees stated that it was the result of a definite policy decision by their executives. The others had apparently not given the matter sufficient thought, or had just drifted into the easiest practice at the behest of licensees.

Among the reasons given by those who had given the matter consideration sufficient to have taken a policy decision, the main factors were that the licensees were all established manufacturers who did not require and would look askance at contributions of capital from the licensor or that the desired returns could be gained without investing. Variations of these two positions were reflected in the assertions that "it would be like the tail wagging the dog since all have ample capital"; that "we have not had to invest, so why do so"; that "there has been no occasion to invest"; or that "we have tried to avoid investing because greater returns can be gained at home." One respondent merely asserted that the company had adopted a policy of not expanding abroad, without giving a reason; (this company had 20 independent licensees). Another reason, given without explanation, was that the company believed the licensee does a better job if he has control of the foreign firm himself. Finally, one licensor, having only *one* financially related licensee out of 12, asserted that they make licensing agreements with independent firms only when the financial interest might be endangered by local conditions; in other words, the company had apparently taken a decision to invest yet had found only one in 12 to be a "safe" situation.

Without knowing the periods in which the financial interests developed and whether those with financial interests grew out of prior licensing arrangements, we cannot conclude from the above that licensing is a precursor to investment or that licensing with investment is growing. We must wait on more extensive and intensive investigation. But the close tie between the two is demonstrated by the fact (see above tabular data) that 50-odd companies had more than 100 financially related (*non-wholly* owned) licensees.

#### C. OBSTACLES TO LICENSING OF PATENT RIGHTS AND KNOW-HOW

So far we have examined the various *advantages* of licensing abroad—those which are independent of any other technique for operating abroad and those which arise in comparison with exports and direct investment. There are also some *obstacles* to licensing which arise apart from any *comparison* with other methods of doing foreign business. In order to obtain the experience of U.S. companies, we asked whether they had refused any requests for licenses and why. Nearly half of the respondents indicated that they had never refused an applicant. Such an experience resulted either from a policy of “open” licensing or from a small number of requests from desirable licensees.

There is not a clear dominance of one reason over others of why licenses were refused. “Inadequacy of the foreign market,” “general economic conditions abroad,” “political instability abroad,” and “reputability of applicant company” were each considered of the same importance. However, “inadequate market” was the factor placed first by nearly 20% of the respondents; “political instability,” “reputability of the applicant,” and “incompetency of foreign executives” were each placed first by about 10% of the respondents. The preponderance of second-place ranking went to the factors of “an inadequate market” and “general economic conditions.” Only about 15% of the companies replying listed disagreement over terms of the license as being important in a negative decision; most seemed able to iron out negotiating differences. However, a few could not convince foreign governmental agencies of the desirability of provisions the parties had agreed upon, so lack of approval became the deciding obstacle. Less than 3% of the respondents listed as obstacles at all the taxation of royalties by the United States or a foreign government, the risk of antitrust violation, or the fact that costs appeared greater than anticipated returns.

The following reasons for denying applicants were added by a few firms:

- a) a lack of technicians abroad,
- b) prior commitments not to set up competing licensees,
- c) extreme care by licensor to control quality and maintain reputation of the product,
- d) existence of a conflicting trademark situation,
- e) U. S. military classification preventing disclosure,
- f) choice of the best prepared license, thereby denying the less able or the poorly equipped,



- g) affiliation of the applicant with a U.S. competitor, and
- h) unwillingness to set up competition in a market already served or to be exploited later.

## VII. THE LICENSE CONTRACT

The profitability of any licensing arrangement depends significantly on the terms of the agreement. The licensee requires some guarantees, and the licensor wants some assurances and protection. The promises of each form the license contract. Some U.S. licensors have stated that no contract is worth more than the mutual respect and confidence underlying it and that, given good faith, there is little need for a written contract. Such a statement is admittedly an over-simplification. The reasoning behind it is that the licensee will respect the license so long as the rights or information are useful to him—whether or not the contract is written. Mutual benefit and good faith are the *sine qua non* of successful licensing. Although some few licenses *have* been verbal and some have been arranged more or less informally in letters, almost all of those contracted today are written. The death of officials who negotiated long-standing agreements, the transfer of officials to other companies, or mere misunderstandings as to what *was* agreed upon—each is a reason for having a written contract.

The growing importance of licensing operations has caused several firms with long-standing contracts to re-negotiate them along the pattern of more recent agreements. About half of the companies queried in our investigations had succeeded in establishing a more or less standardized form for their license contracts, which is altered as little as possible for each licensee. A few companies are able, because of very large licensing programs and a policy of extending licenses readily to all applicants, to print contract forms into which are written appropriate names, rights transferred, and applicable payment terms with each individual licensee.

The advantage of a standardized form does not rest wholly in the simplification of negotiations. The potential licensee is assured that he is being treated in the same fashion as all other licensees; non-discrimination may be important in the eyes of the licensee. This equality of treatment may be important also in helping the licensor to bargain more effectively when the applicant-licensee desires certain provisions that the licensor does not wish to grant—e.g., exclusivity—he may then argue that he cannot break his *pattern* of non-exclusivity and treat one licensee more favorably than all others. Contrarily, of course, a printed form reduces the flexibility of negotiations. “Tailoring” of the contract by making concessions to a particular situation is more difficult, though it can still be done to some extent through varying the royalty rates. Some licensors, however, have standard rates also. In some companies’ experience, “tailoring” is more important than the advantages of standardization. This can be decided only on a case-by-case basis.

## A. CONTRACT PROVISIONS

Regardless of whether the contract is oral or written, or standardized or "tailored," there are certain provisions which must be considered for inclusion. Not all of them are always included in a given contract, and the contract phrasing may be quite loose. There may be some advantages in demonstrating personal trust through loose phrasing and omission of issues, but most officials feel it wise to cover the possible contingencies well. In fact, some provisions of license contracts—e.g., that prohibiting the use of unpatented know-how after termination of the agreement—attempt to cover situations in which there is little possibility of enforcement or redress.

Provisions and wording of the contract are affected by the fact that business ethics and attitudes are different in the foreign countries. What appears to be merely a necessary safeguard to the licensor will sometimes appear to the licensee as an insult to his honesty. Contrarily, what the licensor considers as "prohibited without saying" will sometimes be just what the licensee considers it all right to do since the action was not specifically interdicted. Where Western standards of business ethics have not yet taken hold, precisely written contracts reduce future friction.

From our study of the operations of U. S. enterprises, we have found the following provisions predominant in licensing agreements.

*Preamble*

1. The parties to the agreement are named.
2. The "Whereas" clauses set forth the premises upon which the agreement is based.
3. The mutual promises of the parties are recorded as the consideration.
4. A certification of title to the rights is sometimes provided.
5. Definitions are given covering the territories involved and the various terms used, such as "product," "net sales," etc.

*Undertakings*

1. Commercial
  - a. Subject matter of the transfer: the particular rights, identified by number when patented, distinguished from other possible assets or rights of the licensor and rights to the use of the licensors' trademark or trade name.
  - b. Type of product concerned and the product market to be served: clarification of the subject of the transfer by stating the use to which it is supposed to be put by the licensee; avoidance of confusion by stating the end-use, if similar terminology is used in a different field.
  - c. Right of the licensor to change his own line of products or discontinue use of a licensed process.

- d. Extension of either exclusive or non-exclusive rights as to manufacture, use, or sale of the items involved; specification of whether licensor may sell in the territory of the licensee.
  - e. Method of sharing or controlling advertising layout, merchandising techniques, or selling expenses; specification of whether licensee required to spend a minimum sum initially, or a percentage of sales, in sales efforts.
  - f. Rights as to the acquisition of competitive patents.
  - g. Licensor's responsibility or assistance in supplying component parts.
  - h. Right of the licensor to purchase a certain percentage, if any, of the licensee's output for sale in third markets. (Such a provision may enable the licensor to keep a market in a non-dollar area and a considerable profit for himself.)
  - i. Responsibility of the licensor to train foreign technicians, to permit plant visits, and to send technicians, managers, or advisers abroad.
2. Improvements and Future Developments
- a. Licensee's rights to relevant information and the procedure for communication of improvements and new developments. (While it is important for the licensee to obtain all necessary information, his lack of knowledge of what to ask for may sometimes involve transmittal of useless information. Thus, provision is usually made for the licensor to determine the information appropriate for the licensee's operations, and to control the timing and manner of its communication.)
  - b. Amount of additional assistance in the form of engineering, preparation of blueprints, designs, etc., and any compensation for such assistance.
  - c. Method of acquisition of improvements and developments if not freely given.
  - d. Rights, if any, of the licensee to obtain use of future patents of the licensor.
3. Royalties and Returns
- a. Type of return required: a royalty rate and/or various types of fixed payments including an initial payment (see the following section on compensation).
  - b. Base for calculation of the payments: e.g., a percentage based on value of sales or royalties per unit of production or per unit of input.
  - c. Parties liability for payment of local taxes.
  - d. Payment of returns in the form of equity shares, or accumulation of payments for use in purchasing stocks of the licensee according to a formula (or basis) for setting the price of the shares—usually book value or some lesser value taking into account the contribution of the licensor to the increased value of the shares.

- e. Periods for payments, e.g., at quarters of a year.
- f. Requirements as to the keeping of books and records and permission to hold an independent audit.
- g. Responsibility of the licensee to return to the licensor any improvements in the product or process. (Frequently this is done royalty-free and thus constitutes a part of the reward expected by the licensor. When the improvement constitutes nearly an entirely new development, it may be licensed only upon compensation.)
- h. Responsibility of the licensee to continue to remit payments under the license, even after termination. (Such a "momentum clause" guards against the licensor losing royalties on sales from inventory or the fulfillment of contracts after the agreement is terminated.)
- i. Negotiation of the profit rate on any sales of components to the licensee. (Sales may be at "arm's length" or at a set mark-up which is arbitrarily low to increase the competitive posture of the licensee.)
- j. Method of translating the foreign values into the currency of the licensee when royalties are a percentage of foreign sales: e.g., the exchange rate existing on the day of the transfer, an average of rates over the period, or some more definite rate. Also procedure to be adopted when currency restrictions temporarily prevent transfer or make it unattractive.

### *Protection*

- 1. Requirement that the licensee not disclose the know-how to any but authorized persons. (The anti-disclosure clause is aimed also at preventing subordinates from illegally transmitting the skills learned, and attempts may be made to prevent them from taking it with them to other employments.)
- 2. The maintenance of the patents and/or trademarks by licensor or licensee or both.
- 3. Provision for proper marking of items licensed under trademarks or manufacturing patent, pursuant to local laws, so as to assure protection of licensor's rights.
- 4. Prosecution of infringers by either, or a sharing of the responsibility. (If the licensee is to be responsible, the licensor may permit his name to be used.)
- 5. Responsibility for defending the patents or trademark against infringement suits.
- 6. Right of the licensor to inspect the licensee's plant, observe production, take samples, etc.
- 7. Requirement on consultation with, and sometimes approval of, licensor whenever the licensee intends to make a change in model, design, specifications, etc.
- 8. Rights to sublicense. (The licensor may retain close control over sublicensing by requiring prior approval or even reserving the right to himself.)
- 9. Provision that the licensee shall request protection from his government

against foreign imports. (Such an agreement, though legal in the foreign country, may be construed under antitrust as a restraining of trade of U.S. competitors of the licensor.)

10. Requirement that the licensee obtain approval from the foreign government for the execution of the contract and that he comply with all local legislation.
11. An "escape" clause to permit the re-negotiation of the contract if its provisions are later found to contravene the laws of either government.

### *Termination*

1. Specification of the period over which the contract is to endure. (A stated period gives the parties a chance to re-examine the relationship within a given time. An automatic renewal clause will help maintain what might become a very profitable relationship.)
2. Right of the licensor to terminate the contract upon abandoning the patent or withdrawing the trademark; in the event of abandonment of the patent, the rights of the licensee to maintain it.
3. Provision that the contract will remain in force even if the patent covered is declared invalid. (This will protect the disclosure of any trade secrets or know-how to the licensee.)
4. Conditions under which cancellation (and/or re-negotiation) is permitted:
  - a. Changes in the competitive or technological situations, or in ownership of the licensed company or of key personnel of the licensee, which may make the license terms unsuitable to either party. (In order to meet changing conditions, waivers of provisions may be permitted; waivers may not void the contract, however, but merely provide the right to change it.)
  - b. A declining market for the licensed product which may reduce payments to such a level that it is no longer worth maintaining the contract; provision for termination if total income falls below a specified level after a certain period of years.
  - c. A finding that the licensee has not used his "best efforts" to expand use of the rights in production. A "best efforts" clause is to prevent the licensee from "sitting on" the rights transferred; the generality of such a clause would lead to litigation if it were made the basis of termination. It is much more specific to provide for minimum annual sales or royalties; they become a more readily provable cause for termination. The absence of best efforts may be evidenced also by action of the licensee to spread his activities too thin. Protection can be obtained by the licensor reserving the right to examine each new activity of the licensee, with the right to cancel being provided if the licensor finds that his interest is being diminished.
  - d. Inability to remit royalties. (Such a provision puts the foreign government on guard about renegeing on its promise to let the currency be transferred.)

- e. Insolvency or bankruptcy of the licensee or his entrance into a creditor's agreement.
5. Provision for advance notice and the method of notification in the event of cancellation.
6. The rights each party retains after cancellation or termination. (Though enforcement may be difficult in individual cases, well-defined privileges will clear the air.)

### General

1. Provision for the governing law (usually that of the country of the licensor).
2. Means of settlement of disputes between parties, e.g., arbitration, as under the rules of the American Arbitration Association, or those of the International Chamber of Commerce, or the Inter-American Commercial Arbitration Commission.
3. Permission of the licensee to assign the contract (usually requires the consent of the licensor).
4. Acknowledgment that the contract is the sole agreement between the parties covering the transfer of the specified rights.
5. Time and method of execution of the contract.

Important considerations are involved in most of these provisions for much may be at stake. Legal counsel should be consulted so as to decrease the risks involved. Although the result of licensing is more dependent upon who is chosen as a licensee, the contract provisions are themselves important.

### B. PURPOSE AND USE OF MAJOR PROVISIONS

The observations in this section are drawn from our interviews and questionnaires. So as not to impose on the hospitality of our respondents, we did not attempt to obtain a complete and detailed picture of their contracts. Rather we questioned them on some of the more critical provisions. We therefore did not try to obtain the most detailed information concerning *each* company's experience.

The questionnaire did not provide for ways to distinguish between provisions of licenses with a subsidiary or an independent company abroad. Many of the respondents volunteered information broken down according to the type of license or business relationship. Thus, the question concerning exclusivity provisions was answered differently by the same firm when referring to trademark licenses and to patent licenses. And, the provisions of quality control was strongly affected by whether the license was of a trademark or patent. Although it is difficult to separate the answers, it may be that protective provisions also are closely related to the type of license; the evidence gathered so far cannot be used to support either contention, however. On the other hand, the *form* of royalty provisions does not seem to be greatly affected by whether the license covers patents, trademarks, or know-how—though the rates employed vary greatly.

Another qualification concerning the replies is that they, perforce, related to the *general* experience of the company. It would be impossible to categorize all the provisions of every contract, and it would be meaningless to do so. Different provisions are meaningful only when they are related to the specific problems in each case. Thus, a case study would have to be made of the circumstances surrounding each contract. What we hoped to obtain was a picture of the more usual practices; this can be a guide to companies newly entering the field and will provide older hands some knowledge of what others are doing. With these objectives in mind, question C. 6 (see December *Journal*) was limited to provisions which seem to involve the more important policy problems.

### 1. *Exclusivity*<sup>1</sup>

Exclusive rights are generally extended under trademark licenses, and there is apparently a willingness on the part of a large number of U.S. licensors to extend them under other types. Over two-thirds of the respondents indicated that they commonly extend exclusive rights to manufacture abroad; one-fourth stated that they did *not* usually do so; (a few respondents failed to answer this question). These replies do not, of course, mean that all licenses extended by a company provide exclusivity; the replies reflect only its general practice.

One-fourth of the respondents stated that they did not give the licensee exclusive rights to *use* patented inventions abroad, but about half of them stated that they usually did so; 28% failed to answer. Over a third indicated that they normally extended the licensee exclusive rights to sell in his territory; about 20% failed to answer.

These answers show that there is a general *willingness* on the part of most of the respondents to extend exclusive rights *or* that they considered it necessary to do so in order to get the contract signed by the potential licensee. Some interviewed officials stated that the latter was the case, but others asserted that exclusive rights could be bargained away with a lower royalty rate. Exclusivity is generally a cause for higher royalty rates, and inadequate performance by the licensee is usually cause for removal of exclusive rights.

In about one-fifth of the cases, the grant of exclusivity was coupled with prohibitions against the licensee operating or selling in any other territory than his own. That is, he would not be permitted to sell in third areas not covered by the trademark or patent; his competition with the licensor was thus restricted. Over 70% of the respondents, however, indicated that they did *permit* the licensee to sell in third countries in competition with themselves or other licensees; (we sought no information as to whether the licensees actually did make such sales). Where coupled with exclusivity provisions, this action does provide for some area of competition; and when exclusivity is not extended to all, it is a generalization of the competitive spirit.

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<sup>1</sup>The reasons for, advantages and disadvantages of, and problems resulting from exclusivity are raised and partially examined in the previous section on antitrust problems.

Another provision which affects the degree of exclusivity is that extending rights to the licensee under patents and trademarks held by the licensor in third countries. For example, a French company might be given rights under patents and trademarks which the licensor holds in Belgium or Holland. If the rights extended are exclusive, this expansion makes the market even more exclusive. But if non-exclusivity exists, the extension of rights under patents and trademarks in third countries is not necessarily a reduction of competition. In fact, it may increase the competition among licensees and possibly with the licensor. Respondents split almost 50:50 in their writing of such provisions. Nearly half of them indicated that they did give rights to a single licensee under patents or marks in more than one country; over 40% stated that they did not, with the remainder not answering. Coupled with the fact that a large percentage of licensors extend exclusive rights to manufacture, to use, and to sell, it might appear that this provision and the extension of rights in third countries increases exclusivity. But such a conclusion would be unwarranted until more detailed information was provided concerning how many firms coupled these provisions in a *single* contract of a type which would in fact lead to greater exclusivity. We do not yet have sufficient information.

## *2. Supervision and Quality Control*

Although it is a widely accepted proposition that control of quality is essential to trademark licensing, there is a significant amount of supervision and control under patent licensing also. However, many patent licenses do *not* include supervision or quality control; the rationale is that poor quality will hurt only the licensee and it will be to his interest to maintain a high quality. Know-how licenses or technical assistance agreements seldom involve quality control. In all, 25% of the respondents indicated that they imposed no supervisory restrictions on the licensee's production.

Among the two-thirds of the respondents who asserted that they did include supervisory provisions, there was no distinct pattern of implementation. The largest number imposed quality controls through inspection of samples returned to the home office *and* by sending representatives or technicians abroad. But there were nearly as many which employed only one of these two methods. Inspection of samples was used only slightly more frequently than inspection in the field. Presumably, for those whose foreign operations are important enough to require inspection, representatives or technicians traveling abroad are available to perform the job.

Inspection of products is not the only method of quality control. There are a few firms who require the licensee to send plant designs and product specifications before production is approved by the licensor.

Nor is quality control the only purpose of supervision of the licensee. Some few of the licensors control labeling of the product, especially where the license covers a trademark and component parts are supplied. Others also control ad-



vertising and sales procedures. Although this aspect was not covered in our questionnaire, some licensors also control the pricing of the final product.

### 3. *Access to Improvements and Future Developments*

One of the reasons why definitions of the subject matter to be transferred and the product market to be served are so important is that improvements by the licensor are frequently made available to the licensee. In order not to be giving away what was not originally intended, the precise area of improvements must be carefully delineated.

Well over 80% of our respondents stated that they extend the licensee access to *all* relevant information concerning the products licensed. About 10% did not reply to the question, but of the remaining 10%, some indicated that they provided any and all "necessary" information. This provision usually includes improvements made in the product or process during the life of the agreement. The licensor is, obviously, arbiter as to what is and what is not relevant to the licensed rights. As one licensor has stated: "I will tell the licensee all of what I am doing, but nothing of what I am thinking." Thus, actual improvements made in the licensed product or process which are applied by the licensor will often be given to the licensee without additional payment. If blueprints, design drawings, or engineering layouts are involved, sometimes a fee is charged for these services.

But access to improvements in a licensed product or process does not give the licensee rights to new developments. Once again, careful definition is required to distinguish a mere improvement from a new development. However, for three-fourths of the licensors questioned, the distinction is not so important since they apparently readily extended future developments also to the licensee. Just over one-fifth of the licensors queried did not usually accept a contractual *obligation* to supply the licensee with future developments; however, some of these respondents did so in practice.

The argument against providing future developments under one contract is that very profitable developments may be discovered which warrant different treatment. A hedge against such a possibility would be a clause permitting renegotiation of royalty provisions, but this seems seldom to be used. Licensors would apparently rather keep the contract simple—either excluding or clearly including future developments within the initially negotiated contract.

### 4. *Compensation*

The basic principles underlying provisions covering compensation are, of course, the simple ones of cost to the supplier and value to the purchaser. To state the principles does not explain them nor show how they should be applied. There are, apparently, two rules of thumb applied by licensors: one is to cover allowable costs—i.e., some portion of research and development and out-of-pocket costs; the other is to charge whatever more than this amount the traffic will bear.

The rules reduce, then, to charging what the licensee will pay and not signing the contract when this amount is less than calculated "costs."

Where definite costs of providing specific information can be isolated, the agreement will frequently require the payment of fees for this information. And where costs of developing the information and maintaining the patent can be ascertained, a downpayment is frequently charged to cover them. Such a payment is coupled with additional types of remuneration aimed at getting something of the value of the rights to the licensee. Nearly 40% of the respondents employ a downpayment as part of their compensation requirements. The major reason for a downpayment is to enable the licensor to justify making available the people necessary to set up and supervise the program and to meet the needs of the licensee. Licensing makes the licensor a sort of management engineering firm; top executive talent will be required, and it is expensive to divert it to foreign operations. It is usually not profitable to provide the licensee merely with blueprints, specifications, and know-how; he must also be given some "show-how." He may even have to be shown what to ask of the licensor. The downpayment is a means of paying for the initially heavy use of such executive and technical talent.

The different compensation arrangements, which may or may not be coupled with a downpayment, include: fixed annual payments, royalties according to volume of sales by licensee, minimum royalty payments, royalty rates decreasing over the life of the agreement or as volumes increase, a royalty-free period or royalties set low in early years to help licensee get started, maximum payments, stock payments, payments per unit volume of production, and profits from sales of components.

Royalty rates are usually fixed but may be of the sliding scale variety—starting low to ease the burden on the licensee as he gets the business into operation, or going down with increased volume. Percentage rates provide some protection against inflation as compared to fixed payments per unit. A minimum royalty return provides an incentive to the licensee to produce at least a certain volume and not "sit on" the rights. Progressive minimums are sometimes stipulated; they are especially valuable as an escape clause. Downpayments, when prohibited by governmental authorities, are sometimes prorated over the royalty rate.

Where subsidiaries are involved, the returns from licensing may be undistinguished from dividends on investments. A significant number of licensor-investors do have contracts with subsidiaries, however, in order to keep the records straight and to make it easier to transfer earnings to the parent company. And, it is sometimes easier to persuade the foreign government that payments for licensed rights are an expense of operation necessary to the continuation of the business.

The *amount* of compensation will vary according to the bargaining power of the parties, the custom in the industry, and the provisions of the contract which make it more or less valuable to the licensee. We can say little about relative bargaining power except that the licensor has an asset which he must guard carefully to maintain its value and that most of the respondents entered into

license agreements at the behest of foreign licensees. Thus, the greater bargaining power would seem temporarily to rest with the U.S. licensor. This position is receiving some strong competition from European licensors.

We do not yet have enough evidence to set forth the patterns of rate-making within each industry. But, apparently throughout all of them, the following situations give rise to a higher return to the licensors:

- a) an especially valuable process or product in the country of the licensor
- b) a high degree of "completeness" of the process or product; that is, little additional research necessary to make the development commercial abroad
- c) extension of exclusive rights under the contract
- d) extension of rights to sublicense or assign
- e) a large-size territory
- f) a longer duration of the contract
- g) a relatively strong patent position
- h) extension of the right to use future improvements and/or developments
- i) agreement by licensor not to export to country of licensee,—but this may lead to antitrust indictment

The methods of obtaining the returns may be classed according to whether the royalties are based on sales or on another means of calculation.

*a) Royalties based on sales*

Over two-thirds of the respondents employ as the only or major method of compensation a royalty rate based on volume of *net* sales by the licensee. This rate has a distinct advantage over other bases of calculation in that it hedges against inflation in the country of the licensee. In addition, a rate *per unit* becomes more burdensome to the licensee when prices drop and may make him antagonistic toward the agreement. The value calculation is usually based on total sales less cost of advertising, packaging, delivery, taxes, etc., and may be net of the value of any component parts supplied by the licensor. The rate itself varies widely from one-fourth of 1% to as high as 30%.<sup>2</sup> Different ways of calculating net sales may account for some of the spread, but the differences are accounted for mostly in terms of volume of sales expected and the number of rights for which each rate is applicable. For example, when rates are less than 1%, several different patents are involved in the agreement, each with a separate rate; the total royalty on a finished product may then rise to 5% or more.

It is safe to say that 5% is close to the mode of the rates based on net sales. The reason for this is that a rule of thumb has apparently been adopted among many negotiators that 20% of net profits is a fair portion for the licensor, and *expected*

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<sup>2</sup>What the parties *may* agree upon as an appropriate rate may not actually govern. Several governments insist on approving the financial terms, and they may allow remittance only of smaller amounts than the agreement would provide. Some licensees have apparently been "willing" to agree on higher royalties, under the knowledge that either the authorities would reduce them or they could persuade the authorities to clamp a lower ceiling on royalty payments.

net profits were apparently habitually estimated to be 25% of net sales. However, in the case of some food processing licenses, the royalty was calculated at 34% of net profit of the licensee; and in the licensing of Sulphanilyl-Aminopyridine 50% of net profits was charged.<sup>3</sup>

Examples of rates based on *net* sales are provided by the licensing of a petroleum cracking catalyst, of Sulfadizine, and of polysulfide synthetic—each licensed at 5% of net sales. Crude rubber and polysulfide synthetic, when licensed to the government, have been compensated at the rate of 2.5% of net sales.

Gross sales have been the base for calculating royalties on methods of drilling, mud control, and treatment of petroleum emulsions, carriers, and styrene—all either 2.5% or 5% of gross sales. Modifications have been used in the cases of sponge rubber products, under which the rate was 5% of net sales plus a minimum annual payment of \$4,000. Cheese wrapping materials have been licensed at 10% of *net* sales to a given date and 5% thereafter.

A modification of royalties based on sales is the use of a minimum annual royalty payment. This may be set as a fixed amount or as a requirement that the licensee sell a minimum volume. Either works out as a guarantee of an annual return of a given amount to the licensor. Over 40% of our respondents indicated that they impose minima. Minima help to keep the licensee on his toes and provide a justification for the licensor requiring a renegotiation of some of the provisions of the license (e.g., exclusivity) or for cancelling the license.

In order to ease the burden of payments on the licensee either as his performance improves or as the period of the license lengthens, some licensors have provided for a decreasing royalty rate. The rate may be permitted to decrease in any given period as volume of sales rises from one plateau to another, or the rate may begin to decrease after the fifth year or so. Only about 10% of our respondents stated that they employed this procedure. An alternative way of achieving much the same purpose is the provision of a maximum royalty payment—or, as one interviewee put it, “a knock-out” payment. When an annual payment would rise above this maximum, the licensee has to pay only the stipulated maximum. This guards against the licensor “over-charging” the licensee. However, only about 5% of the respondents use this method. The others apparently accept the philosophy of one official who replied that when he had a good thing he wanted to get all that he could out of it; in part, such profitable situations balanced out those which did not return so much.

#### *b) Other payment methods*

In order to cover annual costs and to make certain that some income is returned, some agreements are drawn with fixed payments per period. Some 15% of the respondents indicated that they write such provisions into their agreements. Most of them are coupled, however, with royalties based on sales.

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<sup>3</sup>Rate examples in this section are taken from a study by Robert S. Aries, “Licensing Your Process,” *Petroleum Refiner*, February 1956, pp. 147-148.

Another method of payment which is coupled with royalties on sales is that of payment in equities. In order to obtain a larger participation in the profits of the licensee and to reduce the burden of remittances during the early periods of growth, payment in equities has been accepted by about 5% of our respondents. While we did not include this method as one of the possibilities on the questionnaire, several volunteered that they were employing it. There is growing interest in this method to obtain an equity interest especially when the licensor would like to invest abroad but does not have the capital at hand.

A method which substitutes for royalties based on sales is that requiring a payment per unit of production or per unit of feed-in. Several of the firms stated that they employ this technique. For example, payments under a license covering polysulfide synthetic rubber and another for styrene require payment of \$0.00125 per pound produced. A coal carbonization process requires payment of one cent per ton of coal delivered to the retort. Modifications of the per unit rate are exemplified by a license for polysulfide synthetic rubber which carries a rate of \$0.0236 per pound, but such rate never to be *less* than 3% of the *net selling price*. A license covering lubricating oils carries a rate of \$0.035 per pound adjusted to the index of wholesale commodity prices and the chlorine content.

A specific payment (10 U.S. cents) per unit should be made subject to adjustment; if inflation is rampant in the licensee country, the specific payment in dollars may increase the burden on the licensee; contrarily, the licensor will be burdened if the payment is in local currency.

Rates combining per unit output, inputs, and/or sales volumes are exemplified by some licenses in the field of catalytic petroleum refining. A license covering a fluid catalytic cracking process requires payment of 5 cents per barrel of fresh feed stock, plus 5 cents per barrel of aviation products, and 3% of the price of other special liquid products.

One covering hydro catalytic reforming requires 5.5 cents per barrel of fresh feed stock and the same additions as above. A license covering insecticidal compositions requires 5% of net sales with a maximum rate, plus \$0.0004 for each per cent DDT content up to and including 10% and \$0.000333 for each per cent DDT over 10%.

A final means of payment under licensing agreements is used when the sale of component parts is extremely important in the arrangement. Though such a case is exceptional, one licensor has eschewed all other methods of payments and takes his entire returns through the pricing of component parts. This has the advantage of greater certainty and would probably bring more ready approval by the foreign government of imports since the license arrangement demonstrates the necessity of meeting this expense in order to produce at all. Even where such sales occur, most licensors do not rely on them heavily for income. They apparently agree on a "cost plus 15%" or similar formula; they seem to feel that a low price will enable greater sales by the licensee and return more in royalties than in profits on components.

*c) Return of improvements*

A possible compensation for licensing arises when and if the licensee makes an improvement in the product or process licensed. Over 60% of those responding stated that they required the return to them of improvements developed by the licensee; nine out of every ten of these required them to be returned royalty free. Some 30% of the respondents did not anticipate any value from such a clause.

The rationale for including a grant back of improvements is that the licensor might find himself in a position of not being able to make the best product despite the fact that he had developed most of it. He would also be in a position of not being able to license his *other* licensees unless he obtains permission to sublicense the improvement. One licensor multilateralizes improvements by extending them freely to all licensees who have signed a grant back clause on improvements.

The experience of our respondents and interviewees, however, is that grant backs of improvements have resulted in few benefits. Of course, a subsidiary relationship makes the problem largely irrelevant.

## 5. Protection

A strong patent or trademark position enhances the value of the license and is a basis for a higher return to the licensor. To maintain such a position requires yearly payments. About 60% of our respondents prefer to keep the reins in their own hands and maintain the patent or trademark (and pay the costs) themselves. Only about 15% require the licensee to undertake the maintenance of the patent or trademark (and pay the costs); and most of these are apparently subsidiaries. However, in some countries, (e.g., Italy), local companies pay at lower rates than do foreign companies. The licensee is more frequently required to maintain the asset and pay costs if the license is exclusive. In this way, a patent which the licensor would otherwise drop may be kept alive by the licensee. About 10% of the respondents *share* the costs with the licensee on some agreed formula.

Protection of the patent or trademark position involves the responsibility of preventing infringement by others. Once again, the U.S. licensors responding usually take this responsibility upon themselves; half of them stated that they defend against any infringement. About 30% share the responsibility with the licensee. The licensee may sometimes initiate action, but it is usually permitted only after consultation with the licensor. Costs of litigation are to be shared as well as awards. In about 10% of the programs, the licensee is usually given the responsibility or privilege of bringing action; this procedure is probably followed most frequently when a subsidiary is the licensee. The responsibility is sometimes placed upon a licensee if he is given exclusive rights.

Infringement cases may also arise from the suit of third parties against the licensee based on his use of the patent or trademark. Most respondents do not guarantee the validity of a patent or the trademark registration. Over 40% of the

respondents, therefore, place liability for infringements of others' rights upon the licensee. Less than 30% take the responsibility wholly upon themselves, and about 15% share it with the licensee. Some licensors make themselves liable to damages up to the amount of royalties already received but no more. A subsidiary-licensee relation makes the procedure largely formal.

In order to protect against changes in the laws or policies of either government, it has been suggested that agreements include an "escape" clause permitting either party to call for re-negotiation or even to cancel if governmental attitudes change or the agreement is found to be in violation of any laws. Use of such a provision is not accepted by the majority of our respondents. Its use and non-use is evenly balanced. About 40% of the respondents indicated that they usually include it, while an equal percentage stated that they usually did not. Many do not consider that it is necessary, especially if it is stated in the agreement what laws the agreement is to come under.

Another type of protection is sought from unlicensed action by the licensee. Under patents, the licensee has no rights to continued use if the contract is terminated before the patent life is ended; he has use of information in the public domain if the patent has run out. If a trademark license is terminated and the licensor has been careful to maintain ownership, the licensee must stop using the mark. But, the case of a know-how license is blurred by the absence of legal redress. Nearly two-thirds of our respondents insert a clause prohibiting the licensee from using the know-how after the license is terminated; about 30% do not usually include such a provision. Even those who do write it have had little experience in attempting to enforce it, and no one seems to know how to enforce the prohibition in the case of know-how. The clause seems, therefore, to be mainly a warning or a statement of rights.

## 6. Termination

Provisions for the duration and termination of agreements are usually different depending on whether they cover patents or trademarks. Only about half of the respondents indicated that they licensed their trademarks at all. Of these, over 60% licensed the marks for a definite and renewable period. The periods were usually in multiples of five: that is 5, 10, 15, or 20 years. This provision has the advantage of permitting re-negotiation or cancellation at definite and known periods without stated reasons. In an exceptional case, a trademark was licensed on a year-to-year basis. Over a third of those licensing their marks did so for indefinite terms but with provision for termination. Under 10% extended licenses for the life of the registration; however, these also were presumably terminable under specified conditions.

It might appear to the layman that the fact that a patent has a definite number of years to run would cause any license agreement concerning it to be made for the same length of time. But only about 40% of those licensing under patents made the duration of the license coterminous with the life of the patent. An equal

percentage usually wrote agreements having a duration shorter than the life of the patent. The advantage to such an arrangement would seem to lie in the ability to cancel the agreement if desired without prior cause or to force renegotiation if the licensee's performance was not adequate. Agreements are also written to terminate one year before the end of the life of the patent apparently in order to protect the licensor's title and to avoid having the license declared as a sale or assignment.

About 15% of the respondents licensing under patents indicated that they usually wrote agreements for a duration longer than the life of patents covered. Such an arrangement would come about when know-how was also important and future developments of the licensor were considered important to the licensee. Three per cent of those responding indicated that they wrote patent license agreements for indefinite periods.

## VIII. IMPLICATIONS OF THE STUDY

Although the pilot project on foreign licensing succeeded in obtaining evidence on the problems of foreign licensing and developed some rudimentary statistical information on the extent of licensing, much research is yet to be done. It is to the implications of the data already obtained and the undiscovered information and unresolved problems that this section is directed.

### A. IMPLICATIONS OF METHODOLOGY

A complete picture of the means and extent of licensing of U.S. patents, trademarks, and know-how abroad can be drawn only from statistical and descriptive information provided by private business. A recent study by the National Industrial Conference Board provides one sample; our study provides a somewhat larger sample; but both are inadequate. The Department of Commerce is attempting to gain a more complete picture of financial returns. Several of the larger companies have refused to answer questionnaires as to their licensing operations or have refused to let their experience be used for publication; much of what they apparently consider as "business secrets" is the same type of information which the majority of companies do not withhold.

The problem of "business secrecy" raises several collateral questions of the extent to which businesses should comply with requests for information concerning their activities. Company policies range from a very free dissemination of information to a "closed door" policy. One of the companies which granted us an interview employed the time of four high-level executives for over an hour to give the interviewer a complete run-around. Only one other company granted an interview only to become taciturn. Over 90% of those who were asked for an interview granted it, and only two of these were recalcitrant in answering ques-



tions. The NICB group also found ready access to officials whom they wished to interview, but they found great reluctance to permit use of the materials gathered under the name of the company concerned. While this restriction of not naming the source is not always a serious one for the researcher, it does restrict the extent to which useful case studies can be made. Such secrecy is apparently desired to protect the individuals providing the information and any business secret which the company might not wish to be identifiable by its competitors. But "classifying" the information may be a reflection of the general reluctance to have one's policies examined by the "outsider" who is presumably prejudiced in some way against business operations—a prejudice frequently ascribed to government officials by business executives.

While one can sympathize with the harassed executive whose time is consumed with completing or replying to questionnaires, it should be emphasized that the future of U.S. business is to a large extent in the hands of the public and the government (as well as in those of the businessmen). It is imperative, therefore, that the public and government officials, both at home and abroad, understand the job that U.S. business is doing—its motives, its practices, and its accomplishments. The record *can* be presented more effectively if it is channeled through less partial researchers than through private propaganda mills.

One of the major implications of the pilot study is, therefore, that more information is needed on business operations abroad and that this information can be gathered only with the full cooperation of business with outside investigators. It is to the long-run interest of U.S. business to extend that cooperation to those who are competent to assess the materials and experience from the viewpoints of both business and public policy.

#### B. GOVERNMENTAL POLICIES

A different sort of problem arises in obtaining information concerning governmental policies. The various agencies of a government are not always in concert; they may not even know what the policies and practices of another agency are, or if they do, they may be counteracting them volitionally. There is seldom a problem in finding what the attitudes of various governmental officials are; there is sometimes a problem in finding what the agency's policy is. But the major problem is that of determining what the *effect* of the various policies is, especially on business policy.

The U.S. Government has adopted two policies specifically aimed at encouraging foreign licensing: the international interchange agreements and the guaranties to licensing returns. An assessment of their effectiveness has yet to be made. On a larger scale, an examination is still required of whether or not direct governmental encouragements to foreign licensing are desirable. Most businessmen think not—if only the direct and indirect *discouragements* were removed.

The same view has been expressed with reference to *foreign* governments' policies—just remove the restrictions! But, it is not realistic under current circum-

stances to expect them to do so. Thus, further study is required of the effects on U.S. commerce of the various foreign restrictions on investment, licensing contracts, remission of currencies, imports, etc. Such a study could point out redundant and excessive restrictions and thus lead to formation of better policies abroad.

Of special importance to the current study would be a careful examination of the patent and trademark laws of the major foreign countries and of the legal protection provided to parties to private contracts. With the increasing importance of know-how (unpatented or unpatentable information) in licensing agreements, the foreign legal systems take on a more significant role in the protection of rights.

#### C. CHANGES IN THE ICPIP

The divergence of national legislation on the working or compulsory licensing of patents has led to efforts at coordination under the International Convention for the Protection of Industrial Property. Though several members of the Convention argue that its terms ought to be changed; others decry any amendment.

It is hoped that the current study has helped to place the problem more appropriately in its setting. We do not assert that the requirements on working should be modified *one* way or the other. Rather, the implications of this pilot study are that this particular problem cannot be solved in isolation. The entire structure of patent and trademark protection, the benefits of foreign commerce, the impetus to national growth, etc., must be taken into account. Until the various members are willing to examine these problems as well, they will probably not develop the types of arguments which will persuade the others of the validity of their position and thus come to an agreement.

#### D. ANTITRUST AND RESTRICTIVE BUSINESS PRACTICES

International agreement has also been sought on the treatment of international restrictive business practices. The current study has gone only so far as to conclude that the problem has not yet been given adequate study. The greatest gap is in knowledge of the effectiveness of anti-monopoly legislation in other countries. Such a study would require an examination not only of foreign legislation but also of the competitive structure within and among foreign countries. The latter would aim at determining the need for antitrust action and what type, if any.

The same examination should be made of U.S. legislation.<sup>1</sup> The institutional structure of economic activity has changed radically since the passage of the

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<sup>1</sup>One study on U.S. *Foreign Commerce and the Antitrust Laws* by Wilbur Fugate has just been published (Boston: Little-Brown & Co., 1958) and another is underway at Harvard University by Professor Kingman Brewster. Licensing is only one of the facets they examined.

Sherman and Clayton Acts. Although the "rule of reason" has mitigated some of the rigors of provisions inappropriate for *all* competitive situations, some of the acts of businesses are considered so unreasonable as to be a *per se* violation of antitrust. While such acts *may* be legitimately considered *per se* violations when done within the United States, our knowledge of their impact on U.S. commerce when done abroad is tenuous. The indefiniteness stems from our lack of an economic theory adequate to handle the many restrictions and discriminations permitted abroad *and* from an absence of sound guidance of legislators by economists as to what the economic impact of legislation will be.

The differing approaches of the lawyer (particularly antitrust), the economist, and the businessman make it difficult for them to discuss profitably the problems of anti-monopoly legislation. But they *should* do so, for the lawyer's view of determining "what the law *is*" is a necessary background to the economist's examination of "what the law *should* be" to gain desired objectives, and both are the concern of the businessman who has to determine business policy in the light of the "effect of the law." Both American licensor and foreign licensee continue to consider it desirable to control or restrict the action of each other at times. But the interpretations given to antitrust legislation in the several cases decided by the Supreme Court and under recent consent decrees do not present a static picture of the Court's attitude toward restraints in overseas business. The U.S. businessman is faced with a host of unanswered questions, and many of them feel that a more "reasonable" attitude of the Court will be required before U.S. business will be able to compete effectively abroad.

The "more reasonable" attitude desired includes, first, that government officials accept the assumption that businessmen are *not* deliberately trying to evade the law and establish monopolies wherever they go. It includes, secondly, that companies under suspicion should be given a non-punishable opportunity to explain their actions and to "cease and desist" if found to be in the shadow of the law. Only if the company continued a practice which it had been warned to stop would it then be subject to criminal prosecution.

Unless a more sympathetic attitude is taken, some businessmen assert, there will be a curtailment of American business abroad—as was the result in the following example cited by the American Chamber of Commerce in London:

... an American company abandoned its British venture because of the interpretation of our antitrust laws. This was an important American manufacturer which owned for a great many years a 49-per cent interest in a British company manufacturing similar products in England. The agreement provided for the exchange of technical information and know-how and certain markets were reserved for each company. When the American company came to realize that it was vulnerable to the then current interpretation of our antitrust laws, it renegotiated a new agreement with the British company in an endeavor to satisfy our Justice Department. The Justice Department, however, would not accept the new agreement and pressed the American company to divest itself of its interest in the British company. At first the American company decided to stand trial, but finally accepted a consent decree whereby the American company trustee all of its stock in the British company to independent trustees to look after the beneficial interests of the Americans. The officers of the American company were enjoined from communicating with their former British associates. This was an intolerable situation for the American company, as it thereby lost the management authority in the British company and lost the power to say how its own capital contributions should be used. Under the circumstances it took the first opportunity to sell its holdings

in the British company. Now this very important American company, which has plenty of competitors both in the United States and abroad, has been driven from the foreign field to the detriment of the best interests of the United States. At the same time the British economy has been deprived of the benefits of the know-how of a very substantial industry.<sup>2</sup>

In another instance, the London chamber reported, an American company was losing export sales but had an opportunity "to license a local company to manufacture its product, and it wished to do so and also to confine the sales of that product manufactured by that specific foreign company to that same country. The American company's lawyers were advised that the Department of Justice would hold this licensing agreement as unlawful, and the American company had to forego any profits which it might have made out of this licensing arrangement."<sup>3</sup> The results were even greater, however, for the American economy lost revenue through the decline of exports (for which licensing was not substituted), the U.S. Government lost tax revenue, and the foreign economy lost access to a desirable product.

Without giving approval to the actions taken in the above two instances, it can be admitted that U.S. antitrust law is not the final answer to the question of how to guard against monopoly control outside of a patent grant and yet to foster a healthy growth of foreign trade and investment. However, the advantages of competition are so desirable as not to be given up lightly. A summary of the alternative views which might be taken toward public policy on antitrust action in foreign commerce has been given by Professor S. C. Oppenheim: (a) further exemption of certain activities in foreign commerce might be extended; (b) the Sherman Act might be amended to make more specific exactly what arrangements may or may not be made in foreign commerce; (c) the "rule of reason" should be explicitly sanctioned through legislation for use in relation to foreign commerce transactions, while the present "generality of standards of the Sherman Act" would not be changed; (d) the Supreme Court could accept a judicial "rule of reason" in its determinations, though it might distinguish between situations in which there were and were not cartel restrictions; (e) no change in legislative or court posture would be made, but the ingenuity of American business to jump obstacles and out-compete others could be relied upon to wear down the cartel-like structures of its affiliates or competitors.<sup>4</sup>

There is, as yet, no agreement among the experts as to which of these approaches is best. They do agree, however, that the common objective of all is to facilitate the expansion of foreign commerce and in such a way that the American competitive system can be demonstrated both at home and abroad. The problem is essentially whether Americans should join the forces abroad in the foreign way and hope to pull the others toward the U.S. systems, the courts expanding the "rule of reason"; or, should they stand firm on the competitive system as intended

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<sup>2</sup>"Foreign Trade Conferences," Staff Memorandum of the Subcommittee on Antitrust and Monopoly, of the Committee on the Judiciary, U.S. Senate, *Committee Print*, 84th Cong., 1st Sess., 1955, p. 6.

<sup>3</sup>*Id.* at 8.

<sup>4</sup>"The Impact of the Anti-Trust Laws on Patents and Trade Marks in Foreign Commerce," *GEO. WASH. L. REV.*, June, 1956, p. 702.

for the United States, with the court applying narrower interpretations. Which of these would let foreign business be captured by others cannot be determined apart from a more thorough knowledge of the competitive situation within and among foreign countries and of the desirability of doing *some* business abroad even if under monopoly conditions. Further study, therefore, should first be made as to the desirable practices and their economic benefits *apart* from any legal considerations and, second, as to the legal consequences with the intent to recommend legislation.

#### E. PROBLEMS OF TAXATION

Although the problems of taxation of licensing returns are not greatly distinct from those of general overseas business, the results of the pilot study lead to the tentative conclusion that a closer study should be made of the impact of tax-free royalties on licensing programs and their profitability and that the results of other studies on taxation should be examined to determine whether it can be a means of encouraging overseas activity.

The impact of taxation has led several corporations to become more interested in the tax-haven foreign subsidiary. This technique is also important where direct investment is involved. The growing equity participation of licensors in their licensees is likely to increase the interest in profit-sanctuaries. A closer coincidence of government policy objectives and business practice might be brought about through more careful examination of the appropriate uses of such subsidiaries.

Two problems which the pilot study did not examine are those of the effect of (1) differential taxation abroad of dividends and royalties paid to U.S. corporations and (2) taxation on "break-even" points in licensing operations. The first would help in making a more precise analysis of the relative advantages of licensing or direct investment and the second would assist in the determination of whether to license at all and thus would shed light on appropriate tax policy of the U.S. Government. Each of these problems should be made part of any further study of licensing abroad.

#### F. PROFITABILITY AND ACCOUNTING PROCEDURES

We found in our investigations of profitability and cost practices that most of our respondents do not accurately account for the costs of their licensing program. The implications of this lack of accounting may be serious in the long run, especially as licensing increases in importance, since decisions may be made on the wrong bases.

##### 1. *Effect of Accounting Inadequacy*

Without an accurate account of the costs and returns of licensing, most officials are continually in doubt as to whether the apparent rewards of foreign licensing

are actual or merely "book" profits, arbitrarily allocated to that department of the company. Obviously such doubts affect their business decisions—especially those of the Board of Directors who may be highly skeptical of any operation purportedly returning income which is 100% "net profit."

The first thing that can be said of the procedure of not "costing" the licensing program is that it makes the activity look much more profitable than it really is and thereby makes domestic business or foreign sales look relatively less attractive. This result obviously occurs if *no* costs are attributed to licensing. There is little disagreement that costs which are *incurred directly* as a result of the licensing program *should* be set against licensing returns; the disagreement arises over whether the effort required to keep time-sheets on the services of technicians, draftsmen, legal counsel, and executives is worth the more accurate accounting which would be obtained.

A few firms do keep time-sheets on personnel who are related to both domestic operations and foreign licensing. This decision was based on the view that a procedure which lumped all costs in one department together to be set against domestic sales would raise the costs of the domestic sales or even of foreign sales. This rise in cost might result in a drop in sales, depending on the pricing technique followed.

If pricing of the end-product is on the basis of cost plus a percentage mark-up, then the procedure of not "costing" licensing increases the price of direct sales. This higher price may well reduce profits of the firm if there is any inclination for total revenue to fall off when prices rise. With a slightly lower price, the company may be able to attract enough additional customers to increase its total net income. Depending on the procedure of offsetting costs and on the size of the licensing program, the company may be harming itself by not keeping a more accurate account of its activities.

However, if the company is operating in a non-competitive market or one in which sales volume is not greatly price-responsive, the cost procedure will not affect *price* so directly. That is, the price will be determined more on the basis of "what the market will bear." The impact of the cost procedure falls on the level of operations of the firm; it decides how much of the commodity to offer to the public and then asks as much as it feels the public will pay for that amount. If cost procedures are not accurate, the level of operations may be greater or smaller than the optimum, thereby reducing the profits of the firm.

In no instance, therefore, is the cost procedure irrelevant; it may be unimportant if the level of licensing operations is insignificant. However, the level of operations is important in shaping a company's attitude toward licensing; thus, if only one or two licenses are anticipated, the cost of making new decisions, carrying out negotiations, and fulfilling the contract may seem excessive. But, if more licenses are anticipated, the overhead costs of familiarizing the officials with procedures and setting up the required organization can be spread over larger revenues. Whereas a few licenses may seem unprofitable, a larger program can become quite profitable. Company officials may decide that greater accuracy in cost

procedures will pay off in more efficient, and therefore profitable, decision-making as to the firm's activities. Unless a better picture of costs is obtained than is now usually done, licensing will appear to return a higher rate than other operations open to the company.

## 2. "Maximization" Procedure

Ideally, in order to maximize profits of the company, domestic sales, direct exports, investment at home or abroad, and licensing at home or abroad should *each* return the same rate of profit *at the margin*. That is, each should be carried to the point where an *additional* transaction or activity under it will return the same net income as an equal expenditure would in any of the company's other operations. Under this approach, no one operation could be said to be "more profitable" than another save through comparing the *aggregate* profit which each returned. If a company has not equalized the marginal profit returns from each of its different operations, it should be readily discernible which one of them should be expanded next; and, total net income will not be at a maximum (assuming an efficient operation) until marginal returns *are* equal.

The argument as to whether direct export (as a whole) is more profitable than foreign licensing (as an entire program)<sup>5</sup> is a reflection of a confusion over cost and pricing procedures. It is unlikely that direct sales abroad will be "more profitable" throughout *all* levels than some volume of foreign licensing. The problem is to discover the proper balance between licensing and exports and also between exports and foreign investment. This can be done only after a more careful examination of the procedure which will maximize total net profits of the company and of how closely this procedure may be approximated in practice.

## 3. Allocation of Research and Development (or other "Fixed") Costs

Some firms allocate *all* research and development (as well as legal, administrative, and foreign patent) costs to domestic operations and foreign sales; others follow this procedure but employ a per unit of production base for determining a "downpayment" (initial payment) by the licensee. Although all such costs are already allocated to sales, the same unit-basis is extended to licensing. For example, suppose that the company had an expenditure of \$200,000 for research and development and produced 20,000 units, the per unit cost of research and development would be \$10. If the licensee were expected to produce 5,000 units yearly of the licensed product, a downpayment might be asked of \$50,000. This procedure is usually followed for *each* licensee.

The company practicing this procedure for determining licensing returns should, more precisely, divide the entire cost of \$200,000 by total output at home and under license, obtaining a per unit cost of \$8; a downpayment of \$40,000

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<sup>5</sup>See PTCJRE, II, No. 1 (March, 1958), pp. 137-158.

would then be required. The difference between the \$40,000 and \$50,000 would be recouped on domestic operations, which cost \$2 less per unit; the drop in price (if demand were at all elastic) would increase sales at home. The lower downpayment by the licensee would permit him to cut prices and increase sales. If accounting procedure is to remain precise, this same reduction of the burden of research and development should be *re-divided* each time a licensee is added. Although the licensor may consider that this will not obtain him "all that the traffic will bear," if both he and the licensee are imbued with the idea of small profit rate to increase sales and thereby raise total profits, he may well find that increased royalty returns more than offset any cut in the downpayment requested. Alternatively, such "fixed" costs may not be allocated to *any* type of revenue-earning operation of the business but merely absorbed under "total" revenue. Then a comparison of "variable" costs at the margin provides the decision-making criterion.

What the above argument reduces to is that when research and development costs are already fixed—or, are already determined by considerations unrelated to licensing abroad—total revenue should be maximized from the areas of licensing and of sales *combined*. Where research and development costs are not allocated to both but *are* allocated to sales, the result will be a diversion of activity from sales to licensing since the *additional* return from an expansion of licensing will be greater than from sales. Either such costs must be allocated over the entire production of licensor and licensees, *or* they must be considered a sort of "fixed" costs of doing business and not be permitted to enter into the decisions of whether to expand operations in any one area.

To illustrate this conclusion, let us suppose that research and development costs are \$10 per unit of domestic production; suppose also that domestic sales are returning \$2 net income per unit and royalties from abroad are \$11 per unit of sales by the licensee. Obviously, it would maximize profits if greater attention were paid to licensing operations so as to increase sales of licenses. *But*, if research and development were allocated, as in the above example, to sales by *both* the licensor and the licensee, the net profit on the licensor's sales rises from \$2 per unit to \$4 per unit, and that from the licensee's sales would drop from \$11 per unit to \$3 per unit (unless the cost could be passed on to the customers of the licensee without too greatly dampening his sales); the apparent profitability of the expansion of licensing over sales would disappear.

The same, more accurate, decision could be obtained by not allocating research and development costs to either activity (sales or licensing) when a decision is made to expand. Thus, the net profit on domestic sales (*ex* costs of research and development) would, in our example, rise to \$12 per unit compared to \$11 per unit from the licensee's production; the same differential of \$1 in favor of the licensor's sales would be found. The decision of whether or not to sell directly or to license could then be made with a much firmer recognition of the costs and returns. This procedure of excluding research and development costs from any comparison of sales and licensing is an extension of the principle that maximiza-



tion of profits will occur when the *additional* cost of expanding operations by one unit in each market are equalized; research and development costs are thus considered as "past," or as "fixed," costs.

A different problem arises if the company finds that research and development costs are related to the opportunity of obtaining royalties from licensing abroad. In some instances, research and development expenditures are not independent of the demand for know-how by the licensee. That is, either a demand by the licensee for techniques or products adaptable to his market might raise the costs of research and development; *or*, a large expenditure by the licensor for research and development might increase the demand of potential licensees for *his* particular know-how and thus raise the royalty rate which he may ask; alternatively, the provision of techniques adapted to the foreign conditions or the breaking of a bottleneck for the licensee might increase his sales and significantly raise royalty returns.

When there is such an interdependence between expenditures for research and development and licensing returns, it is even more important that the costs be allocated accurately. It is then desirable to know whether a proposed increase in research and development expenditures may be expected to be covered more or less by sales *and* licensing returns. And, it is useful to know whether requests from licensees are requiring research expenditures in excess of their royalty payments.

#### 4. *Desirability of more Accurate Accounting*

As a result of a more accurate accounting procedure, many firms may find licensing slightly less profitable than they now count it. However, some few may discover that, with a bit more attention to their programs of research and development and to their licensing programs over-all, they can increase royalty returns by considerably more than the cost—especially if they can increase the number of licensees.

Some officials in interviewed companies objected to any analysis which downgrades the returns from licensing, for they are convinced that licensing is an important and valuable aspect of the company's operations and are afraid that it will not be pushed if *net* income from licensing is shown to be less than currently calculated. It may well be true that licensing *should* be expanded (for reasons other than immediate direct income returns) and such operations will *not* be pushed in many firms unless reluctant Boards of Directors can be shown exceedingly high rates of return compared to other activities. Thus, a rationale for the view that "licensing returns are all gravy" is established.

The impartial observer cannot countenance such specious arguments, even if its results can be shown to coincide with reasoned conclusions. Rather, it is to be hoped that repeated searching out of the facts in a given situation will bring even reluctant directors into the view that profit differentials between domestic and foreign operations need not be 100 per cent to justify expansion of foreign ac-

tivity. Better information and keener analysis should lead to more profitable business operations.

#### G. CONTRACT PROVISIONS

There is no *model* contract which would suit every convenience or situation. Still, there are essential features which must be considered before any potential licensor can feel himself safe in his contract. The pilot study was aimed at discovering more information than what is "best business policy" in contract negotiations. We were concerned to find out what provisions were thought necessary to cover possible contingencies, what were considered "reasonable" restraints by the parties, what significance the contracts had for the international exchange of industrial and commercial information, and finally, what the financial results were likely to be.

We were not able to gather sufficient information to come to *firm* conclusions on any one of these topics. Further study is required on each of these as well as on three additional problems: first, whether there are similar patterns within each industry in the provisions of licensing contracts; second, similarity in the provisions of contracts according to whether they cover one or more types of rights (patents, trademarks, or know-how); and finally, the difference in contract provisions when there is a financial relationship between licensor and licensee.

From the viewpoint of the impact of licensing on the over-all economies of both (or all) countries involved, it will be necessary also to determine to what extent actual practice under the agreements follows the provisions of the agreements. Thus, when exclusivity is extended, is it ever violated and under what conditions? When permission is given the licensee to export to third areas, does he actually do so? Are the provisions concerning exchange rates or currency remission followed to the letter? What protection is actually obtained to prevent disclosure of know-how? These and other questions will require answers before firm conclusions can be drawn as to the adequacy of contract provisions and the desirability of additional or less legislation.

#### H. AREAS FOR FURTHER STUDY

The pilot study was directed at surfacing the major problems of foreign licensing and at obtaining some basic empirical information to determine whether a full-scale study could be successfully completed. The evidence is that it could be and that it is needed before sound bases can be provided for the determination of public or private policy. The field has been only scratched. *Continuous* study will be required, for the area is a dynamic one. Changes are continuously occurring in the legal, business, and government relationships—both at home and abroad—and these changes require continuous assessment. There is not yet, however, sufficient background information on which to base current study of particular problems.

We have restricted our initial investigations almost wholly to the U.S. side of the picture. The *foreign picture* should also be investigated, along the following lines:

- a) The foreign patent systems need to be investigated to determine their adequacy in providing protection; a comparison of each foreign system with that of the United States would be significant. Out of such an examination could come useful information providing a background for further international agreement.
- b) The same investigation should be made for trademarks.
- c) The growing interest in anti-monopoly legislation has given rise to new statutes in many foreign countries. These laws and their implementation should be investigated. Again, comparability of requirements and action should be examined to determine the desirability of international agreement or concerted action.
- d) Examination of the effect of foreign taxation on licensing requires more adequate knowledge of the tax systems abroad, especially as to the differential treatment of dividends and royalties paid to nonresident aliens. (A Harvard Law School group is making a study of various national tax systems; its results should be helpful to others working in this field).
- e) The impact of the retention or removal of restrictions over remission of currency must be investigated; this requires a more thorough examination of their extent and of their impact on existing arrangements. Collaterally, study should be made of the ways in which currencies are used if conversion into dollars is prevented; that is, what is the practical effect of inability to convert.
- f) The relationship of licensing to direct investment should be given further attention. If it is found that they are most profitably combined, the joint-venture form of business organization may be fostered. (A Columbia University group is studying the joint-venture abroad and should develop some interesting materials on the extent to which this type of organization prevails as well as on its advantages and disadvantages).
- g) The restrictions imposed by foreign governments on foreign licensing and direct investment coming into the country should be studied. Some governments are relaxing their restraints; others are tightening them. The reasons for each action and the impacts should be investigated in order to formulate better business and public policy.
- h) One of the most serious of problems in the licensing of know-how is that of how to prevent disclosure and how otherwise to protect the proprietary right in that know-how. It would be of considerable use to the legal profession and to U.S. corporations to have a study made of the means whereby contractual relations may be protected and enforced in the various foreign countries.
- i) Since the attitudes of many foreign governments toward licensing and investment stem from the pressure on their balances of payments, an analysis of the

impact of exclusivity provisions, territorial definitions, and other provisions of the license contract on exports and imports would be useful.

- j) Since one of the major objectives of the licensee country is to gain more rapid economic development, an over-all assessment of the ways in which licensing had accelerated growth in several of the more important countries would provide significant bases for policy decisions.
- k) To complete the foreign side of the picture, an investigation of the extent to which U.S. industry is using foreign techniques under licenses would help determine how far world industries are integrated through the exchange of know-how. Such a study could be expanded into one covering the worldwide exchange of techniques, both managerial and production, describing the types of information that flow at certain stages of development, the techniques which would become available to developing areas, and the spread of management and production techniques throughout newly-industrializing economies.

On the *U.S. side* of the picture, we have assured ourselves, through the pilot study, that significant information can be obtained on the various aspects of licensing abroad. *Governmental policy* is a crucial area requiring further investigation. It includes at least antitrust considerations, tax problems, and the coincidence of licensing and foreign economic policy—as discussed previously.

The intricacy of the problem of licensing is illustrated by the effect of a not unusual arrangement whereby the licensee does not sell in third markets. Such a restraint is subject to scrutiny by the U.S. Department of Justice for violation of antitrust, but it also has an impact on the licensee country. The latter country may be eager to export in order to improve its balance of payments and or accelerate its rate of economic growth. A restrictive provision of the sort mentioned would deter a rise in exports of the commodity involved; thus, the foreign government may wish to prevent such a restriction on the licensee. The U.S. Government may also wish to prevent it from the viewpoint of foreign economic policy if it is attempting to help accelerate the growth of the foreign country.

Analysis of the governmental attitudes will require study of the competitive situations at home and abroad, of the patterns of trade, of rates of growth in industries affected by licensing, of the added drain on resources imposed by production of licensed commodities, and of the effect licensing may have on the flow of capital.

These aspects can be effectively analyzed only with a more adequate understanding of the role of *private activity*. Thus, additional investigations must be made on—

- a) The magnitude and direction of U.S. licensing abroad
- b) The extent and source of licensing *from* abroad into the United States
- c) The nature and extent of cross-licensing, patent pools, etc.
- d) The coupling of licensing with direct investment by U.S. companies
- e) The bases for determination of whether or not to license abroad: motives, in-

centives, cost procedures, royalty and other types of returns, etc.

- f) The use of returns left in the country of the licensee, either to substitute for normal dollar expenditures or to increase equity investment in the area.

The Foundation will continue its investigation of many of these problems. But it is hoped that other researchers will be stimulated to study some of the many facets of the problem and will apprise the Foundation of their findings.

# Patents and Other Aspects of the New Steel Technology

## A Second Look\*

IRVING H. SIEGEL, Principal Consultant

### A. RELATION TO EARLIER REPORT

THIS REPORT SUPPLEMENTS the one presented by Professor Robert M. Weidenhammer in June 1957 in the first issue of this *Journal* and at the first Annual Public Conference of the Foundation.<sup>1</sup> It briefly summarizes the results of two additional undertakings designed to keep the Foundation currently apprised of the status and prospects of various new methods of making iron and steel. One of these undertakings was a mail canvass in August-October 1957 of selected steel companies and of others providing materials or services. The second was a review of current trade literature and other publications. The published hearings of the Senate Subcommittee on Antitrust and Monopoly on "administered" steel prices have proved especially helpful, for they include testimony and statements of industry spokesmen and students on the progress and outlook of new iron and steel technology.<sup>2</sup>

In general, the two supplementary inquiries provide no basis for significantly revising Professor Weidenhammer's earlier appraisal. Some companies, both large and small, are experimenting with, or even adopting, new ironmaking or steelmaking techniques. An increasing interest is manifested in the ownership, licensing, and use of patents relating to such new techniques; and the commencement of litigation attests at a minimum to the potential commercial importance of a new oxygen process of steelmaking. On the whole, however, it still appears that the present technical character and economic structure of the iron and steel industry will not change quickly. The blast furnace and open hearth, continually being improved in efficiency, will long remain the backbone of our predominantly large-scale industry. New small firms may well arise to exploit local ore bodies or serve limited market areas, but the scale of investment required for the start of operations and for satisfaction of the multiple needs of customers will still be a formidable barrier to entry. In our country, "small business" will probably find its greatest opportunities not in iron and steel production proper but rather

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\* A research interim report on *Project 3a, Role of Patents in the Creation and Growth of Small Industrial Units*.

<sup>1</sup> See PTCJRE, I, No. 1, (June 1957), pp. 112-118; and PTCJRE, I, *Conference Supplement*, (1957), pp. 45-49.

<sup>2</sup> The *Hearings Before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, U.S. Senate, 85th Cong., 1st Sess., Pursuant to S. Res. 57* were published in four parts. Parts 3 and 4 contain about 120 pages of testimony (Oct. 29-30, 1957) and appendices bearing on the new iron and steel technology.

in such auxiliary roles as supplying materials and services to established modernizing companies.

## B. FOUNDATION MAIL INQUIRY

### 1. *Status and Prospects of New Methods*

The purpose of the correspondence initiated last summer by the Foundation was to obtain firsthand information of the kind obtained earlier in the personal interviews conducted by Professor Weidenhammer. Answers were sought to various questions on company activities and opinions, especially with reference to (1) direct reduction of iron ore, (2) oxygen steelmaking, and (3) continuous steel casting. The canvass included 12 steel companies and 6 others known to have an interest in supplying materials or services required by the new technology. The 18 company replies varied considerably in completeness, detail, and usefulness.

Three steel companies that made rather complete replies are known to have been active in fostering new techniques. Nevertheless, these companies, like the rest of the industry, devote only a tiny fraction of the sales dollar to research. The highest of the three ratios for 1956-57 was 1%. Furthermore, these companies allocate only a small part of their total research expenditures to the three new methods. The highest ratio for 1956-57 was 6.7%; the lowest, zero. Other research objectives, such as the improvement of conventional processes and the development of new products, are still uppermost in the minds of steel management, even in companies that may be thought to comprise the technological *avant-garde*.

The reply of a fourth company, an acknowledged pioneer of one of the three methods of special interest, is even more striking. This company reported no research at all—not only zero expenditures for the three methods but none also for the other research outlets explicitly mentioned in the Foundation inquiry form (e.g., beneficiation, sintering, rolling, extrusion, foundrywork, alloys, clad steels, chemicals, and radioisotope applications).

Most of the respondents agreed that the technical advancement and application of the three methods will afford opportunities for small business. One respondent suggested that large firms already engaged in closely allied work may dominate the engineering, construction, maintenance, and supply phases of direct iron-ore reduction and oxygen steelmaking, but that small engineering and equipment firms could play a significant role in the commercial realization of continuous casting.

The respondents acknowledged that equipment producers as a group may make valuable contributions in design and in the start of plant operations. According to the same source cited in the preceding paragraph, equipment makers may have a key place in the development of continuous casting; and those who are equipped to perform engineering services may occupy favored positions in the advance of direct ore reduction and oxygen steelmaking.

## 2. Patents

Several firms reported steps to develop, otherwise acquire, or license patents relating to direct ore reduction, oxygen steelmaking, or continuous casting. One steel company has been granted four patents in one of these fields, has acquired access to many other patents through licensing arrangements, and has in turn licensed some of its own patents to another firm. Before the Foundation's mail inquiry was made, it became known that Jones and Laughlin Steel Corporation had obtained a license from Kaiser Engineers for production of steel by the L-D oxygen converter process.<sup>3</sup> A research organization responding to the inquiry reported progress on a patent application of its own and access to "a large package" by agreement with other companies. Another research firm reported arrangements with others looking forward to adaptation of some of its patents to direct ore reduction. A third research company, which has a patent relating to direct reduction, also reported interest in oxygen methods of steelmaking.

The steel companies and the others canvassed by the Foundation generally expected patents to stimulate the ripening and practical utilization of the new technology. None expected patents to have an adverse effect, but one did consider them simply neutral.

The dominant opinion regarding the role of patents seems natural for this early stage of the new technology's life cycle, when litigation and interference activity are still at a low level. Only one suit and countersuit were reported to the Foundation; and one company stated that two interferences were beginning.

The details of the litigation just mentioned have been noted in the press. Kaiser Engineers and its foreign associates claim infringement by McLouth, the first U.S. company to employ the oxygen converter in commercial production. McLouth in turn seeks a declaratory judgment that the patents are invalid.<sup>4</sup>

The respondents were unanimous in their acknowledgment of the importance of "know-how" for the practical use of patents relating to the three methods. According to one steel company, know-how is "of as much value as the patent." According to a research and development organization, "know-how and patents are co-partners of equal importance."

### C. ADDITIONAL SOURCE MATERIALS

#### 1. Senate Subcommittee Hearings

In the course of its investigation of administered steel prices, the Senate Subcommittee on Antitrust and Monopoly turned on October 29-30, 1957, to a consideration of the promising iron and steel processes seen on the horizon. Senator

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<sup>3</sup> See, e.g., remark by Howard Turner, Vice President of Jones and Laughlin, in PTCJRE, I, *Conference Supplement* (1957), p. 54.

<sup>4</sup> "Patent Fight Flaws Oxygen Steel," *Business Week*, Dec. 14, 1957, pp. 186ff.



Kefauver's opening remarks stressed the same idea that motivated the Foundation's own study—namely, the possibility that the new technology may permit the creation of economically viable small firms.<sup>5</sup> The Subcommittee, however, regarded this possibility as a key to more active price competition in the steel industry—a subject that, of course, lies outside the purview of the Foundation study.

Although the March 1958 Subcommittee report on administered steel prices made no reference at all to new technology,<sup>6</sup> the testimony and other materials included in the published hearings made the following significant points:

1. Though potentially important, the new methods are technically not yet ready for extensive adoption.
2. They may eventually prove advantageous for small-scale operations, but they also have limitations in comparison with established and still-improving large-scale techniques.
3. The linkage of new processes in an integrated sequence from iron-ore reduction to steel finishing is not yet feasible.

## 2. *More on Status and Prospects*

The Subcommittee hearings include some scattered references to direct reduction. Of special interest are the observations made in a letter from the General Counsel of the United States Steel Corporation, who points to his company's interest in this method for more than 25 years. Indeed, his company in 1929 built a commercial unit (Hornsey-Wills process) "which was not successful because of the low production rate, poor quality of product, and high cost." A pilot plant utilizing a "fluidized bed," now in operation at South Chicago, is rated as a technical success, "but its economic advantage is still uncertain." The General Counsel concludes that iron made by direct reduction could replace scrap in the blast furnace or open hearth, but not molten metal in the open hearth or oxygen converter. Accordingly, direct reduction "does not appear likely to replace the blast furnace within the foreseeable future."<sup>7</sup>

In its 1957 report to stockholders, the Republic Steel Corporation referred to "great progress . . . during the year in the development of the R-N [Republic-National Lead] process, which now shows promise of being the first economically successful direct reduction method in the United States."<sup>8</sup> Recent engineering reports confirm this estimate. They indicate that "R-N products are ready to compete with scrap" and that "in combination with electric furnaces, the process offers a true challenge to the blast furnace-open hearth team."<sup>9</sup>

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<sup>5</sup> *Hearings, Part 3*, pp. 673-674.

<sup>6</sup> *Administered Prices: Steel*, U.S. Senate Report No. 1387, 85th Cong., 2d Sess., March 13, 1958.

<sup>7</sup> From letter of John S. Tennant, date Nov. 25, 1957. His remarks on direct ore reduction appear in *Hearings, Part 3*, pp. 1057-58.

<sup>8</sup> Republic Steel Corporation, *Annual Report for the Year 1957*, p. 4.

<sup>9</sup> "Direct Reduction Is Closer," *Steel*, March 17, 1958, p. 102.

Considerable attention is given in current trade and technical literature to the oxygen converter. This improvement over the Bessemer converter is generally reported to require much less investment cost per ton of capacity than the open-hearth process. The products, which include many varieties of carbon steel of low nitrogen content, are said to be as satisfactory as those produced in the open-hearth furnace. At least five companies in the United States were known in the fall of 1957 to be employing, or contemplating installation of, commercial oxygen converters: McLouth Steel Corporation, Jones and Laughlin Steel Corporation, Kaiser Steel Corporation, Acme Steel Corporation, and Barium Steel Corporation. Two Canadian companies also use the oxygen converter—Dominion Foundries and Steel Ltd. and Algoma Steel Corporation.<sup>10</sup>

Oxygen is also being used in increasing quantities in conventional ferrous metallurgy. Armco experimented with the application of this gas to open-hearth operations as early as 1923,<sup>11</sup> and the Gary Works of the United States Steel Corporation has used oxygen-enriched air since 1946.<sup>12</sup> With the development of bulk methods of producing oxygen during and since World War II, it has become technically feasible and economically advantageous to consume many cubic feet per ton of product in open-hearth furnaces, in Bessemer converters, in hot scarfers, and in blast furnaces.<sup>13</sup> The introduction of large amounts of oxygen into the open hearth has greatly increased the productivity of this furnace. This fact, added to other virtues (such as ability to accommodate a wide range of iron compositions), assures the practical competitiveness of the open hearth with its younger rivals for many years to come.<sup>14</sup>

A spokesman for the Koppers Company told the Senate Subcommittee that none of its continuous-casting machines had as yet been installed in the United States although they were commercially available. One of the machines built by this company was reported in operation in Canada at the plant of Atlas Steels Ltd. Babcock and Wilcox established an experimental continuous-casting plant based on its own process in 1946. Another U.S. company, Allegheny Ludlum Steel Corporation, constructed an experimental plant for continuous casting of alloy steels in 1949. This facility, employing the same process (Junghans-Rossi) that is now sponsored by Koppers, was dismantled in 1955 after proving its commercial potentialities.<sup>15</sup>

<sup>10</sup> "How U.S. Steelmaking Capacity Is Growing," *Ibid.*, Sept. 16, 1957, pp. 79-81.

<sup>11</sup> Remark by A. E. Steele, of Air Products, Inc., in PTCJRE, I, *Conference Proceedings*, (1957), p. 53.

<sup>12</sup> W. C. Buford, "Oxygen for Increasing Open Hearth Production," a paper presented at the 1952 National Open Hearth Committee Conference in Pittsburgh.

<sup>13</sup> *Steel*, Oct. 14, 1957, p. 126; and comment by J. V. Groner, counsel for McLouth Steel Corporation, *Hearings, Part 3*, p. 781.

<sup>14</sup> Letter of J. S. Tennant, *Hearings, Part 3*, pp. 1058, 1060. See also the results of an Inland Steel experiment, "Oxygen Conversion in the Open Hearth," *Steel*, June 3, 1957, pp. 92 ff.

<sup>15</sup> See testimony of Rufus Easton, of Koppers Company, *Hearings, Part 3*, pp. 694-95; a table describing continuous-casting machines located in United States (and other countries), *Part 4*, pp. 1384-85; and statement of E. J. Hanley, President of Allegheny Ludlum Steel Corporation, *ibid.*, pp. 1416-17. See also informative case history of continuous-casting development in John Jewkes, David Sawers, and Richard Stillerman, *The Sources of Invention* (London: Macmillan, 1958), pp. 276-80.

The hot planetary mill is technically ready, like the hot extrusion press, for low-volume rolling operations which economically justify its use. On a smaller scale, it does the work of a conventional hot-strip mill. At the Senate Subcommittee hearings, three small research mills were reported in operation in the United States. A Canadian commercial installation was reported to be rolling slabs of stainless steel produced by the continuous-casting method.<sup>16</sup>

Hope is often expressed that small-scale alternatives to conventional processes could eventually be integrated, but statements made to the Senate Subcommittee indicate that many problems remain to be worked out. One witness did suggest that, in principle, local ore bodies could now be tapped and geographically limited markets served by a combination including an electric smelter (or a direct-reduction plant), an oxygen converter, and a continuous-casting machine. But another witness, who pictured a small-scale complex consisting of several oxygen converters, a continuous-casting machine, and a planetary mill linked to a blast furnace, hastened to add that he was "speaking of a future development," of a much more advanced stage. The General Counsel of the United States Steel Corporation considered integration of the new techniques to be impracticable:

A combination of direct reduction, oxygen steelmaking, continuous casting and a planetary mill is not a satisfactory basis for setting up a small integrated steel plant because these processes do not fit with each other. Continuous casting and the planetary mill are compatible but are best suited for special products. Oxygen steelmaking, on the other hand, is best fitted for carbon steels and cannot be fed with the product of the direct reduction process.<sup>17</sup>

### 3. *More on Patents*

Witnesses before the Senate Subcommittee provided additional information on patent aspects of the new technology. The spokesman for McLouth reported that his company does not acknowledge the validity of the patent rights which Kaiser Engineers seeks to exercise with respect to the oxygen converter:

Kaiser is acting as sponsor for some Austrians . . . It is our position that the patents are not good and that the process is open to anyone to use at any time.<sup>18</sup>

The representative of Koppers Company told the Subcommittee that his company had exclusive U.S. licensing rights to the Junghans patents and that it also had access to other patents held by firms already licensed. The Junghans process, which is not the only one available for continuous casting, was originally applied to brass and copper and has also been used to a lesser extent for aluminum and magnesium.<sup>19</sup>

The sponsor of the planetary mill indicated that a small royalty— $\frac{1}{2}$  of 1% of the value of the product at the point of leaving the mill—would be required of users of purchased equipment. The three companies now operating research mills

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<sup>16</sup> Testimony of T. Sendzimir, inventor, in *Hearings, Part 3*, pp. 763-65.

<sup>17</sup> For quotation, see J. S. Tennant's letter, *Hearings, Part 3*, p. 1060 (see also p. 1058). For rest of paragraph, see testimony of Messrs. Easton (pp. 704-05) and Sendzimir (p. 762).

<sup>18</sup> *Ibid.*, pp. 782-83. See also pp. 776-77.

<sup>19</sup> *Ibid.*, p. 693.

in the United States pay no tonnage royalties, but each has paid lump-sum royalties of about \$5,000 for drawings, etc. As use of the planetary mill becomes more general, tonnage charges would presumably be reduced.<sup>20</sup>

The trend toward injection of oxygen into the steel bath of the open hearth may increase the value of patent rights to roof lances. A number of U.S. companies have developed their own devices. Kaiser Engineers has acquired "world rights to manufacture and sell" a lancing device developed in Wales.<sup>21</sup>

#### 4. *Technological Sluggishness?*

Two documents included in the Subcommittee hearings debate a subject briefly mentioned by Professor Weidenhammer—the reputed technological conservatism, or even backwardness, of the nation's steel industry. One document, a memorandum prepared by an internationally known technical consultant, cites an "obvious" lag in process innovation in the past two decades. Discounting the factor of company size, the consultant blames this lag instead on the low proportion of "technically trained men" at the helm. He notes a disposition on the part of companies to follow the leader rather than to rely on independent evaluation of "carefully engineered proposals." He concludes that new processes cannot be given the attention they merit until executives accord to the "products of knowledge" the respect commanded by such products elsewhere in the world; and until they take "pursuit of knowledge" as seriously as the "volume of sales."<sup>22</sup>

The second document is the letter from the General Counsel of United States Steel Corporation that has already been quoted. He points to signs of world-wide esteem—to the visits of foreign teams and to the demand abroad for our equipment and technicians. He notes the successful achievement of low-cost large-scale output in our country, the development and application of continuous production processes, and the steady improvement of the efficiency of conventional equipment.<sup>23</sup>

Instead of attempting an assessment of these arguments and others that may be adduced, this report will conclude with a comment on methodology. The technological condition of any industry, especially an important industry such as iron and steel, is a matter that deserves sharper investigative concepts and tools. For any systematic approach to this subject, it would seem desirable to:

1. Distinguish carefully between economic and other criteria, such as engineering, defense, political, and social.

<sup>20</sup> *Ibid.*, pp. 766-67.

<sup>21</sup> *Business Week*, Dec. 14, 1957, p. 188.

<sup>22</sup> Memorandum of Oct. 14, 1957, from J. E. Brassert to J. H. Wayne, member of an American mission in Luxembourg. This memorandum, supplied by the State Department, is reproduced in full in *Hearings, Part 4*, pp. 1370-72.

<sup>23</sup> Letter from J. S. Tennant, *Hearings, Part 3*, pp. 1059-60. See also the article by J. B. Austin, a Vice President of United States Steel Corporation, on "The Role of Research: Better Processes and Better Products," *ibid.*, pp. 1139-44.

2. Take explicit account of the usually neglected "costs of change" (if it is agreed that the economic viewpoint should be adopted or accorded great weight).
3. Apply the *intraindustry* economic tests of comparing the net advantage (if any) of
  - a. Introducing a new process (e.g., the oxygen converter) over improving an established process (e.g., use of more oxygen in the open hearth).
  - b. Introducing a new process over some alternative use of the same investment funds, such as making and promoting a new product (e.g., T-1 alloy steel).<sup>24</sup>
4. Apply the *interindustry* tests of comparing an industry's performance against
  - a. Another industry reputed to be "progressive" (e.g., chemicals) with respect to such indicia as research outlay per dollar of sales,<sup>25</sup> ratio of professional technical employees to total employment, percentage of output represented by patented products, and rate of labor productivity increase.
  - b. Another industry capable of supplying competing materials for similar uses in given price ranges (e.g., aluminum, plastics, and titanium).

Elaboration of this outline and its application to the iron and steel industry's technological state must be deferred to another occasion.

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<sup>24</sup> This new tough steel, introduced by United States Steel Corporation in 1954, may be produced and sold by others under license. Lukens Steel Company took a license in 1956. On the progress of this product, see "These Steels Have What Users Want," *Steel*, Feb. 17, 1958, pp. 126-130.

<sup>25</sup> Companies and industries do not pursue the same policies regarding the identification of, and accounting for, research and development activity. Furthermore, in the case of iron and steel, the magnitude of the output of standardized products itself tends to restrain the ratio of research outlays to sales.

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## CONTRIBUTED ARTICLES

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### The Status and Impact of Design Piracy

ALAN LATMAN\*

THE COMMERCIAL SUCCESS of many useful articles manufactured in the United States each year depends to a considerable extent on their appearance. Accordingly, firms in many industries have become engaged in a type of competitive aesthetics: each producer attempts to offer the public the most attractively designed article. In the course of such attempts, to what extent may a manufacturer copy a design created by his competitor?

The law today does not furnish a satisfactory answer. Principles of unfair competition, while expanding, are uncertain in scope and may often be dependent on factors (such as deception of the public) not directly related to appropriation of the design. The statutory devices potentially available are imperfectly adapted to such prototype "design" industries as wearing apparel and textiles. The design patent protects the inventor of "a new, original and ornamental design for an article of manufacture." 35 U.S.C. §171 (1952). But its availability is limited by concepts rooted in the law of mechanical patents. "Novelty" and "invention" are required before a design patent will issue; and these requirements take little account of the unpredictable social phenomenon of fashion or style. Similarly, protection against copying is accorded to "works of art" as that term is broadly construed in the interpretation of the copyright law. 17 U.S.C. §§4, 5(g) (1952). But a scheme of protection directed at paintings or even circus posters may be based on an economic premise inapplicable to the millions of mass-produced items which, even if artistically designed, still have an intrinsically useful function. The long term and stringent remedies incident to copyright would seem inappropriate in the case of designs of industrial products.

Even if design patent or copyright were better suited to supply effective protection to commercial designs, serious difficulties would remain in determining whether a particular design is eligible for either of these statutory grants, neither, or both. These difficulties have not been removed by *Mazer v. Stein*, 347 U.S. 201 (1954), in which the Supreme Court ruled that the utility of an article did not affect its eligibility for copyright protection as a "work of art." The Court noted that the availability of design patent protection does not preclude copyright coverage.

Accordingly, present protection against design piracy appears ineffective in two respects: (1) The law of unfair competition has not yet covered the field; the na-

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\*Mr. Latman is a special consultant to the Copyright Office. The opinions expressed in this article are the author's own, and do not necessarily reflect the views of the Copyright Office or the Library of Congress.

ture and extent of protection offered by design patent and copyright are unrelated to the social and economic factors affecting industries producing commercial designs. (2) The lines of demarcation between different types of statutory protection and between protection and the absence of protection are indistinctly drawn.

It is not surprising, therefore, that a recent development in this field has been a legislative proposal purporting to accommodate the specific needs of industrial designs. The bill, H.R. 8873, 85th Congress, was introduced by Representative Willis on July 23, 1957. It represents the efforts of a Coordinating Committee (chaired by Judge Giles Rich of the Court of Customs and Patents Appeals) of members of the patent and copyright bars, industry representatives and interested individuals in collaboration with advisers from the Patent Office and the Copyright Office. Very recently a national inter-industry committee has been organized to seek effective design protection along the lines of this bill.

The new bill is predicated on the assumption that design patents, as a practical matter, afford too little protection and that copyright may afford too much. In offering a new type of protection that seeks an appropriate middle ground, the bill attempts to avoid the pitfalls of prior legislative proposals for special design protection. It provides for a short term (five years and an additional five-year renewal term) which is comparable to the three and one-half to 14-year range of present design patent protection. But it requires neither novelty nor invention; it makes "originality" in the copyright sense of non-plagiarism the test of eligibility. And while it thus employs copyright principles, it circumscribes protection against copying by various limitations: e.g., exemptions in favor of distributors, exclusion from infringement of copying of "style trends."

H.R. 8873 indicates that it is possible to build a new legal framework in the area of industrial designs on the basis of a refined analysis of social and economic data. It would seem advisable to study and evaluate available data in the light of the present interest in more effective design protection. A broad-gauged study of the legal, social, and economic setting of design piracy was undertaken under the NRA program. (Johnston and Fitch, *Design Piracy—The Problem and Its Treatment under NRA Codes*. Work Materials No. 52, 1936). This survey of conditions a generation ago might be used profitably in a present study. In addition, developments in the field of social psychology would facilitate analysis of fashion or style as well as business mores.

The heart of any such study would seem to be the economic analysis of design piracy itself. Examination of individual industries would be particularly helpful. For such an examination a student might proceed along the following lines:

1. Choose a prototype industry, preferably one that is small, competitive, and in which design is an important factor.
2. Ascertain the composition of the industry (i.e., how many manufacturers, jobbers, retailers and others, and the dollar volume of business done by each group).
3. Determine how many manufacturers claim to be originators, how many

claim to use "staple" or "proven" designs, and how many are copyists. (Overlapping may be expected here.)

4. Determine the relative importance of design as a factor in the industry, and ascertain the average life and seasonal nature of designs.

5. Determine the relative cost of originating new designs and the ratio between those new designs which prove successful and those which do not. Compare the costs experienced by "originators" and "copyists" and determine the effect that added design protection would have on their businesses.

6. Determine the extent of piracy in the industry, the methods used by the pirates, the average length of time between introduction of a design and its appropriation, the types of designs copied, and the methods used within the industry to combat design piracy.

7. Determine the extent to which design patents and copyrights are employed and the attitudes of various groups toward existing and added design protection.

8. Determine the present status of the individual designer and the extent to which he would be benefited by added protection.

Some progress has been made along these lines within particular industries. Further study and analysis would seem warranted. The synthesis of this data with sociological findings and legal analysis would help illuminate a question which Congress may soon be considering.



# Can Ornamental Designs for Useful Articles Be Protected by Copyright?

## Constitutional Basis of the Willis Bill

KARL B. LUTZ\*

### SUMMARY

THE WILLIS BILL PROPOSES to grant protection under copyright principles "to original ornamental designs of useful articles." The question arises whether such designs can be protected under the copyright clause of the Constitution. The article examines this clause of the Constitution as to its background, textual meaning, and interpretation by the courts, and arrives at the conclusion that the objective of the Willis Bill is within the legislative power of Congress as granted by the copyright clause of the Constitution.

A DEMAND HAS BEEN GROWING in this country over many years for some adequate protection for ornamental designs applied to *useful* articles. This demand became so insistent in recent years that a coordinating committee<sup>1</sup> of nationwide scope was established to work on the problem. After much study this committee formulated a draft of proposed legislation, which was introduced in Congress on July 23, 1957, as the "Willis Bill" (H.R. 8873).

Some persons oppose such legislation on the ground that there is no existing need for additional design protection. The present article will not deal with that phase of the problem, although the author agrees with those who urge that there is a need. Proof of need can be supplied by those directly connected with industries, such as plastics, dress goods, etc., where the need seems to be greatest.<sup>2</sup>

Nor will this article discuss details of the Willis Bill. Doubtless some improvement can be made in some features of this bill, and careful study should be given to it. But on the whole the bill is based on sound copyright principles, which we will examine.

Many persons have expressed doubts concerning the constitutionality of this proposed new law, and the present writer was formerly of that opinion. But

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<sup>1</sup>A committee of the National Council of Patent Law Associations.

<sup>2</sup>A convincing case for the need of this type of protection is made by Walter J. Derenberg in *Copyright No-Man's Land: Fringe Rights in Literary and Artistic Property*, 35, J. PAT. OFF. SOC'Y, Nos. 9, 10, and 11 (1953).

recently a more thorough study of this matter has resulted in a change of mind, and this article will present a summary of that study.

The argument on constitutionality grows out of the fact that the words of the Constitution appear to provide for granting copyright protection only for the "writings of an author." Taken strictly and with a narrow present-day interpretation, this phrase does not appear to include the ornamental designs for useful articles which we are discussing. However, in interpreting the Constitution, an honest effort should be made to understand what was intended at the time the Constitution was adopted, and to follow that meaning. This type of interpretation must be based on a historical study of the subject, and this article will follow that pattern. First we will discuss the history of copyright protection prior to the Constitution. Then we will analyze the Constitution itself, and follow with a study of events since the Constitution.

In studying the history of copyright law we will become convinced of the truth of the statement that "The law follows business but often lags far behind it."<sup>3</sup> This is a very concise way of saying that law (statutory or court-made) usually gives protection after a need for protection has arisen, but sometimes only after the need for protection has become very acute. It is well illustrated by the history of laws for the protection of "intellectual property,"<sup>4</sup> including the type of designs under discussion.

During the Middle Ages the custom developed almost simultaneously in several European countries of granting monopolies on newly invented or imported industries. In each case the primary motive was to build up the local economy, but it soon became apparent that this could best be done by giving the originator a property right, thereby providing an incentive for others to make similar innovations.

The Republic of Venice developed a fairly complete system providing for patents and copyrights.<sup>5</sup> At first, individual grants were made of patents and copyrights, and even a design patent on type faces was issued. General laws followed. Thus, an enactment of 1474 promised a 10-year monopoly to the inventors of new arts and machines. In 1517 a general copyright statute was enacted. These were the forerunners of modern statutory protection. But, since our legal institutions developed primarily from those of Great Britain, it is quite proper to start our detailed study with that country.

#### GREAT BRITAIN

In Great Britain, as elsewhere, the need to develop home industry led to the development of a patent system. Queen Elizabeth saw the need to hasten techno-

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<sup>3</sup>Richard C. DeWolf, *An Outline of Copyright Law* (Boston: John W. Luce & Co., 1925), p. 1.

<sup>4</sup>The phrase "intellectual property" is an internationally recognized phrase to cover all products of man's intellect subject to protection by law and therefore includes patents, copyrights, trademarks, and designs.

<sup>5</sup>Frank D. Prager, *A History of Intellectual Property from 1545 to 1787*, 26 J. PAT. OFF. SOC'Y, 711.

logical progress in her country, so she expanded the system of royal grants, or patents, to encourage the introduction of new industries. Abuse of these grants by giving monopolies of standard commodities led to a regulatory statute, the Statute of Monopolies, 1623, which abolished the improper commodity monopolies, but approved and placed on a statutory basis the patents for "new manufacturers within this realm."

Likewise in the copyright field the statutes followed the need. The first regulation of books in England was to suppress seditious and heretical books by giving (1556) the exclusive right to print books to a guild called the Stationers' Company. When the writing and printing of books became more important, authors began to demand some protection, and this demand led to the first copyright law, the Statute of Anne, 1710. This law, entitled "An act for the encouragement of learning," gave exclusive rights for 21 years in the case of books already in existence, and for 14 years with a possible renewal of 14 years, in the case of new books.<sup>6</sup>

The first extension of this statute occurred in 1734 with the so-called "Hogarth Act" to grant protection to "engravings, and historical and other prints." This law, the first statutory protection for works of art, was modeled after the Copyright Act of 1710, but instead of "author," referred to "inventor, designer or engraver."

William Hogarth, the famous painter and engraver, was primarily responsible for this law. Prior to his day there had been no demand for protection of works of pictorial art. But with the invention of lithography it became possible to multiply such works commercially and Hogarth led the agitation for protection.

This "Hogarth Act" was so well received that in 1767 the term of protection was extended from 14 years to 28 years, and in 1777 it was strengthened to give additional modes of redress to injured parties.

The field of copyright protection was further broadened in 1787 by passage of an act giving protection to designs for *fabrics*, and in 1798 by an additional act covering *statuary*. A law of 1843 extended protection to "useful designs applied to any article of manufacture, so far as the same should be for the shape or configuration of such article."

Currently, the Registered Designs Act of 1949 provides for the protection of industrial designs, but if the design is not used or intended to be used as a model or pattern to be multiplied by any industrial process, then it may be protected as an "artistic work" under the Copyright Act.

This Registered Designs Act affords protection on copyright principles for "any new or original design." Protection extends for five years, renewable for two additional terms of five years each. The originator of the design is called the "author."

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<sup>6</sup>These periods of time were multiples of the seven-year period of apprenticeship. Similarly the term of patents was originally set at 14 years.

## FRANCE

While Great Britain pioneered in modern copyright protection for literary works, the earliest statutory protection for industrial designs was given by France. Here again the demand for protection preceded the law.

The need first arose in Lyons, which was one of the oldest and largest trading centers of Europe. Silk goods was one of the chief staples of its trade. In 1711 the local council enacted an ordinance, approved by Parliament in 1717, which forbade any workman in the silk industry from stealing "any designs which have been entrusted to them for manufacturing purposes."<sup>7</sup> In 1744 this law was broadened by a provision against violation of design property, regardless of fiduciary relationships. In 1787 this law was extended to cover all of France, and in 1793 its scope was broadened to cover all the different products of industrial art. This statute was the first law covering broadly all "industrial designs." Some of the early English writers on the subject attribute France's leadership in the general field of style to its good design laws.<sup>8</sup>

In France at the present time protection of a design applied to a utilitarian object is very broad. If the design has sufficient artistic merit it may be protected under the Copyright Act of 1902. If the design is of a more humble and utilitarian nature, protection may be had under the law of 1909 covering drawings and models. In any particular case the French courts place primary importance on the property right which the first producer has in such intellectual and artistic property.

## AMERICAN COLONIAL COPYRIGHT ACTS

When the English colonists came to these shores they brought along their laws and customs. As soon as they had carved a foothold in the wilderness they felt the need for developing local manufacture of certain basic materials, such as cloth and metals. To achieve this purpose they started quite early to utilize the system of patent grants then being used in England.

Statutes similar to the English Statute of Monopolies were adopted by Massachusetts in 1641, in Connecticut in 1672, and in South Carolina in 1691. These colonies and several others passed individual legislative grants giving exclusive rights for new inventions as well as grants covering the manufacture of staple commodities. These patent grants undoubtedly helped to build up local industries that made it possible for the colonies to fight for and win their independence from Britain.

That there was some early demand in the colonies for copyright protection is shown by the fact that a Massachusetts law of 1672 provided:

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<sup>7</sup>Prager, *ibid.*, p. 752.

<sup>8</sup>Thomas Turner, *On Copyright in design in Art and Manufactures* (London, 1849).

No printer shall print any more copies than are agreed and paid for by the owner of said copy or copies, nor shall he nor any other, reprint or make sale of any of the same, without the said owner's consent, upon forfeiture and penalty . . .<sup>9</sup>

Knowledge of the general theory of the protection of intellectual property, especially copyright law, was brought home to all American lawyers by Blackstone's *Commentaries*. The first American edition, printed in 1771, contained the following section:

When a man by the exertion of his rational powers has produced an original work, he has clearly a right to dispose of that identical work as he pleases, and any attempt to take it from him, to vary the disposition he has made of it is an invasion of his right of property . . .

But, exclusive of such copyright as may subsist by the rules of common law, the statute of 8 Ann. c. 19, hath protected by additional penalties the property of authors and their assigns . . . All of which appear to have been suggested by the exception in the statute of monopolies, 21 Jac. 1, c. 3. which allows a royal patent of privilege to be granted for fourteen years to any inventor of a new manufacture, for the sole working or making of the same; by virtue whereof a temporary property therein becomes vested in the king's patentee.<sup>10</sup>

Blackstone soon became the leading authority in the American colonies on common law, and the above passage may have helped to crystallize a demand for copyright protection. The first state law, passed by Connecticut on January 8, 1783, was called "An act for the encouragement of literature and genius." It provided that "the author of any book or pamphlet not yet printed, or of any map or chart . . . shall have the sole liberty of printing, publishing and vending the same within this state . . ."<sup>11</sup> An interesting feature of this law was that it gave a court power to grant a compulsory license in case the proprietor did not furnish enough copies to satisfy the public, or sold them at unreasonable prices.

The demand for copyright protection became quite strong at this time. Noah Webster, of dictionary fame, was one of the advocates of legislation. Many petitions and memorials were sent to the Continental Congress, which passed a resolution on May 2, 1783, recommending that the several States "secure to the authors or publishers of any new book not heretofore printed . . . the copyright of such books . . ."<sup>12</sup> The result was that by 1786 every state except Delaware had passed a copyright statute.<sup>13</sup>

Most of these state laws contained specific reference to the "authors" of "books," "pamphlets," "treatises," "literary works," or "writings." Three of them, Connecticut, Georgia, and North Carolina, included the "author" of "any map or chart."

Such was the condition of copyright law in America at the time of the Constitutional Convention.

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<sup>9</sup>Theodore Solbert, "Copyright Enactments of the United States, 1783-1906," *Copyright Bulletin* 3, (1906), p. 113.

<sup>10</sup>Blackstone's *Commentaries*, (Philadelphia, 1771), II, p. 405. In *Millar v. Taylor* (1769) Blackstone, as counsel for plaintiff had argued in favor of a perpetual common law copyright, and the Court of King's Bench had agreed with him. But in 1774 the House of Lords upset this decision, and held that once a work was published it was subject to the Copyright Act.

<sup>11</sup>*Copyright Laws of the United States, 1783-1957* (Washington, D.C.: Copyright Office, The Library of Congress, 1957), p. 2.

<sup>12</sup>*Ibid.*, p. 1.

<sup>13</sup>Each of these state laws is given in full in *Copyright Laws*, *ibid.*

HISTORY OF THE  
COPYRIGHT CLAUSE OF THE CONSTITUTION

The events leading up to the adoption of the patent-copyright clause of the Constitution have been related many times. However, we must report on the copyright clause in order to set the stage for a fair interpretation.

Difficulties and inconvenience arising from the existence of 13 independent state governments had resulted in a movement for a central government with limited powers. James Madison, then a member of the Virginia House of Delegates, proposed calling the Annapolis Convention, which led to the Constitutional Convention in 1787.

Madison, who had "read law,"<sup>14</sup> was probably better versed in political science than any other delegate, and has been called the "Father of the Constitution." Just prior to the convention he had made a study of confederacies<sup>15</sup> and written a paper on "The Vices of the Political System of the United States." This paper listed among the "vices" the "want of uniformity in the laws concerning naturalization and literary property."

Another prominent figure was Charles C. Pinckney, of South Carolina. He had been educated at Oxford and was a member of the British bar, so he too must have been familiar with the British laws on copyright.

Four days after the convention opened, Governor Randolph presented the Virginia plan "for a federal government," which was largely the work of Madison. Other plans were presented by Hamilton, Paterson, and Pinckney. Discussion and compromise proceeded for two months until July 26, when a Committee of Detail, which included Madison, was selected to incorporate into a written constitution the provisions that had been agreed upon. The first draft, reported on August 6, contained no clause relating to patents and copyrights.

On August 18 Madison proposed<sup>16</sup> that certain "additional powers" be vested in the legislature of the United States, including power:

To secure to literary authors their copyrights for a limited time.

To encourage, by proper premiums and provisions, the advancement of useful knowledge and discoveries.

Madison's notes had originally included this additional clause:

To secure to inventors of useful machines and implements the benefits thereof for a limited time.

The inadequacy of the reports leaves it uncertain whether Madison included this last clause in his actual proposals to the convention, but probably he omitted it on the theory that it was included in his second proposal given above.

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<sup>14</sup>E. S. Corwin, *The Posthumous Career of James Madison as a Lawyer*, A.B.A.J., (Oct. 1939), p. 821.

<sup>15</sup>Papers 18, 19, and 20 of *The Federalist* are based on this essay.

<sup>16</sup>Max Ferrand, *The Records of the Federal Convention* (New Haven, Conn.: Yale University Press, 1911), II, p. 321.

On the same day Charles Pinckney made the following proposals, almost duplicating those of Madison:

- To grant patents for useful inventions.
- To secure to authors exclusive rights for a certain time.
- To establish public institutions, rewards and immunities for the promotion of agriculture, commerce, trade and manufacture.

The proposals of Madison and Pinckney were referred to a committee on style, of which Madison was a member. This committee's report, which was adopted by the convention without a dissenting vote, placed the following clause in Sec. 8 of Article I:

The Congress shall have Power . . . to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective writings and Discoveries.

#### GENERAL INTERPRETATION OF THE COPYRIGHT CLAUSE

It is to be noted that the clause finally adopted includes the proposals of granting copyrights to authors and patents to inventors, but omits any provision for "premiums" or "rewards" as suggested in the preliminary proposals of both Madison and Pinckney. In other words, the convention adopted the free enterprise method of self help, and rejected payment of rewards out of the public treasury.

The only contemporary discussion of this clause is the following passage by Madison in No. 43 of *The Federalist*:

The utility of this power will scarcely be questioned. The copyright of authors has been solemnly adjudged, in Great Britain, to be a right of common law. The right to useful inventions seems with equal reason to belong to the inventors. The public good fully coincides in both cases with the claims of individuals. The States cannot separately make effectual provision for either of the cases, and most of them have anticipated the decision of this point, by laws passed at the instance of Congress.

In mentioning a common law right of authors Madison was referring to a decision of the House of Lords<sup>17</sup> in 1774 which held that an author had a common law copyright in his unpublished work, but that a published work was subject to the Copyright Act.

The passages quoted in full above are the only ones available bearing directly on the patent-copyright clause of the Constitution. A study of these in the light of a full knowledge of the long historical background, and taking the large view required when we are construing a constitution, leads us inevitably to the conclusion that in adopting this clause the convention intended merely to transfer all power over the subjects of copyright and invention to the federal Congress.

#### ANALYSIS OF THE SPECIFIC LANGUAGE OF THE COPYRIGHT CLAUSE

In order to make a complete study we will analyze every word of this clause of the Constitution.

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<sup>17</sup>Donaldson v. Becket, 2 Bro. Patent Cases 129.

This clause is a good example of the "balanced" sentences often used at that time in formal writing. It starts first with two objects to be promoted; next names the two types of persons to be encouraged; and ends with two types of subject matter to be protected. By grouping together the object, person, and subject matter that are related, we find the copyright part of the clause reads as follows:

The Congress shall have power . . . to promote the Progress of Science . . . by securing for limited Times to Authors . . . the exclusive Right to their writings . . .<sup>18</sup>

The word "science" at that time had a meaning quite different from the one now current. It meant "knowledge" in general.<sup>19</sup> This distinction between the fields of copyrights and patents was carried over into the first statutory enactments. The first copyright law was entitled "An Act for the encouragement of *learning*," while the first patent law was entitled "An act to promote the progress of useful Arts."

The presence in the clause of the phrase "limited times" is not a new limitation, but was the usual one used in connection with patents even before the Statute of Monopolies (1623). A definite time limitation on copyright had been included in the first copyright statute (Statute of Anne, 1710) and in every subsequent copyright statute.

A study of the background and history of this constitutional clause should convince anyone that in using the phrase "promote the progress" the convention was not consciously adopting any words of limitation, but was merely expressing the conviction that the granting of patents and copyrights does "promote progress." This conviction was based on 200 years of experience with patents in England and the American colonies, and on over 100 years of experience with copyrights.

There has been some debate concerning the phrase "securing . . . the exclusive right." Some have argued that the word "securing" implies the effective guarding of a pre-existing common law right, rather than the creation of a new statutory right. The quotation given above from Madison's paper in *The Federalist* taken alone would tend to support that view. However, it must be remembered that Madison's preliminary proposal had contained the phrase "limited times," showing that he acknowledged the rightness of a statutory time limitation. The tenor of the whole passage indicates that he was merely expressing his approval of patents and copyrights, and was arguing that power over them should be lodged in Congress, rather than in the separate states. His reference to Great Britain shows he approved of the way the problem had been handled there.

It has been argued that the word "exclusive" means that the right granted must be a fee simple which is beyond the power of Congress to qualify or regulate. But prior history shows that colonial grants of both patents and copyrights often contained definite conditions subsequent. The best evidence indicates that the

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<sup>18</sup>This division of the clause was rediscovered by DeWolf, *ibid.*, p. 15. It is documented in Lutz, *Patents and Science*, 18 GEO. WASH. L. REV. 50-55 (1949), and was adopted in the Report of the House Committee on the Judiciary which accompanied the 1952 Patent Act.

<sup>19</sup>Samuel Johnson's dictionary of 1755 gives "knowledge" as the first meaning of the word "science."



phrase "securing . . . the exclusive right" was the current way of referring to the grant of patents and copyrights.<sup>20</sup>

There remains to be discussed only the phrase "writings of authors." In their preliminary proposals Madison referred to "literary authors" and Pinckney to "authors." The committee on style used the words "authors" and "writings." But Madison, a member of this committee, knew about the laws of Great Britain, where copyright was not limited to books. He was probably familiar with Blackstone's defense of the right of a man who has "produced an original work." He must also have known that the laws of three of the new states covered the "author" of "any map or chart." His broad defense of the patent-copyright clause in *The Federalist* certainly does not indicate any narrow view of the clause. And we have shown above that aside from the mention of "limited times" there is no apparent limitation in the copyright clause itself.

Books and pamphlets were, of course, the best-known product of authors at that time, and doubtless the convention used the term "writings" merely as a symbol of copyrightable subject matter.

All this evidence supports a conclusion that in adopting the copyright clause the Constitutional Convention did not have any narrow limitations in mind, but merely meant to transfer all power over the subject of copyright from the states to the federal Congress. Congress would therefore be free to legislate in this broad field to meet needs as they arose.

#### ACTION BY CONGRESS

The first Copyright Act, passed in 1790 was entitled "An Act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies . . ." Note that this title is similar to the title of the English Statute of Anne, of 1710.

The first Congress included as members James Madison and many others who had attended the Constitutional Convention, and their passage of this act shows that they did not interpret the constitutional clause as being limited to literary productions.

An interesting sidelight on the protection of ornamental designs is furnished by the action of the first Superintendent of Patents, who also administered the Copyright Act. This office was created in 1802 by James Madison, then Secretary of State, who appointed to it his friend and neighbor, Dr. William Thornton.

As the business of the "Patent Office" grew, it became advisable to put into writing a guide to proper procedure. So on March 5, 1811, Supt. Thornton issued an 11-page pamphlet of information concerning patents and copyrights. After explaining the statutory procedure for obtaining a copyright, which included depositing copies with the clerk of the local federal court, the pamphlet contains this passage:

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<sup>20</sup>Lutz, *Are the Courts Carrying Out Constitutional Public Policy on Patents?* 34 J. PAT. OFF. Soc'y 2, (Oct. 1952).

In securing designs for paper hangings and ornaments for rooms, etc. a specimen of each should be deposited in the clerk's office, where the inventor resides, who will describe in writing, all the ornaments, and the colors used in each, so as to designate them with the changes that are proposed to be used in changing the ground and general tint. Let each paper thus described, be numbered 1, 2, 3, &c. and after entering them in the clerk's office, and publishing them as directed, let a specimen of each be sent to the hon. the secretary of state, or through him to the person who directs the patent office, with corresponding descriptions and numbers; & a certificate of such a deposit will complete the requisitions of the law in securing the exclusive right to each original production of genius.

This pamphlet was undoubtedly approved by Thornton's friend and superior, James Madison, and hence it lends added weight to the opinion that Madison did not take a limited and literal view of the patent-copyright clause of the Constitution.

The incident also shows that by 1811 there was a demand for protection for designs such as "paper hangings and ornaments for rooms." In meeting this need the rules referred to the "inventor" of the design, but the procedure was purely copyright.

The present writer does not know of any records to show how this procedure was used to protect ornamental designs. Any records that may have been kept were destroyed when the Patent Office (Blodgett's Hotel) was destroyed by fire in 1836.

No doubt the procedure was used, as there continued to be a demand for design protection. The next record of any action is the suggestion made by Commissioner of Patents Ellsworth in 1841 that the issuing of design patents be authorized by statute.

As the result of this request, when an act was passed in 1842 to amend the patent statute, a section was included providing for the issue of a patent to anyone who "may have invented or produced any new and original design for a manufacture," etc.<sup>21</sup> The section then proceeded to enumerate a number of classes of articles, including designs for "woolen, silk, cotton or other fabrics," statues, and designs "to be placed on any article of manufacture." This enumeration would appear to include everything intended to be included in the Willis Bill covering "ornamental designs for useful articles."

If at this time the history of our patent law had taken a different course, it is possible that this intended coverage of designs would have developed so as to have adequately met the present-day demand for design protection.

At the time the 1842 act was passed the question of the amount of novelty necessary to constitute invention was almost a moot question. Infringement suits were tried before juries, and the question of "novelty" was left to the decision of the jury, reviewable only as a finding of fact.

Hence it seems certain that when the "design patent" section was added to the patent act in 1842, no one contemplated a requirement that the designs to be protected must have "inventive" novelty, as we use that term today.

However, shortly thereafter, that is, in 1850, the Supreme Court decided in *Hotchkiss v. Greenwood*, 52 U.S. 248, 13 L.ed. 683, that a patentable invention must exhibit "more ingenuity and skill . . . than . . . possessed by an ordinary

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<sup>21</sup>Act of Aug. 29, 1842, §3.

mechanic acquainted with the business." From this time on the courts began to require this element of "patentable novelty."

The design section of 1842 had included a clause that design patents were to be issued "as in the case now of application for a patent." Therefore, as the requirement of "patentable novelty" grew it came to be applied to design patents.

This historical development was unfortunate, because most "ornamental designs for useful objects" involve a lesser amount of ingenuity than that required to pass the test of "patentable invention," as has been recognized in every other civilized country. The result has been that very few U.S. design patents have been able to pass the "invention" test, and this is one factor behind the long and insistent demand for protection on copyright principles, which merely require that the production be the original intellectual work of an author.

Since the history of design patents is not within the scope of this article, we will turn back to our study of congressional action relative to copyrights. We find that subsequent to the first copyright act of 1790, laws were enacted to expand the subject matter that could be copyrighted. In 1802 protection was extended to historical and other prints.<sup>22</sup>

In 1831 the subject matter was expanded to include musical compositions and cuts. The committee report on this bill stated that "the law of copyright ought to extend to musical compositions, as does the English law."<sup>23</sup>

Further extension of subject matter was made in 1856 to the public performance of dramatic works; in 1865 to photographs; in 1870 to "paintings, drawings, chromos, statuettes, statuary, and models or designs intended as works of fine art," and in 1912 to motion pictures.

These actions by Congress show a continued adherence to the broad interpretation of the constitutional copyright clause adopted by it in 1802. And they parallel in a remarkable way legislative action taken in Great Britain and other countries to extend copyright protection to new needs as they arise.

When the copyright statutes were amended and consolidated in 1909, the new law contained a clause which read as follows:

Sec. 4. That the works for which copyright may be secured under this Act shall include all the writings of an author.

It might seem that the draftsman who inserted this clause intended to exhaust the constitutional power of Congress, since it repeats the phrase "writings of an author." But the committee report which accompanied the new statute specifically stated that there was no intention to change in any way the construction which the courts have placed on the word "writings."

This ambiguous section, which is retained in 17 USC Sec. 4, was held by the

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<sup>22</sup>The history of congressional action is thoroughly covered in the article by Lichtenstein, *et al.*, *Study of the Term "Writings" in the Copyright Clause of the Constitution*, 31 N.Y.U. L. REV. 1263-1312. (Nov. 1956).

<sup>23</sup>Lichtenstein, *id.* at 1270.

Court of Appeals for the Second Circuit<sup>24</sup> as having a more limited meaning than the corresponding clause of the Constitution. In the view of the constitutional clause taken in the present article this Sec. 4 was based on a misconception of the constitutional meaning. It appears that there was a division of opinion within the committee as to the purpose and effect of the section since someone had proposed using the word "works" instead of "writings." It is believed that copyright law would be better off if this section were removed from the statute.

#### ACTION BY THE COURTS

Almost without exception the courts have approved of the broad view of the copyright clause taken by Congress. The Supreme Court accepted it in *Burrow-Giles v. Sarony*<sup>25</sup> (1884). In that case the defendant argued that a photograph was neither a "writing nor the production of an author." But the court upheld the copyright and said:

The construction placed upon the constitution by the first act of 1790 and the act of 1802, by the men who were contemporary with its formation, many of whom were members of the convention which framed it, is of itself entitled to great weight, and when it is remembered that the rights thus established have not been disputed during a period of nearly a century, it is almost conclusive . . .

An author in that sense is "he to whom anything owes its origin; originator; maker; one who completes a work of science or literature." . . .

Nor is it to be supposed that the framers of the constitution did not understand the nature of copyright and the objects to which it was commonly applied, for copyright, as the exclusive right of a man to the production of his own genius or intellect, existed in England at that time . . .

In the *Trade-Mark* cases<sup>26</sup> it was argued that a law of Congress regulating trademarks came under the patent-copyright clause of the Constitution. The Supreme Court, in analyzing the clause, pointed out that copyrightable matter involves "the fruits of intellectual labor," whereas in many cases a trademark is "the adoption of something already in existence as the distinctive symbol of the party using it." In refusing to extend the copyright clause to cover the field of trademarks, the Court did not in any way restrict the area of material that can be covered under true principles of copyright, but merely pointed out that typical trademarks do not come within that area.

The Supreme Court touched upon the interpretation of the copyright clause in a recent case, *Mazer v. Stein*,<sup>27</sup> in which it held that statuettes of dancing figures, which had been registered as "works of art" were entitled to copyright protection even though actually used as lamp bases, which are articles of utility. The majority opinion says:

The petitioners assume, as Congress has in its enactments and as do we, that the constitutional clause . . . includes within the term "Authors" the creator of a picture or a statue.

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<sup>24</sup>Capitol Records, Inc. v. Mercury Records Corp., 221 F. 2d 657.

<sup>25</sup>111 U.S. 53; (1884).

<sup>26</sup>100 U.S. 82 (1879).

<sup>27</sup>347 U.S. 201 (1954).

A dissenting opinion by Mr. Justice Douglas, concurred in by Mr. Justice Black, raised the question whether statuettes can be considered as "writings of an author." In spite of the fact that statuettes were specifically included in the field of copyright by Congress in 1870, and that act was at least inferentially approved in 1884 by the Supreme Court, these Justices would reopen the matter, and suggest further research. That invitation has furnished the motive for the present study, and for other articles that have recently appeared in this field.

The lower courts have discussed the scope of the copyright clause in many cases, but the consensus of opinion favors a broad interpretation upholding the power of Congress to extend protection to new subject matter as long as it comes within general principles of copyright law.<sup>28</sup> This attitude was well stated by Judge Learned Hand in an opinion upholding copyright protection on a code of cable words. He said it is not true that the Constitution

embalms inflexibly the habits of 1789 . . . Its grants of power to Congress comprise, not only what was then known, but what the ingenuity of men should devise thereafter . . . The new subject-matter must have some relation to the grant; but we interpret it by the general practices of civilized peoples in similar fields, for it is not a strait-jacket, but a charter for a living people.<sup>29</sup>

This statement by Judge Hand and the language quoted above from the Supreme Court's opinion in *Burrow-Giles v. Sarony* very clearly summarize both the historical data and the principles involved. Every writer who has made any considerable study of the subject seems to agree that the copyright clause should be given a broad interpretation.<sup>30</sup>

#### OBJECTIVE OF THE WILLIS BILL

It follows from the above discussion that in studying the Willis Bill we must avoid the mistake of starting with an attempt to interpret the single word "writings." Rather we must start with a broad inquiry as to whether the objective falls within the general principles of copyright law.

The authors of the Willis Bill have been careful to base it on copyright principles. Protection depends upon "originality" in the sense that the ornamental design is the intellectual product of the "author." Infringement results from actual copying, as in the case of copyrights. It would seem that this bill comes within general principles of copyright law, and therefore lies within the power of Congress to legislate in this field.

#### CONCLUSIONS

In the above study we have considered the historical development which preceded the Constitution; we have analyzed the constitutional clause; and we have

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<sup>28</sup>For a detailed analysis of the case law, see Lichtenstein, *supra* n. 22, p. 1282.

<sup>29</sup>*Reiss v. National Quotation Bureau, Inc.*, 276 Fed. 717, 719 (S.D.N.Y. 1921).

<sup>30</sup>See Lichtenstein article, *supra* n. 28; also case note, *Constitutional Limits on Copyright Protection* 68 HARV. L. REV. 517 (1955).

briefed the subsequent action by Congress and the courts. All of this evidence points in one direction, and fully justifies the following conclusions:

1. Historically, copyright law has developed by statutory extension of protection in specific media as the need has arisen.
2. The constitutional copyright clause should be interpreted broadly as giving Congress power to legislate in the field of copyrights.
3. Whether a particular medium comes properly within the sphere of protection must be decided by general principles of copyright law.
4. The object covered by the Willis Bill, that is, "an ornamental design of a useful article" produced by an "author," comes within general principles of copyright law.

It is believed that these conclusions accurately summarize past history and form a sound basis for stating that the objective of the Willis Bill is within the legislative power of Congress as granted by the copyright clause of the Constitution.

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The purpose of this book is to assemble and correlate basic copyright materials. Includes an annotated bibliography and a commentary on the Universal Copyright Convention.

Seidel, Arthur H. *American Law Institute, Committee on Continuing Legal Education of the American Law Institute collaborat-*

ing with the American Bar Association, 1957. 141 pp.

Written primarily for the general practitioner, this booklet is intended to serve as a handbook and companion to the author's monograph on "What the General Practitioner Should Know about Patent Law and Practice."

Smith, Arthur M. *Patent Law, Cases, Comments and Materials*. 2 vols. and Supplement. Ann Arbor, Mich.: Overbeck Co., 1954. 1175 pp.

Cases and materials on patent law selected on the basis of the author's experience as a practicing patent lawyer. Certain materials and features of the casebooks prepared by John Barker Waite, former Professor of Law, University of Michigan, have been incorporated. Materials from the Patent Office and court records with respect to the case of *Copeman Laboratories Co. v. General Motors Corp.*, 72 F. Supp. 734, *aff'd* 171 F. 2d 288 have been printed as a supplement to the casebook.

Taton, Rene. *Reason and Chance in Scientific Discovery*. New York: Philosophical Library, 1957. 169 pp.

In this work, translated from the French by A. J. Pomerans, Dr. Taton examines the relative roles of active purpose and chance in the processes of scientific discovery. He illustrates his thesis with practical examples from the lives and works of distinguished scientists.

Wilson, Mitchell A. *American Science and Invention, a Pictorial History*. New York: Simon and Schuster, 1954. 437 pp.

A short, pictorial history for popular consumption with emphasis on physical science and technical change by a physicist-inventor. Serious students might compare the discussion with those in other books. Presents a series of colorful episodes in which the reciprocal impact of machines on our society comes through. The collection of illustrations and format are most unusual.

Whyte, William S., Jr. *The Organization Man*. New York: Simon and Schuster, 1956. 429 pp.

Whyte believes the decline of rugged individualism in America has been followed by the rise of the organization man, whose



characteristics he examines. He also explores the treatment by the "organization" of the scientist and researcher.

Wittenberg, Philip. *The Law of Literary Property*. Cleveland and New York: The World Publishing Company, 1957.

#### PERIODICALS

Andrews, Don D., and Simon M. Newman. "Activities and Objectives of the Office of Research and Development in the U.S. Patent Office," *Journal of the Patent Office Society*, 40, (Feb. 1958), 79-85.

Bishop, Arthur N., Jr. "Employers, Employees, and Inventions," *Southern California Law Review*, 31, (Dec. 1957), 38.

Bloxam, G. A. "Letters Patent for Inventions: Their Use and Misuse," *Journal of Industrial Economics*, 5, (July 1957), 157-179.

Written primarily with reference to British circumstances, this article discusses the nature, uses, and possible misuses of patents.

Bowman, Ward S., Jr. "Tying Arrangements and the Leverage Problem," *Yale Law Journal*, 67, (Nov. 1957), 19.

Callmann, Rudolph. "Unfair Competition with Imported Trademarked Goods," *Virginia Law Review*, 43, (April 1957), 323.

Case Note, "Patent—Secrecy Order as a Bar to Maintenance of Suit," *Fordham Law Review*, 26, (Autumn 1957), 586.

Davidson, Samuel L. "Patents—Application of Literal Terms of Misuse Section of Patent Act to Defeat Misuse Defense. [Federal]," *Washington and Lee Law Review*, 14, (1957), 280.

De Simone, Daniel V. "Patents—Aspects of the Doctrine of Prior Knowledge and Use," *New York University Intramural Law Review*, 13, (Nov. 1957), 11.

Finnegan, Marcus B., and Richard W. Pogue. "Federal Employee Invention Rights—Time to Legislate," *Michigan Law Review*, 55, (May 1957), 903.

Furth, Helmut F. "Price-Restrictive Patent Licenses Under the Sherman Act," *Harvard Law Review*, 71, (March 1958), 815.

John Marshall Law School, Chicago. The Lawyers Institute. *Reprints of Papers Presented at the Trademarks in Action Conference*. Published by The Lawyers Institute of The John Marshall Law School, Chicago, 1957.

Browne, Francis C. "Interlocutory Practice and Procedure in Trademark Cases in the Patent Office."

Derenberg, Walter J. "Federal Unfair Competition Law at the End of the First Decade of the Lanham Act: Prologue or Epilogue?" Leeds, Daphne. "Evidence in Trademark Cases."

Lunsford, Julius R. Jr. "Protection of Identifying Advertising Symbols—Pictorial and Animated."

Clark, George R. "Action and Inaction—A House Counsel Looks at Trademark Protection."

Pattishall, Beverly W. "Reaction Test Evidence in Trade Identity Cases."

Littenberg, Robert L. "Trade Regulation—Patents—Anti-Trust Laws—Patent Act of 1952 Permits Restrictive Licensing Agreements of Essential Components of Combination Patent.—*Sola Elec. Co. v. General Elec. Co.*, 146 F. Supp. 625 (N.D. Ill. 1956)," *Texas Law Review*, 35, (May 1957), 738.

Newman, Simon M. "Linguistics and Information Retrieval; Toward a Solution of the Patent Office Problem." Monograph Series in Linguistics and Language Studies, No. 10, Washington: Georgetown University Press, 1957. Reprinted in *Journal of the Patent Office Society*. 39, (Oct. 1957), 720-729.

Schmookler, Jacob. "Inventors Past and Present," *The Review of Economics and Sta-*

*tistics*, 39, No. 3 (August 1957), 321-333.

Deals with a survey of years of schooling and occupation of inventors from a sampling of patents issued in October and November 1953. His returns show the percentage of patents attributed to technologists compared to independent non-technical inventors. Correlations lead the author to infer that since 1900 inventive function has gradually shifted from independent to hired inventor, but that the intensity of this shift has been diminishing.

Steele, Robert W. "Regulation of Business—Patents—Effect of Section 271 on the Doctrine of Contributory Infringement," *Michigan Law Review*, 55, (June 1957), 1151.

Webb, John M. "Patents—the Changing Standard of Patentable Invention: Confusion Compounded," *Michigan Law Review*, 55, (May 1957), 985.

Yankwich, Leon R. "Legal Protection of Ideas—A Judge's Approach," *Virginia Law Review*, 43, (April 1957), 375.

#### REPORTS AND HEARINGS

*Basic Research, A National Resource*. Washington: National Science Foundation, 1957. 64 pp.

Report designed to convey in non-technical language the meaning of basic research in science and its importance to the nation. Suggestions made for steps to be taken for encouragement and support of basic research.

Burns, Joseph W. *A Study of the Antitrust Laws: Their Administration, Interpretation and Effect*. New York: Central Book Co., 1958. 574 pp.

A Report to the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, U.S. Senate, 84th Cong., 1st Sess. Prepared by the staff under direction of Mr. Burns as former Chief Counsel and Staff Director.

*Congress and the Monopoly Problem, Fifty-six Years of Antitrust Development, 1900-1956—History of Congressional Action in*

*the Antitrust Field Since 1900*, Select Committee on Small Business, House of Representatives, 84th Cong., pursuant to House Res. 114 by Legislative Reference Service of the Library of Congress. Washington: Government Printing Office, 1957.

*Developing and Selling New Products*. Second edition U.S. Department of Commerce and Small Business Administration, 1955. 105 pp.

This "guidebook for manufacturers" includes information on trademarks (pp. 42-45) and patents (pp. 75-80).

*Government-University Relationships in Federally Sponsored Scientific Research and Development*. Washington: National Science Foundation, 1958. 37 pp.

Report describes the evolution of federally sponsored research and development at colleges and universities and indicates current nature and amount of financial support. Certain problem areas of Government-university relationships are discussed and recommendations made.

*Non-Conventional Technical Information Systems in Current Use*. Washington: National Science Foundation, 1958. 43 pp.

Report on certain technical information systems, currently in operation, for organizing subject matter, storage, and search.

*Proceedings of the President's Conference on Technical and Distribution Research for the Benefit of Small Business*. Washington: U.S. Department of Commerce, 1957. 287 pp.

In addition to several general papers, includes many informative case histories of the opportunities that have been opened to small business through research. Some specific remarks are made on patents—for example, in G. C. Suits' talk on the assistance given small business by large business (p. 55) and in R. W. Olson's report on the development of a hardy firm with the aid of patent licenses (pp. 56-59).

*Progress in Peaceful Uses of Atomic Energy: July-December 1957*. U.S. Atomic Energy Commission, January 1958. 463 pp.

Contains a section on patents for industrial use (pp. 171-174) and carries forward

the listing of Commission-owned patents released for nonexclusive, royalty-free licensing (pp. 337-339).

Publications of the Subcommittee on Patents, Trademarks and Copyrights of the Committee on the Judiciary, U.S. Senate, 85th Cong., 1st Sess.

#### PATENT STUDIES

No. 7. *Efforts to Establish a Statutory Standard of Invention.*

No. 8. Whinery, *The Role of the Court Expert in Patent Litigation.*

The above constitute reports Nos. 7 and 8 to the Subcommittee and continue the series listed in the March 1958 issue of the *Journal* (Vol. 2, No. 1, p. 173).

#### OTHER PUBLICATIONS

*Report, Patents, Trademarks, and Copyrights* (S. Rept. No. 1430, 1958).

*Consent Decree Program of the Dept. of Justice, Hearing Before the Antitrust Subcommittee (Subcom. No. 5) of the Committee on the Judiciary, House of Representatives, 85th Cong., 1st Sess., Pt. I, Vol. I and Part I, Vol. II, Oil Pipelines, 1957.*

Reports of the Office of Research and Development on Efforts to devise mechanized patent searching facilities, Washington: U.S. Patent Office.

Report No. 1—D. D. Andrews and S. M. Newman—*Storage and Retrieval of Contents of Technical Literature—Nonchemical Information—Preliminary Report*—May 15, 1956.

Report No. 2—B. E. Lanham, J. Leibowitz, and H. R. Koller—*Advances in Mechanization of Patent Searching—Chemical Field*—April 11, 1956.

Report No. 3—S. M. Newman—*Problems in Mechanizing the Search in Examining Patent Applications*—1957.

Report No. 4—S. M. Newman—*Storage and Retrieval of Contents of Technical Literature—Non-Chemical Information—First Supplementary Report*—June 1957.

Report No. 5—B. E. Lanham, J. Leibowitz, H. R. Koller, and H. Pfeffer—*Organization of Chemical Disclosures for Mechanized Retrieval*—June 14, 1957.

Report No. 6—D. D. Andrews—*Interrelated Logic Accumulating Scanner (ILAS)*—June 25, 1957.

Report No. 7—J. Frome and J. Leibowitz—*A Punched Card System for Searching Steroid Compounds*—July 8, 1957.

Report No. 8—J. Frome, H. R. Koller, J. Leibowitz, H. Pfeffer, and D. D. Andrews—*Recent Advances in Patent Office Searching: Steroid Compounds and ILAS, 1957.*

Report No. 9—S. M. Newman—*Linguistic Problems in Mechanization of Patent Searching*—1957.

Report No. 10—H. Pfeffer, H. R. Koller, and E. C. Marden—*A First Approach to Patent Searching Procedures on Standards Electronic Automatic Computer (SEAC)*—Jan. 28, 1958.

*Second Report of the Attorney General on Competition in the Synthetic Rubber Industry*, July 1, 1957. 45 pp.

This report, transmitted to the Congress, covers industry operation in the calendar year 1956. Of special interest are brief chapters on small business (pp. 23-26) and patents and technology (pp. 27-29).

*Survey of Attitudes of Scientists and Engineers in Government and Industry.* Committee on Engineers and Scientists for Federal Government Programs. Washington: Government Printing Office, 1957. 47 pp.

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## NOTES

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### Annual Public Conference

The second Annual Public Conference of The Patent, Trademark, and Copyright Foundation will be held on June 19 and 20, 1958, at the Sheraton-Park Hotel, Washington, D.C.

The purpose of this Conference is to present to the public final and interim reports on the Foundation's research projects. The Conference is to provide a broad and representative perspective and furnish a constructive atmosphere in which to explore the nature and significance of the findings resulting from the Foundation's projects; formulate the areas that need further research and gathering of facts; and discuss the general information which exists for the resolution of those larger problems which these projects define. Those in attendance will have the opportunity to comment upon the work of the Foundation, making suggestions for future study, and participating in the stimulating

and productive exchanges and contacts of the Conference.

The research work of the Foundation represents the first university attempt at a comprehensive study of the patent, trademark, copyright and related systems in the United States. This study is systematically planned and coordinated; inter-disciplinary in nature, utilizing a combination of disciplines such as economics, statistics, psychology, sociology, and law; and empirical, that is, based on the facts gathered by the staff on the actual operation of the systems.

In attendance at this second Annual Public Conference will be key representatives from the different fields of activity throughout the nation, the fields of commerce, education, science, manufacturing, labor, finance, and the professions.

The program follows:

#### THURSDAY, JUNE 19, 1958

##### 8-9:00 a.m. REGISTRATION

LAWRENCE R. HAFSTAD, *Moderator*

##### 9:00 a.m. WELCOME: NEWELL W. ELLISON, *Secretary of the Board of Trustees*, The George Washington University

Report on the Patent, Trademark, and Copyright Foundation's Progress  
O. S. COLCLOUGH, *Director*; L. JAMES HARRIS, *Executive Director*

##### 9:30 a.m. TAXATION AND PATENTS (Project 7A)

Report presented by ROBERT B. BANGS and JOSEPH P. DRISCOLL,  
*Co-Principal Investigators*

*Discussants*

PAUL D. SEGHERS, Seghers, Rhinehart, & McCall, New York  
WALTER A. SLOWINSKI, Baker, McKenzie, & Hightower, Chicago and Washington, D.C.

## 11:00 a.m. BRIEF PROGRESS REPORTS ON FOUNDATION PROJECTS

Summary of Completed Studies on THE ROLE OF PATENTS IN THE CREATION AND GROWTH OF SMALL INDUSTRIAL UNITS (Project 3A): Custom Heat Treating; Boston Area Electronics Industry; New Steel Technology

IRVING H. SIEGEL, *Principal Consultant*

PUBLIC ATTITUDES TOWARD PATENTS, TRADEMARKS, AND COPYRIGHTS: (Project 6A)

JAMES N. MOSEL, *Principal Investigator*

## 12-1:30 p.m. LUNCHEON

## 1:30 p.m. EFFECTS OF CERTAIN ANTITRUST DECREES INVOLVING PATENTS AS A MAJOR FACTOR (Project 4A)

Report presented by GEORGE E. FROST, *Principal Investigator*

*Discussants*

H. THOMAS AUSTERN, Covington & Burling, Washington, D.C.

HERBERT A. BERGSON, Bergson & Borkland, Washington, D.C.

## 3:00 p.m. SPECIAL SESSION DEVOTED TO DISCUSSION OF CURRENT ISSUES

This session will be so organized as to encourage maximum participation from the floor.

Moderator: JOHN C. GREEN, *Consultant to the Foundation*

Speakers: FLOYD H. CREWS, Darby & Darby, New York

CARL KAYSER, *Professor of Economics*, Harvard University, Cambridge, Massachusetts

THEODORE S. KENYON, Kenyon & Kenyon, New York

JACOB RABINOW, *President*, Rabinow Engineering Co., Inc., Takoma Park, Maryland

## 5:00 p.m. Adjournment

## 6:30 p.m. RECEPTION

## 7:30 p.m. DINNER honoring S. CHESTERFIELD OPPENHEIM, the recipient of the first "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education."

*Presentation of the award; address by Professor Oppenheim*

FRIDAY, JUNE 20, 1958

O. S. COLCLOUGH, *Moderator*

## 9:30 a.m. RELATION OF AMERICAN PATENTS, TRADEMARKS, AND TECHNIQUES, AND AMERICAN-OWNED FOREIGN PATENTS TO FOREIGN LICENSING (Project 5A)

Report presented by J. N. BEHRMAN, *Principal Investigator**Discussants*PAUL R. PORTER, *President*, Porter International Company, Washington, D.C.IRA T. WENDER, *Lord, Day & Lord*, New York11:00 a.m. BRIEF PROGRESS REPORTS ON FOUNDATION PROJECTS  
New Studies of THE ROLE OF PATENTS IN THE CREATION AND GROWTH OF SMALL INDUSTRIAL UNITS (Project 3A)IRVING H. SIEGEL, *Principal Consultant*Aluminum Processing Industry—MARSHALL C. HOWARD, *Research Associate*Fabricated Plastics Products Industry—MURRAY BROWN, *Research Associate*Scientific and Other Instruments Industry—PAUL F. NICHOLS, *Research Associate*

## THE ROLE OF PATENTS IN EXECUTIVE DECISIONS (Project 8A)

JESSE W. MARKHAM, *Principal Investigator*

## 12-1:30 p.m. LUNCHEON

## 1:30 p.m. PATENT UTILIZATION (Project 1A)

Report presented by JOSEPH ROSSMAN and BARKEV S. SANDERS, *Co-Principal Investigators**Discussants*EWAN CLAGUE, *Commissioner of Labor Statistics*, U.S. Department of Labor, Washington, D.C.EARL P. STEVENSON, *Chairman of the Board* (or alternate), Arthur D. Little, Inc., Cambridge, Massachusetts

## 2:45 p.m. ATTITUDES OF AMERICAN INVENTORS TOWARD DEFENSE INVENTION (Project 6B)

Report presented by JAMES N. MOSEL, *Principal Investigator**Discussants*WADSWORTH W. MOUNT, *Inventor and Engineering Consultant*, Summit, New JerseyH. F. SYKES, *Staff Engineer*, Advanced Systems Concepts, Chrysler Corporation, Detroit

## 4:00 p.m. Adjournment of Conference

A \$50 Conference fee covers attendance at all sessions, two luncheons, a reception and dinner. Students working toward a degree and persons primarily engaged in teaching at a college or university may attend these same events for \$20. Fee for the recep-

tion and dinner only is \$10.50.

Registrations and checks for the Conference fee should be mailed to The Patent, Trademark, and Copyright Foundation, The George Washington University, Washington 6, D.C.

### The Foundation's Library

A library devoted to the Foundation's fields of interest is gradually taking form at Foundation headquarters on The George Washington University campus.

Miss Bertha M. Rothe, Assistant Librarian in charge of The George Washington University Law Library, is also Foundation librarian.

It is expected that—as the library grows—it will become a rich source of information for teachers, students, researchers, business and professional

people. A carefully planned, specialized research center, the library should eventually hold an important place among the informational and educational institutions in the Nation's Capital.

Interested persons are invited to contribute, as loans or permanent gifts, books and manuscripts in the fields of economics, statistics, law, psychology, sociology, and engineering relevant to the Foundation's objectives.<sup>1</sup>

### Advisory Council Meeting

The fourth annual meeting of the Advisory Council of the Foundation was held at The George Washington University April 10, 1958. Discussions were held by the Council members and staff on organizational and financial matters of the Foundation and on the various research projects, educational, publication, public conference, and other programs.

The officers of the Council elected for this year are: Chairman, Lawrence R. Hafstad, Vice President in Charge of Research, General Motors Corp.; and Vice Chairman, Willard C. Asbury, Vice President, Esso Research

and Engineering Co.

The members of the Executive Committee are: Laurence B. Dodds, President, Hazeltine Electronics Corp.; Edward R. Weidlein, former President, Mellon Institute of Industrial Research; and William T. Woodson, Woodson, Pattishall and Garner. The Chairman and Vice Chairman of the Council are ex officio members of the Committee.

Joseph W. Barker, Chairman of the Board, Research Corporation, and Lee J. Gary, Gary, Desmond & Parker, are serving on the Journal Committee of the Advisory Council.

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<sup>1</sup>See objectives listed in PTCJRE, II, No. 1, (March, 1958), p. 178.

## Case Histories

We would like to devote a portion of the *Journal* every year to the presentation of case histories of recently<sup>1</sup> patented inventions. Such case histories might refer to circumstances of invention, problems involved in pat-

enting, assigning, marketing and applying the invention, etc. We solicit readers to encourage inventors or their associates to send in such case histories for consideration for publication as notes or contributed articles.

## 1958-59 Bulletin

The 1958-1959 *Bulletin* of the Foundation, which includes information on the organization of the Foundation, its educational and research programs and a list of Foundation

members, was distributed in the early spring. Persons interested in the work of the Foundation are invited to write in for copies.

## Selection from a Talk on "The Engineer, the Patent System and the Foundation"\*

L. JAMES HARRIS, Executive Director

INVENTION IS A FUNCTION, as well as the result of that function; and the result has legal status. As a function, it is a mode of innovative behavior in a broad economic and sociological sense, and such behavior is considered a very important element of a dynamic society's activity.

One route society has set up to channel inventive behavior is a system of awards. This is the patent system. Through it advantages flow to society. In return, society confers a legal right which has a property value. All parts of society—the various publics—are interested in inventions and patents. Indeed, everybody uses inventions every hour of the day, awake or asleep. One

of the major interests of The Patent, Trademark, and Copyright Foundation—considered as a part of society—is to study the social meaning of invention and its applicability through the patent channel.

In one sense the patent bar is the mediator between the inventor and society, which is represented by the law. The Foundation is interested in studying the whole process, in studying its dysfunctional aspects as well as its proper function, and in creating more understanding. It is interested in learning what is "best" for society and "best" for inventors.

As applied social scientists, lawyers have long been interested in the whole

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<sup>1</sup>Patented within the last five years.

\* This is an abbreviated version of an address presented under the auspices of The Patent, Trademark, and Copyright Foundation before the Engineering Society of Detroit. Members of the Michigan Patent Law Association and the American Patent Law Association, in convention in Detroit at the time, were invited to attend the meeting. Dr. Charles F. Kettering, a member of the Foundation's Advisory Council, introduced Executive Director Harris.



process—in their own role, in society as the beneficiary, and in the inventor as Prometheus. The lawyer is the mediator between the Promethean act of invention and society, which shows its gratitude by recognizing certain types of property and sets up a shelter for the profitable use of this property.

The Foundation aspires, among other things, to study the many-sided relationships involved. It supports systematic empirical research, analysis of the facts, and evaluation of the findings. It takes account of the arts, sciences, and technology as parts of the American economic and social structure.

Engineers are generally recognized to play an important role in our society's productive mechanism with respect to the design, development and manufacture of goods. However, is their behavior sufficiently innovative to stamp them as inventors? Do engineers have an interest in the Foundation research program as inventors, whether or not they formalize their contributions as inventions for patent? Do they, like inventors, have to feel themselves into, or under the skin of, so to speak, a device or process? Do they too have an intuitive understanding of mechanisms? When designing, are engineers actually inventors, whether or not they use the patent channel? Perhaps, like Moliere's character in *The Amateur Gentleman*, M. Jourdain—who was astounded to find that all his life he had been speaking prose—many engineers do not realize that they have been spending a large part of their professional lives inventing.

A position frequently entertained is

well expressed by Admiral B. A. Fiske, himself an inventor:

It is true that many of the most important inventions have been made by engineers, but this has been because some engineers, like Ericsson, have been inventors also. But it is also true that only a small proportion of the engineers have made original inventions; and it is equally true that many inventions have failed—or have been slow in achieving success—because of the lack of engineering skill in construction or design. These facts show that the work of the inventor is very different from that of the engineer, and that the inventor and the engineer are very different people, though an engineer and an inventor sometimes live together inside of the same skin. In fact, it is by a combination of inventive genius and engineering talent in one man that the greatest results in invention have been achieved; though great results have often followed the intimate cooperation of an inventor and an engineer, the two being separate men.<sup>1</sup>

In all types of society, no matter how primitive, invention occurs as an activity. In the more primitive societies made up of small groups who live face to face, inventions are simple things, and their acceptance is based on relatively simple needs. If people feel that what has been invented serves a real need, it will be used; if not, it will be rejected.

Even in very primitive societies, basic invention was probably not the result of one man's efforts or one man's insights. Primitive man did not suddenly come upon the wheel and say, "Ah, this is just what I was looking for." The wheel probably was the result of the trial and error of many individuals. Small increments of progress must have preceded the final insight. Small improvements went on and still go on constantly, often unplanned and fortuitous.

When society becomes as complex as ours, relationships and operations

<sup>1</sup> B. A. Fiske, *Invention, the Master-Key to Progress*. (New York: Dutton, 1921), p. 10.

must be institutionalized—organized to meet the needs of a large, variegated public. When relationships and operations are institutionalized, there are inevitable conflicts of interest. Consequently, something must be done to provide the judiciary function, so that conflicts might be avoided, anticipated, or adjusted for smoothness and efficiency. The achievement of tolerable adjustments is the purpose of the law in society, of the judiciary in society—and, more specifically, of the patent system.

The patent system is like a huge iceberg—we see very little of it. Below the surface it is huge; and it profoundly affects in subtle ways all aspects of our technology and our economic system. An example of the important concepts with which the patent law must deal is that of invention itself. The legal concept must be circumscribed by certain rules in order to establish a standard, a guide, by which men can measure whether their contribution is sufficiently unique to merit protection by society. The standard of invention, however, cannot be spelled out precisely, as a chemical equation or a mathematical formula can for physical phenomena. In view of the relatively amorphous nature of the subject matter, the fact that the present standard of invention has been applied with some success since about 1850 is no small accomplishment.

Many Americans subscribe to the belief that the patent system has been one of the main channels through which the United States has steadily advanced to a position of technological primacy. The common belief is that the system also has fostered inventive resourcefulness, the development of technical know-how, the investment of risk capital, and scientific research—and thus has contributed to a progressively higher standard of living.<sup>2</sup>

These beliefs have been questioned by some people. The doubts have been reflected in the literature and in the hearings, investigations, and reports of various branches of the Government. The controversy has involved the related systems of laws such as those of trademarks and copyrights.

Some questions asked by the doubters are:

"Just what have these systems meant to the welfare of the United States?"

"Have they given our people the benefits claimed for them?"

"To what extent are they an important factor in providing employment opportunities?"

"Are the creative incentives of the systems to the scientist, inventor, and author indispensable?"

"Are the means for rewarding the contributions of scientists, inventors and authors adequate?"

"How do the systems affect the atti-

<sup>2</sup>"The issue of patents for new discoveries has given a spring to invention beyond my conception." Thomas Jefferson.

"An inventor deprives the public of nothing which it enjoyed before his discovery, but gives something of value to the community by adding to the sum of human knowledge." *United States v. Dubilier Condenser Corp.* 289 U.S. 178.

"Inventions are a part of our national productions, as much as our cotton, and wheat, and corn, and tobacco." 19 J. PAT. OFF. SOC'Y 38 (1937).

"Patents are the life of research." Vannevar Bush, "Science the Endless Frontier," 1945, p. 103.

"Patents are the keys to our technology; technology is the key to production; production is the key to victory." F. D. Roosevelt, TNEC Hearings, Pt 1, p. 2 (1942).

tude of the industrialist and businessman, large and small, toward investment of risk capital in new enterprises and toward growth of his company or industry?"

Out of these uncertainties and the gaps in existing knowledge, the need for the Foundation arises. The major contribution of the Foundation is diagnosis. Its primary purpose is to ascertain how the systems are functioning, and to make the facts available to citizens of the country in objective reports. These facts could become the basis for sound, remedial action.

Information gathered by the Foundation on the originality of engineers is particularly interesting in view of the charge of a lack of inventiveness voiced by writers generally. Although engineers have been praised for keeping the wheels of industry in motion, they have been charged with being chiefly engaged in duplicating past results.

Scientific literature on the inventiveness of engineers is quite limited. In 1925 each of the 18,373 biographies which were included in *Who's Who In Engineering* were checked by Rossman, who is now one of the members of the Foundation's research staff, for inventions, if any, whether patented or unpatented.<sup>5</sup> Of these engineers, 1,835 or 10% indicated that they had made inventions. Compared with the

inventiveness of the general public, this percentage was very high. The impressive fact about these figures, however, is that engineers typically did not consider most of their achievements as inventions.

Questionnaires were then sent to the 1,000 outstanding engineers in the 1925 *Who's Who In Engineering* who had stated that they made inventions. Of this group, 258 replied that they had secured patents for their inventions. Although the information was derived from a select group and could not safely be generalized, it may be significant that these engineers obtained on the average 27.5 patents. They were extremely active indeed in patenting inventions.

Another dimension of the inventiveness of engineers was explored in another type of study. This study inquired whether inventiveness was attributable to environment or to the inheritance of mental capacities, tendencies and abilities. However, no conclusive evidence was found that definitely pointed to heredity or environment as the decisive factor, or pointed even to inheritance of a specific ability to invent.

An early study was made by Galton<sup>4</sup> of 977 eminent men who had 739 relatives of eminence. Studies have since been made by Brimhall<sup>5</sup> and Cattell<sup>6</sup> of American men of science and also by Clarke<sup>7</sup> and De Candolle.<sup>8</sup> All

<sup>5</sup> Joseph Rossman, "Do Engineers Invent? And Why Do They Abhor the Label 'Inventor?'" *The Technology Review*, 34, No. 3 (Dec. 1931), Mass. Institute of Technology, Cambridge, Mass.

<sup>4</sup> E. Galton, *Hereditary Genius*, (New York: Appleton, 1869, reprint 1914).

<sup>5</sup> D. R. Brimhall, "Family Resemblances among American Men of Science," *American Naturalist*, 56 (1922) 504-547; 57, (1923), 74-88, 137-152, 326-344.

<sup>6</sup> J. M. Cattell, *American Men of Science*, (Garrison: Science Press, 1921). *Science*, 1906, N.S. 24, 732-744. *Popular Science Monthly*, 62, (1903), 359-377.

<sup>7</sup> E. L. Clarke, *American men of letters*, Studies in History, Economics, and Public Law, No. 168, Columbia University, 1916.

<sup>8</sup> A. de Candolle, *Histoire des Sciences et des Savants Depuis Deux Siecles*, 2nd ed., (Geneve-Bale, Georg, 1885).

show that eminence runs in the same families, but the findings do not necessarily mean that heredity is the sole cause of eminence. Children born in eminent families inherit not only an organic mechanism from their parents but also social values and aspirations, which might be much more important than the hereditary organic mechanisms. Bogardus<sup>9</sup> analyzes the fundamental conditions essential to genius and achievement as (1) social environment which is mentally stimulating, (2) thorough training, (3) freedom from the struggle for bread, and (4) social respect as a medium for development of self-respect.

In order to throw some light on the heredity of inventiveness, Rossman<sup>10</sup> obtained firsthand information from a group of over 700 of the more active and important inventors of this country. The inventive activity of these men is indicated by the fact that they had obtained an average of 39.3 patents. About one-third of the inventors had fathers engaged in the professions. Of the 231 whose fathers were professional people, the three leading professions were engineering, 46; law, 31; and education, 26. The inventors were also asked to state whether their children showed any evidence of inventiveness. About two-thirds of the inventors had adult children who showed some evidence of inventiveness. Nearly two-fifths had relatives who were inventors.

Army tests given at about the same time also showed that there are distinct differences in the intelligence of the various occupational groups. The

professional groups, such as doctors, engineers, and lawyers, were at the top.

If the results of all these studies are still valid, we must conclude that the sons of professional people, including engineers, are fairly likely to show inventive ability. And at least in the recent past, (1) vigorous innovational behavior was manifested by engineers, and (2) many engineers utilized the patent channel.

Some findings of the Foundation's research projects cast light on the role of the engineer as inventor today. In the project on the "Attitudes of American Inventors Towards Defense Invention," out of 418 *competent* inventors who answered the question: "If you have attended college or done graduate work, what was the content of your academic training?" 32 reported engineering (unspecified); 94, mechanical engineering; 88, electro or electronics engineering; 52, chemical engineering; and 26, other types of engineering. Thus, 70% of those who answered this question had engineering training.

According to the 1950 census, engineers constituted less than 1% of the total labor force in the United States. In the Foundation's study of "Patent Utilization," based on a scientific sample of patents issued by the Patent Office, approximately 40% of the inventors completing the questionnaire consider themselves engineers; and these accounted for 45 to 50% of the patents in the sample.

Thus, it appears from the sample, that less than 1% of the labor force,

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<sup>9</sup> E. S. Bogardus, *Fundamentals of Social Psychology*, (New York: Century, 1924). 387-388.

<sup>10</sup> Joseph Rossman, *The Psychology of the Inventor*, (Washington, D.C.: The Inventors Publishing Co., 1931), p. 186.

the engineers, obtains approximately half the patents! They are 40 times more likely to get a patent than all occupational groups as a whole. The average number of patents issued to engineer inventors is approximately 23.1. The corresponding figure for other occupations is 18.5. Although about one-seventh of inventors who report themselves as engineers have not gone beyond high school, their productivity does not appear to be significantly different from that of their academically trained associates.

These averages and percentages are based on what the respondents considered themselves to be. Some of these may be engineers in name only. But then again, who is to say what constitutes an engineer? The Winston dictionary defines an engineer as "1, one who is skilled in the principles and practice of any branch of mechanical science, as, a mechanical, electrical, or chemical *engineer*; 2, one who has charge of and operates an engine or locomotive; 3, one of a group trained in building bridges, roads, etc., for military use; 4, one who carries through a scheme or undertaking; a schemer: *civil engineer*, a person versed in the construction of roads, bridges, lighthouses, and other public works . . ."

Was Watt, the mathematical instrument maker who spent much time in the company of the most distinguished scientists of his day and who made perhaps the most important invention of the Industrial Revolution, an engi-

neer? Was Sir Charles Parsons, of steam-turbine fame, who was privately tutored and gained practical knowledge of engineering in workshops, an engineer? Or Elihu Thomson, Westinghouse, Edison, Farnsworth, or W. J. Kroll, engineers?

The analysis of the "Patent Utilization" sample produced another interesting fact: nearly 50% of the inventors of assigned patents report their occupation as engineering and only 18% of the inventors of unassigned patents report their occupation as engineering. Thus, considerably more of the inventors whose patents are transferred or sold to companies consider themselves engineers.

Other facts are also illuminating. Engineers in the sample who had assigned their patents had an average of about 26 patents per engineer. The average was about 23 for *other* inventors of assigned patents. Engineers who had not assigned their patents in the sample had an average of about 16 patents per engineer. The average was about 8 for *other* inventors of unassigned patents.

Referring again to the question of whether engineers are inventors, it appears that even now, as in the past, engineers make a decisive contribution to innovation in our society. Furthermore, they often make their contribution through the patent channel. In other words, engineers in essence are a Promethean or inventive element of society whether they realize it or not.<sup>11</sup>

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<sup>11</sup> To make clearer the work of the Foundation and to illustrate the Foundation's projects in which inventors as engineers are involved or to demonstrate other innovational activity by people like engineers who are being studied by the Foundation, brief reference was made in the speech to the Foundation as an organization and to the other projects now in progress. See PTCJRE, particularly Vol. 1, No. 2, pp. 175-185, and the 1957 Conference Supplement.



# Public Attitudes Toward the Patent System\*

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## SUMMARY AND CONCLUSIONS

THE PUBLIC ATTITUDES PROJECT was designed as an exploratory investigation of attitudes toward, and informational levels about, the patent system. Its immediate practical objective was to provide guidance for possible educational and public information programs. To this end, the project attempted to study intensively several aspects of attitudes toward the patent system, the areas of ignorance and knowledge which exist, how people come to acquire their information about the patent system, and some of the determinants of their attitudes. The background thinking behind this study, together with the conceptual scheme used to guide the research, has been presented in an earlier article in this *Journal*, "Public Attitudes Toward the Patent System" (Vol. 1, No. 1, pp. 159-167). The present paper presents the major findings of this research.

Attitudes toward the patent system were found in general to be largely uncrystallized, poorly organized, ambiguous, and unstable. They might better be considered as momentary judgments made in terms of certain broad frames of reference which had been developed in other areas of living. Beyond this, attitudes appeared to be formed inductively from certain fragmentary dramatic instances which respondents had picked up casually from reading and listening. On the whole, attitudes toward the patent system were favorable, due in large measure to respondents' great tolerance toward the inequities of the system.

The level of information about inventions and the patent system was uniformly low, haphazard, and fragmentary. Information appeared to be acquired mainly from other people and was thus a matter of social happenstance. The content of such information was focused primarily on the novelty of inventions and on certain dramatic instances which were usually unfavorable in the sense that they highlighted the inequities of the patent system. The scant information possessed by respondents was poorly integrated with their attitudes and was poorly used in the formation of attitudes, presumably because it was too vague to prescribe a clear-cut attitude stand.

Interest in the patent system, and in information about it, was low. Items of information acquired interest only when these related to per-

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\* This is a research report on Project 6a, "Public Attitudes Toward Patents, Trademarks, and Copyrights."

sonal goals of the respondent. One primary type of interest around which information was collected related to the respondent's role as a consumer. Another, secondary type of interest was the respondent's role as a potential inventor. It seemed clear that interest and information-seeking would occur only in those aspects where the patent system was related in the respondent's mind to his everyday living or occupation. Since the patent system had no such visible connection with the lives of many respondents, there was little interest, and consequently little information to provide the basis for firm attitudes.

Although it could not be said that firm attitudes toward the patent system exist, it was apparent that there were certain broad frames of reference which respondents used in making their judgments about the patent system. Such frames of reference are general orientations or value systems which the respondent employs somewhat habitually in viewing many aspects of his world, including the patent system. The most obvious of these was an orientation labeled "Mass Society" v. "Individualism" which predisposed the respondent to side for or against the inventor on several specific issues. Attitudes were similarly influenced by the respondent's identifications. Of the several kinds of identifications disclosed, the respondent's role as a consumer was shared by all in one way or another. Frames of reference and identifications thus served as predispositions which influenced attitudes. It could be said that while crystallized attitudes on the patent system had not yet formed, there were certainly *predispositions to accept attitudes*. Any further research into public attitudes should therefore be aimed at studying more extensively the nature of such predispositions to accept attitudes, rather than the overt attitudes themselves.

These findings suggest certain general recommendations for public information and education programming:

- (1) There are few if any intense biases or convictions which need to be counteracted.
- (2) Because existing attitudes and beliefs are so fragile and undeveloped, the task of implanting new attitudes should meet with little psychological resistance.
- (3) Because existing attitudes and misimpressions are so unstable, they should be relatively open to change.
- (4) The main stereotypes which need remedial action are those relating to the image of the inventor, his financial rewards, patents as a creator of monopolies, and patent suppression.
- (5) Since most information on the patent system was acquired casually through social happenstance, there is a very definite need for a systematic and concerted information program employing a number of effective media.



(6) The media employed should have high prestige and reliability in the eyes of the audience. This high prestige and reliability should be established before the factual information of the "patent story" are presented.

(7) Before substantive information is given, interest in acquiring such information must be created first.

(8) A general lack of interest was noted in most respondents. This lack exists because respondents do not see any meaningful and tangible connection between the patent system and their own lives.

(9) This connection must be established before proceeding to any substantive information-giving. It can probably be most easily established by tying in the patent system with the audience's role as a consumer and as an income-earner.

(10) Interest is most likely to be elicited on the following topics: (a) how an invention is patented and marketed; (b) the inventor's financial returns and economic situation; (c) what the patent system means to the consumer (new products, lower prices, monopolies, suppression, standard of living).

## METHODS AND PROCEDURES

THE ORIGINAL PLAN OF THE PROJECT called for a study of university students of The George Washington University, and then later, a cross-section of the general public in Washington, D.C. Preliminary to this, exploratory interviews were first conducted with 25 students and non-students in an attempt to discover what areas of questioning might be studied and to formulate a tentative questionnaire. From this work an experimental questionnaire of the conventional type was developed. This questionnaire asked a number of specific questions about the patent system which were intended to reveal the respondent's beliefs and attitudes. In addition, questions were included which would uncover the sources of his information, and what specific information he possessed about the patent system. The question format was mostly of the "fixed-response" variety wherein the interviewer merely checks the appropriate reply category corresponding to the respondent's answer. The original intention was to use this questionnaire on a sample of 250 students (both in technical and liberal arts subjects), and then later on a sample of 100 employed family heads drawn from the general population. The 250 students were interviewed, as well as 35 men from the general population. However, during the first 25 student interviews a finding appeared which led to a basic change in the research technique and in the approach to analyzing and reporting the total results. This same finding was also affirmed, but with even greater force in the 35 interviews with the general "man on the street."

**A FINDING AND A DILEMMA**

The finding in the first 25 interviews with the questionnaire which led to a change in research directions was this: with almost no exceptions, the respondents simply did not hold any attitudes in the rigorous sense of the word. While they could respond to our questions, their responses were really momentary judgments about the patent system rather than well-formulated attitudes. Their "attitudes" (if they could be called such) were "horse-back" opinions, developed in the course of the interview, and without any prior organization. They were thrown together quickly in the course of the interview in order to satisfy the questions of the interviewer.

This situation was indicated by a number of conditions which were observed in all interview records:

(a) Replies were extremely vague and unclear. It was difficult to say just what the respondent's specific view was. In many cases the respondent couched his reply in terms of very broad generalities which could have any number of differing specific meanings.

(b) When such unclear replies were probed by the interviewer, the respondent dodged, hedged his response, and insisted on using "weaseled" conditional statements in an attempt to maintain his generalities.

(c) Replies were extremely inconsistent. "Attitudes" reported early in the interview were contradicted by "facts" and other attitudes given later.

(d) In many questions the respondent would typically reply by giving the total range of possible answers to the question without taking sides with any one of them. For instance, in responding to the question, "Where do you think the greatest number of useful inventions comes from? Manufacturing companies, individual private inventors, government research, universities, etc.," interviewees would typically say something like, "Well, industry provides this type of invention, but then again private inventors often give us that kind of invention." Respondents would cite and justify a wide variety of answers and "weasel" out of any commitment. For this reason, it was extremely difficult for the questionnaire to discriminate among respondents in terms of their answers. All respondents tended to give the same kind of reply simply by giving all possible replies.

(e) The replies were very fragile, unstable, and subject to change. The respondent would often alter his reply in the course of answering the question. This was clearly brought out by a small experiment which was conducted at the end of every interview done in the study. The interviewer would draw the respondent's attention to something he had said earlier in the interview, and then point out a discrepancy, or perhaps add a new piece of information, or otherwise encourage the respondent to reconsider. Without exception, the respondent would always alter his original reply. This result is in line with what has been learned in many other studies of public opinion, namely, that the less crystallized the attitude, the less enduring it is and the easier it is to change it. In the present

study attitudes were so uncrystallized that they were easily changed, either by the respondent (as a result of his own talking) or by the interviewer (as a result of unconscious cue-giving during the interview).

(f) Lastly, the respondents appeared to be anxious to be led in the interview. They were on the lookout for cues and suggestions from the interviewer which would help them give a satisfactory reply. They actually sought information from the interviewer and often would attempt to turn the questioning into a discussion.

All this means that the responses of our interviewees do not pass muster as an "attitude" according to the usual criteria adopted by serious attitude researchers. Instead of saying that our respondents "have attitudes," it would be much more accurate to say that they are willing to make judgments about the patent system, and that these judgments are based upon very unorganized and fragmentary foundations. Beyond this, it is very important to note, however, that while the respondents tended not to possess any firm attitudes, they did possess certain *predispositions* to accept attitudes in the form of certain broad frames of reference which will be discussed later.

The immediate implication of these observations for the data at hand is that the conventional survey approach using a fixed-response type of questionnaire had to be abandoned. It would be quite possible to obtain answers to the questionnaire, tabulate these and statistically analyze them. The results, however, would not be realistic. When people do not hold well differentiated attitude positions, it is meaningless to use predetermined answer categories or even to force open-end replies into fixed coding categories. Furthermore, a by-product of unstable attitudes is heightened sensitivity of the respondent to bias effects. The more uncrystallized attitudes are, the easier it is for very small unconscious cues on the part of the interviewer to influence the interviewee's reply. One of the fallacies to which commercial opinion research is sometimes prone is that it applies elaborate statistical analysis to opinion data which are highly unreliable psychologically. To avoid this difficulty, the present project altered its research methods to accommodate more adequately to the peculiarities of the object of study.

#### NEW DIRECTIONS IN RESEARCH APPROACH

In view of the above, the conventional questionnaire with fixed categories of response was largely abandoned, and in its stead a revised *interview guide* was adopted. This guide employed "open-end" questions which imposed no restrictions upon the respondent's replies. These questions were supplemented by additional "probing" questions to be used in obtaining a fuller and more detailed reply. The responses were recorded verbatim as far as practicable, and in any case, the interviewer's notes were expanded immediately after the interview in an attempt to reconstruct the fullness of the respondent's answers.

The revised approach with the interview guide had the following characteristics:

(a) The method adopted was essentially a "clinical" or case-study approach in which the researcher tries to understand how the respondent views the patent system as a whole. Emphasis is placed on seeing the respondent's views as a pattern, not as a series of discrete responses to be analyzed separately. This must be done because the meaning of one answer can only be ascertained by studying it in connection with all other answers. (This approach has proved very fruitful in understanding the basic character of attitudes. See, for instance, Mortimer B. Smith. *Opinions and Personality*. New York: Bruner and White, 1956).

(b) The search should be for common themes shared by all (or almost all) respondents. Here we are looking for continuities and homogeneities in opinion which characterize the great majority of the respondents. The emphasis is on how our respondents are alike, rather than how they differ. This approach is in sharp distinction to the usual method where respondents are sorted into various answer categories and the frequencies within these categories are then statistically analyzed. Our approach was necessitated by the fact that the differences among our respondents' replies were so very unstable and unreliable. By focusing on shared communalities, we were able to deal with attitude characteristics which were more enduring and fundamental. In studying each respondent's interview record, certain common attitude themes were fairly visible. It is largely these aspects of the group's attitudes which are henceforth reported as the "attitudes" studied. In passing it should be noted that this same emphasis upon shared attitude themes has been widely employed in modern market research under the label "motivational research" (see, for instance, G. H. Smith. *Motivation Research in Advertising and Marketing*. New York: McGraw-Hill, 1954). This is also the approach used by anthropologists and sociologists in studying the "culture pattern" of some sub-group or institution.

(c) In view of the above, simple statistical frequencies would not tell the main story of our data; thus they will be used only in connection with certain special questions which are susceptible to this type of treatment. The attitude themes reported later, unless qualified by statistical frequencies, were noted in the great majority of our respondents. In practice an arbitrary out-point of 80% was adopted as the criterion for "most of our respondents." In reading the results which follow, then, it should be realized that attitudes reported without statistical frequencies occurred in at least 80% of the interviewees.

(d) The qualitative approach described above places a great premium on effective interviewing. The interviewing must be truly non-directive wherein a very minimum of structure is imposed upon the respondent's reply. Special care must be taken to avoid bias from the interviewer, both conscious and unconscious. And the respondent's replies must be adequately probed in order to assure qualitative fullness.

## SAMPLE OF RESPONDENTS

The final form of the Interview Guide was used to interview 250 male students. One hundred of these were undergraduate students in the last two years of liberal arts programs. Another hundred were juniors and seniors pursuing programs in engineering, physics, chemistry, pharmacy, and biology. Fifty were employed engineers (all in private industry) who were also pursuing part-time graduate courses in engineering administration. Their jobs varied considerably. Sixty-five per cent were classifiable as production engineers; about 20% were in research and development; while the remainder were in "services" (staff engineering, quality assurance, reliability testing, etc.). None held any patents. The age of the undergraduates ranged from 19 to 22, while the group of employed engineers ranged from 29 to 42, with a mean of 36.

In addition to this group of 250, 35 interviews were also conducted with what were intended to be "average men on the street." The original plan called for a larger sampling of the general Washington population. The results with the first 35 interviews, however, were so unproductive, and the "attitudes" disclosed so superficial and changeable, that further interviewing was discontinued as being too costly for the small return. Also, the results obtained were so similar from one respondent to the next that further interviewing would have added little if any additional data. These 35 interviews were drawn from a master probability sample (of the area type) of 200 households selected in an earlier survey conducted by the writer and an advertising research organization. It cannot be said that the 35 interviews represent a random sampling of the master sample; however, the remarkable homogeneity in responses from the different respondents suggests that additional interviews would not have changed the picture very much. The 35 men interviewed were all heads of households and ranged in age from 24 to 62. About one-fifth had had some college, the rest with two exceptions had all graduated from high school. By the usual sociological criteria, about one-fifth would be classed as "upper middle-class," while the remainder were largely "lower middle" and "upper lower" class.

## RESULTS

The findings resulting from the above approach are presented below in accordance with the conceptual scheme developed in the first *Journal*<sup>1</sup> article on this project. It should be borne in mind that we are primarily attempting to describe the common attitude characteristics shared by all or most of our respondents. All of the findings are based upon the sample of 250 students. Within this group, the employed engineers are reported separately only in cases where a significant (both in the statistical and qualitative sense) and relevant difference was observed.

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<sup>1</sup> PTC J. Res. & Ed., I, No. 1 (June 1957), pp. 159-167.

## THE INFORMATIONAL BACKGROUND OF ATTITUDES

*Informational Support*

Before turning to a discussion of attitudes themselves, it would be helpful if we first described the nature of the informational support underlying these attitudes. By "informational support" we mean the amount and kind of information upon which an individual's attitudes rest and the way this information is used by the individual in formulating his attitudes. In addition to helping us understand attitudes, knowledge of informational support is of obvious practical value. We must know these areas of ignorance of knowledge before attempting to conduct a program to provide further information.

The information possessed by the respondents consisted of two general kinds: information about the patent system as such, and information about specific inventions (or inventors) and the stories behind these inventions. The first type of information was studied mainly by means of a 20-question information test which was designed specifically for this purpose, although additional insights were achieved by studying the information voluntarily cited by the respondent in answering the opinion questions. We originally intended to score the answers to this test in terms of "false" or "true." On many questions, however, the respondents resisted giving such answers and insisted on replying with "don't know." When a distinct reply was given, the respondent was probed as to the reasons for his answer.

The most obvious characteristic of respondents' information about the patent system was its paucity. When the test papers were scored by a formula which corrects for guessing and not attempting a question (i.e., the "don't know" replies),<sup>2</sup> only 17% of the respondents yielded scores which exceeded the results that would be obtained by chance guessing. All but six persons in this 17% were members of the 50 industrial engineer group, who, by nature of their work, had probably been more exposed to patent procedures. Questions which everyone felt sure of answering and which with only two or three exceptions were answered in the same way were: (a) A chemical process cannot be patented in the U. S. (answered as "false"), (b) The original and first inventor is not entitled to a patent in the U. S. (answered as "false"), and (c) The patent gives the individual an effective bargaining position when dealing with corporations (answered as "true"). In reply to the question, "The U. S. Patent Office does not examine each patent application," respondents either said "false," or something to the effect that "the Patent Office does examine every application with the exception of the obviously crackpot ideas." The responses to the other questions were either "don't know" or were such that the distribution of replies could not be shown to be greater than that obtained by simple chance guessing.

In exploring the basis for those few replies where respondents were confident of their answers, it was found that typically the respondent would reply to the

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<sup>2</sup> See H. D. Gulliksen. *Theory of Mental Tests*. (New York: Wiley, 1950) for a discussion of the statistical procedures for doing this.

general situation described in the question by reasoning from a specific instance of which he knew. For instance, when asked whether the statement "A chemical process cannot be patented in the U. S." was false or true, respondents answered "false" because they could think of an instance where a chemical process had been patented (in their belief). The most commonly cited instances were Charles Martin Hall's aluminum process and the Bessemer process for iron. These instances appeared to have been learned as part of science courses in high school or college. Reasoning was inductive, rather than deductive.

A large part of the difficulty with the information test was that respondents were unfamiliar with some of the terminology. Terms like "licensing" and "patent pool" were often guessed at from the respondent's general knowledge concerning what these words mean in other contexts. For instance, the respondent knows what "license" means in the general sense, so he would develop his own concept of what it meant in the patent sense—and then reason from this. This ignorance of terms, of course, is merely further evidence of his lack of familiarity with the formal principles and laws of the patent system.

Information concerning inventions and the patent stories behind them was similarly scant. Most knowledge of inventions was confined to three patterns: (a) new and novel inventions of recent origin, (b) dramatic instances of inventors who were "cheated" or occasionally became rich from inventions, and (c) "classic" inventions (e.g., steam engine, etc.). Examples of all three patterns were easily evoked from all respondents. The first pattern was solely concerned with nature of the invention itself, usually its novelty. There was very little knowledge displayed about the patent story behind such inventions. The interest motivating such knowledge lay in curiosity and a concern for "what it means for me as a consumer." This kind of knowledge was not directly related in the respondent's mind to the patent system.

The second pattern, "knowledge of dramatic instances," centered not so much on the nature of the invention, but on the unusual story behind it. Over two-thirds of the instances cited were of the "cheated inventor" type wherein an inventor had his invention "stolen," or purchased and then suppressed; or perhaps he was unable to market his invention because of organized opposition. The remaining instances cited were about equally divided between the "inventor gets rich" type and the type where the "inventor earned a small return, while somebody else got rich." It appears from this that the majority of patent stories known to our respondents were those entailing a violation of the spirit of the patent system. Whether this was due to selective memory or the greater currency of such stories, or both, could not be ascertained from our data.

In general, knowledge of the patent system and inventions was a fragmentary collection of odds and ends, superficial in content, and acquired haphazardly from second-hand sources. Items of information which were noted in an appreciable number of respondents were (a) the function of the Patent Office and the procedure of patent search (approximately 80%), (b) the cost of patent search is "low" (approximately 80%), (c) the first patent-holder retains his rights for

about 17 years (approximately 37%), (d) licensing (approximately 21%). The engineer group differed from the undergraduates in that literally all of them showed some minimal awareness of the above four areas. Approximately three-fourths of the undergraduates and all of the engineers mentioned at least one instance of alleged "suppression."

### *Sources of Information*

When respondents offered information, they were questioned about how they had acquired the information. The responses to this inquiry were tabulated. With respect to the "dramatic instance" type of information, 72% of all responses (not respondents) could be classified as "by word of mouth" or "someone told me." Approximately 6% were associated with "reading it somewhere, probably in a newspaper or magazine (or journal)," while the remaining 22% were too unsure to give a definite reply. (These per cents are based on the total sample of 250. The 50 employed engineers, when studied separately, gave the same rank-order of percentages; the actual per cents varied somewhat from the above but the differences were not statistically significant.)

When asked how they learned about new patents and inventions, almost all undergraduate respondents (with the exception of six persons in the undergraduate group) mentioned three sources: other people, seeing them in stores, and reading about them in some printed medium. About 10% also mentioned some unusual channel such as television, science fairs and exhibits, and university courses. (The employed engineers differed significantly from the undergraduates only in one respect: "other people" was frequently mentioned in connection with engineering society conventions, and "printed media" was often phrased as "engineering journals." It was impossible to determine accurately the relative frequency of these references without considerable re-interviewing.) By "other people" the respondents meant friends or acquaintances; in fact, those were the words used by most respondents. A small number (3%) mentioned, in addition, "professor," "boss."

Respondents were specifically asked if they could recall reading of some new patent or invention, and if so, where they had read about it. The great majority (88%) could not recall anything definite, although they agreed that they probably had, but were unable to remember. Of the 12% who could recall, over half mentioned *Time* (53%) and *Popular Science* (58%). Other sources mentioned were *Newsweek* (40%), *U. S. News and World Report* (22%), *Popular Mechanics* (22%), *Reader's Digest* (18%), and *Family Circle* (7%). (These per cents do not total 100 because most respondents mentioned more than one source.)

When asked what media would be best for announcing new patents to the general public, all respondents mentioned television, slightly less than three-fourths mentioned radio news broadcasts, while about 62% mentioned newspapers.



Viewing the above results as a whole, it is clear that the principal source of information about the patent system comes from other people, a source particularly prone to disseminate stories which in a sense is unfavorable (e.g., suppression of patents). Other people also appear to be an important source of information about new patents and inventions. On the whole, it seems that people's exposure to information about the patent system and patents is extremely accidental and fragmentary, and is determined largely by social happenstance.

### *Relation between Attitudes and Information*

Here we are concerned with how people *use* whatever information they possess in formulating their beliefs and attitudes about the patent system, its operation, and role in society. The question is essentially, "how does information influence attitudes and beliefs?"

Because the Information Test discriminated so poorly among respondents (i.e., gave a very restricted range of scores), it was impossible to study quantitatively the relation between test score and attitudes. Consequently, analysis proceeded via another channel. The immediate attitude context surrounding the mention of "information" was studied to determine what connection might exist; furthermore, respondents were queried concerning the interpretation they assigned to "information" which they had cited in discussing their attitudes. This approach is quite qualitative and "clinical," hence our conclusions are necessarily tentative.

Since the informational exposure of our respondents had not taught them many sound principles or generalizations about the patent system, they were forced to formulate their beliefs and attitudes (which are essential generalizations) from the odd bits of specific "information" that they did possess. A common tendency noted in all respondents was to formulate his beliefs (or perhaps "judgments" is a better term) from some specific case he knew about. If the respondent knew of several specific cases, each suggesting a differing conflicting generalization, he was then faced with resolving these. The typical reaction was then to arrive at a very "weaseled," non-descript view which admitted that while X could occur, sometimes Y might also happen. This is well illustrated in the case of patent suppression. When asked whether patent suppression occurred, and if so, how often, a respondent would say that it occurred, providing he had heard of some instance of suppression (and many had). However, if he had some familiarity with the idea of licensing, he might conclude that suppression doesn't happen very often because the inventor could hold out for licensing only.

Related to this process of belief formation was another important process, namely, the interpretation which occurs between "information" and inducing a generalized belief. Most of the information held by our respondents was so partial and vague that it required some interpretation by the respondent before he could use it as a foundation on which to build beliefs. In the process of

interpretation, the same "fact" might readily be interpreted differently by different respondents, and hence lead to different generalizations. Examination of the total pattern of the interview strongly suggested that these interpretations were made in terms of other, broad (and more firmly crystallized) attitudes or frames of reference which the respondent held. These will be discussed more fully later, but for the moment it is sufficient to mention one such broad attitudinal frame of reference which appeared to influence the interpretation of the respondent's fragmentary "facts." This might be labeled the "Mass Society v. Individualism" attitude. For example, consider a respondent who has heard of cases of an inventor being "skinned" out of a fortune on an invention which had great value to the consumer. If this respondent's attitudes and values favored the "mass society" orientation (wherein great stress is placed on social values and the good of the many), he would be inclined to say, "Yes, the patent system does adequately protect the inventor" (because his protection must be subordinated to the demands of society as a whole). If, on the other hand, he was of the "individualistic" orientation (wherein stress is placed upon individual freedom and self-expression), then he would be inclined to say, "No, the patent system does not give sufficient protection in a number of cases."

This process of interpretation, however, usually did not lead to clear-cut one-sided generalizations or beliefs about the patent system. With very few exceptions, the generalized beliefs which were based on fragmentary "facts," were "weaseled," and contained many qualifications. The result was that respondents differed only slightly from one another in the attitudes held, even when they differed considerably in the broad, attitudinal frames of reference underlying these attitudes. The slight differences which existed tended to be in the semantic format of the generalized belief statement. This may be conveniently illustrated by the following model: If two possible extreme positions exist on a given issue, most respondents would mention both views, but differ only in which view was made the basic statement and in which was made the qualification. That is, one respondent might say, "X is the general condition, but Y also occurs." Another respondent would say, "Y is the general condition, but X also occurs." Thus, as will be seen more clearly when we turn to the discussion of attitudes, even the differences among our respondents in broad, attitudinal frames of reference produced only slight (and often unstable) differences in their attitudes and beliefs concerning the patent system. It was for this reason that we were able to adopt the "search for common themes" approach described earlier.

#### ATTITUDES AND BELIEFS

As mentioned earlier, the most obvious characteristic of the attitudes and beliefs concerning the patent system was their superficiality and lack of clarity. Attitudes were so uncrystallized that it would not be fair to say that real attitudes have emerged on the issue of the patent system. Because the usual criteria

which might be set for defining an attitude were hardly met,<sup>3</sup> it would be better to speak of "judgments" rather than attitudes. Our respondents were willing to make judgments about the patent system, but it would be misleading to say that they possessed highly meaningful attitudes. These judgments were guided by certain frames of reference which the respondents had, but these frames of reference did not focus on the patent system itself; rather, they were broad, general frames of reference which were used by the respondents in interpreting many areas of life. An example of such a frame of reference was the "Mass Society v. Individualism" orientation mentioned previously.

The unformulated character of attitudes was revealed in interview records by a number of symptoms: (a) hesitancy in reply; (b) answering "don't know," "I never thought about it," etc.; (c) giving broad, general, and hedged replies containing many qualifications; (d) unstable replies which are later modified or changed; (e) inconsistency; and (f) low confidence and sureness in the soundness of replies.

Speaking technically, we would say that the attitudes studied were (a) poorly structured, (b) highly undifferentiated, and (c) low in ego-involvement and feeling-tone. By "unstructured" we mean that the patent system was not seen sharply and clearly and that attitudes toward it were poorly organized and did not form a cohesive whole. By "highly undifferentiated" we mean that attitudes were very broad, amorphous, and stereotyped. Specific aspects of the patent system were not seen and reacted to in a differentiated manner. By "low ego-involvement" we mean that the patent system was not personally important to the respondents. They did not have strong feelings about it, one way or the other. The feeling-tone was neutral in the sense that respondents tended to have very little feeling rather than a feeling midway between approval and disapproval. These qualitative aspects of attitude were found to characterize with very few exceptions all of our respondents, even the engineer group. The 35 "average man" interviews were so excessive in these respects that the content was virtually useless. It was possible to note qualitative differences among the respondents in the extent to which they displayed these three aspects of attitude, and in principle it might be possible to measure these differences. The restrictions of time and back-stopping, however, precluded the adoption of any such advanced methodology.

#### CONTENT OF ATTITUDES

##### *The Patent System*

A plurality (40%) reported that the public receives most of the benefit from patents. Twenty-nine per cent felt that industry receives the most benefit, while 23% believed that the inventor receives the most benefit. (Eight per cent refused

<sup>3</sup> See David Krech and Richard S. Crutchfield. *Theory and Problems of Social Psychology*. Part II. (New York: McGraw-Hill Book Co., 1948).

to make a choice even under forcing.) Most respondents, however, were extremely unstable in these choices.

All respondents agreed that the patent system *should* benefit all three parties in different ways. The kinds of benefits mentioned in one way or another by practically all respondents were:

Inventor: protection and financial return

Industry: protection and profits

Public: protection against poor products; provision of new products at low prices

In essence, the reasons given to justify why the above parties should receive the benefits listed were:

Inventor: as a matter of justice (because he works hard, is creative)

Industry: as a matter of sound economics (invests risk money)

Public: as a matter of social welfare (society should be advanced)

The main purpose of the patent system as seen in one way or another by all respondents was to provide protection of certain rights so that the patent-holder could gain a financial return.

Viewing the patent system as a whole, all respondents generally approved of the system and believed that it functions fairly well to the good of all three parties. No one felt that the system was "all wrong" or that it malfunctioned most of the time. The only specific criticisms mentioned were that sometimes it permits unfair monopolies and may occasionally permit the inventor to be deprived of a just return on his invention. About 90% of the respondents mentioned both criticisms in one way or another. Furthermore, all respondents indicated that the patent system was complicated and confusing. Slightly over 40% indicated in addition that procedure-wise it was very involved and entailed much delay and red tape.

In line with the low "ego-involvement" in patent-system attitudes, most respondents showed considerable tolerance for these occasional inequities, believing that they were probably inevitable. Approximately three-fourths of the above 90% showed this tolerance; the remaining respondents demonstrated an observable feeling of resentment in the content and manner of reply.

The engineer group displayed more awareness of these criticisms than did the student group. Here, all respondents cited both kinds of criticisms. The amount of tolerance was less for the "poor return to the inventor" criticism, and more for the "industrial monopoly" criticism. All engineers were rated as showing resentment or strong feelings over the first criticism, while only 35% were rated as displaying such feelings over the "monopoly" criticism. It appeared that engineers tend to differentiate between these two inequities and take different views on them. This difference is understandable when one considers the role played by the engineer in a commercial establishment. On one hand he identifies with (and thus favors) industry (as his source of livelihood), and on the other hand he may view himself as a potential inventor.

*Utilization of Patents*

Respondents were extremely uncertain as to the number of patents applied for during an average recent year. Initial estimates ranged from "in the thousands" to "in the millions." These estimates were very unstable, the respondent changing his mind under further prodding. (For instance, if he said "hundreds," he might easily change to "thousands" when asked to consider all applications received.) All respondents would terminate by placing their estimate somewhere in the thousands, but showed great unwillingness to be more specific than this.

Estimates on the number of patents applied for in an average recent year which eventually become used were slightly more stable. Seventy-eight per cent gave estimates between 3 and 15%. Three per cent gave estimates between 20 and 30% (the actual estimates were all either 20, 25, or 30%, showing the "round number" tendency common to respondents in answering such questions). The remaining 19% all gave estimates stated as either 50%, over 50%, 55%, or 60%. We see that the distribution of these estimates is bimodal; that is, respondents tend to fall toward the two extremes of giving either a modest estimate or a high estimate. The majority saw a small amount of utilization, while the remainder for the most part saw a great amount of utilization. It is interesting to note that these estimates are in line with the estimates given in the literature on patents, but are greatly out of line with measured utilization reported by the Foundation's Patent Utilization Project.<sup>4</sup>

Of the 78% giving low estimates of utilization one explanation was given by all respondents, namely, that most patents are worthless or not needed. Sixty-four per cent of this group also mentioned that many inventions lie hidden because manufacturers do not know about them. "Too costly to produce" and "are being held for some future date" were mentioned by 12 and 18% respectively.

On the question of patent suppression, respondents were asked what per cent of issued patents are bought, but not used by the manufacturer because he wants to keep them off the market. The distribution of estimates was heavily skewed in favor of low estimates. Most respondents (80%) gave estimates from "less than 1%" to "10%." Thirteen per cent gave estimates of 25%; and 10% gave estimates between 25 and 50% (2% gave unusable replies). In a sense, this distribution of estimates is also bimodal, since respondents tended to give either low estimates (less than 10%) or rather high estimates (25% or more). The majority were in the low estimate part of the curve.

All respondents gave as a reason for suppression the desire of the manufacturer to "cut off competition" or "protect his own product." (Twelve per cent volunteered in discussing this reason that it was good business practice and that they approved.)

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<sup>4</sup> See the interim report on Project 1a, "The Patent Utilization Study," by Joseph Rossman and Barkev Sanders, *PTC J. Res. & Ed.*, I, No. 1 (June 1957), pp. 74-111. See in particular page 93 wherein it is reported that about half of the assigned patents in the sample were either being used or had been used.

All respondents indicated that the majority of inventions were good for society, although roughly one-fourth revealed some doubt as to the good of many inventions. In the statements about the goodness of the majority of inventions, 73% preferred to make their statements conditional: although they believed that the majority of inventions were good, they felt that it all depended on the invention and how it was used. "Sometimes they make us more uncomfortable" or "sometimes they create new problems" were common themes expressing this conditional attitude.

When asked what kinds of inventions should not be patentable, 16% indicated that there should be no limit on patentability. However, further probing disclosed that these respondents did implicitly hold to certain exceptions. In actuality, then, all respondents recognized that there should be limits on patentability. The only restriction which could be clearly specified related to inventions which were morally wrong or whose purpose was to harm society. A number of respondents tried to formulate other restrictions but abandoned such attempts, saying that it was difficult to decide on what categories of inventions should not be patentable (although they continued to feel that such categories must exist).

In response to inquiries concerning any types of inventions that are not patentable but which should be patentable, 93% had no specific or classifiable suggestions. A few pharmacy students verbally considered the pro's and con's on patenting certain kinds of drugs but did not terminate by taking a stand. Seven per cent, however, indicated that methods for doing business should be patentable.

### *Image of the Inventor*

When respondents were asked to characterize the personality of inventors, two discernible images of the inventor were found to be held by all respondents. One of these, which appeared to be more traditional and popular, was that of an eccentric person, creative by nature, who is driven to invent. He draws much inherent satisfaction from the inventing process, tends to be impractical, and loves to tinker. He would probably invent whether or not he gained sizable financial returns for his inventions. The other image was not primarily that of an inventor, but rather of the scientist or engineer who by nature of his primary interest (science or engineering) happens to invent. He is employed in industry, government, or a university, has considerable education, and if he invents he is paid to do so. This kind of inventor is interested in financial return. These two images are compounded from the free-associations of our respondents, and although the details varied somewhat from one respondent to another, the elements contained in the above two images were shared by all respondents.

In discussing the adequacy of the inventor's financial return, respondents were willing to generalize to the extent of saying that the inventor usually gets a "fair"

return, but that often he does not get all the money that he *could* get, and sometimes he is downright cheated. We have here a typical example of the "qualified attitude statement" referred to earlier. When asked as to why the inventor sometimes does not get a fair return, the only specific answers were those answers common to all respondents; namely, the inventor did not realize the value of his invention and lacked business sense in marketing. Respondents seemed to imply, without overtly stating so, that the inventor was to blame for his own losses.

It is interesting to note that in 32% of the sample, there were voluntary references to the great personal satisfaction that the inventor draws from inventing. These same respondents also stressed this above the financial rewards due the inventor, and showed less concern, therefore, with problems relating to the inventor being undercompensated.

As mentioned earlier, by probing the respondent back to the basic value orientations and fundamental frames of reference which he used in making his specific judgments about the patent system, it was possible to note two general patterns: "mass society" and "individualism." These broad frames of reference appeared to make a difference in the way the respondent viewed the issue of a "fair return" for the inventor. By omitting the dubious middle respondents and working only with the extreme cases, it was possible to classify most respondents twice, according to two classifications: (a) by "Society" v. "Individualism," and by (b) "the inventor should receive all the financial return he can get" v. "he should be content with personal satisfaction from contributing to society." By studying the resulting four-fold table based on these two classifications, it was possible to show a significant correlation; namely, that the "mass society" orientation was associated with the view that the inventor should be content with the personal satisfaction of contributing to society, while the "individualism" orientation was associated with the "receive all he can" view.<sup>5</sup> It is interesting to note that the "individualism" group contained all but 14 of the 50 engineers.

### *Influence in Determining Patent Laws*

Certain common themes shared by all respondents in one way or another were readily observable with respect to who has the greatest influence in determining the patent laws. There was complete consensus that industry has the greatest influence (because it is organized, has money, and can induce pressures). The inventor was seen as having little or no influence, mainly because he is not organized. The general voting public was seen as having little or no influence because it is disinterested and is unaware of the issues. This much was quite clear in all respondents. The case of the patent attorney, however, was much less clear. Slightly less than one-third thought that he could and perhaps did exert a modest

<sup>5</sup> The test for association was by Chi-square, which proved significant at the .01 confidence level. One-hundred eighty-eight respondents were sufficiently clear in their views to permit categorization by both of the classifications being studied. Classification was made on the basis of the respondent's total pattern of interview replies.

influence, mainly because of his connections with industry and government, and because of his legal expertise. The remaining respondents, however, saw him merely as an implementor of the interests of other parties (industry and inventors), and as not possessing much influence in and of himself.

#### SOME DETERMINANTS OF ATTITUDES

It has been previously mentioned that attitudes on the patent system were vague and lacking in firmness; and that when faced with the interview questions, respondents typically appeared to make judgments about the system on the basis of certain broad frames of reference or attitude orientations held in other areas of living. Because respondents' knowledge of the patent system was fragmentary and unorganized, there was very little factual foundation upon which attitudes could be based. What little information the respondents possessed was poorly integrated with the attitudes, and in any case, was interpreted against these same broad frames of reference. These observations were originally made qualitatively in the preliminary interviews by uncovering the general frames of reference of the respondent (as revealed under probe questioning) and then noting how these related to his answers to specific questions on the patent system.

In an attempt to investigate such relationships more quantitatively, a special attitude scale was constructed, designed to measure the respondents' location along the continuum of "Radicalism" v. "Conservatism."<sup>6</sup> Attempts were then made to relate scores on this attitude scale with attitudes on specific aspects of the patent system, such as approval of suppression; who should receive the most benefit, inventor or industry; images of the inventor; inventor compensation; and adequacy of protection. The scale was administered to all 250 student respondents at the conclusion of the interview. By comparing the average "Radicalism" v. "Conservatism" scores of groups which were rated as having contrasting attitudes on the specific aspects of the patent system, it would be possible to determine whether the latter specific attitudes were related to the former general frame of reference. While small differences were observed, none of these proved statistically significant.<sup>7</sup> These results do not necessarily mean that there is no relationship. It is still possible that a relationship exists, but it was not demonstrable because of the very small range of differences in the specific attitudes toward the patent system.

We were then forced to proceed qualitatively by tracing back in the interview the general frames of reference which the respondent seemed to employ in making his specific judgments about the patent system. While this approach is

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<sup>6</sup> This scale was an experimentally developed short form of the R-scale originated by Eysenck. See H. J. Eysenck. *The Psychology of Politics*. (New York: Praeger, 1955). The R-scale was chosen because Eysenck's research shows that it measures a general attitude which appears very similar to what we identified as the "Mass Society" v. "Individualism" orientation in the interviews.

<sup>7</sup> The test for the significance of differences between means was made by the *t*-test. The null hypothesis was tested at the .05 confidence level.



much less satisfactory, it was at least highly suggestive. By viewing the interview record "clinically," it seemed that somewhere in most respondents' value systems was a stand on either "mass society" or "individualism" which influenced to some degree his judgments about specific aspects of the patent system. Respondents with "individualistic" values sided with the inventor; those with "mass society" values saw the inventor as one who should submit to the wishes of the larger society.

Furthermore, another factor appeared to be very important also; namely, the respondent's *identifications*. Three patterns of identification were fairly visible: (a) consumer, (b) inventor, and (c) "big business" or industry. Depending upon the issue (as stated by the question form), the respondent appeared to assume one of these identifications and answer the question in accordance with it. For instance, in questions and probing about the usefulness of inventions, some respondents seemed to prefer to judge usefulness from the viewpoint of a consumer; others, from the viewpoint of industry. These preferences for specific identifications appeared to be somewhat habitual. On the matter of inventor compensation, respondents showed an apparent consistency in discussing the problem from either the position of the inventor or industry. Psychologically, these identifications probably go back to certain very fundamental ways used habitually by the respondent to view himself. Those who view themselves as having some of the qualities of an inventor might adopt the inventor identification; those whose personal goals lie in industry might choose to identify with industry. All of these observations are only guesses, arrived at by qualitative analysis of interview records. They should be considered a hypotheses deserving of further testing, rather than as validated conclusions.

#### INFORMATIONAL NEEDS

In discussing their views on the patent system, respondents disclosed certain information interests which might be utilized in any attempt to inform or educate similar groups. Furthermore, systematic questioning was employed to discover those areas concerning which respondents desired more information. Although respondents were aware of their lack of information concerning the patent system, this awareness was not translated into any strong interest in acquiring further information. In general, motivation for learning more about the patent system was rather slight. The reason for this apathy appeared to lie in the respondents' inability to see any meaningful relation between their daily lives and the patent system. As mentioned earlier, many respondents showed a disinterested tolerance for the imperfections of the patent system. In discussing such tolerant attitudes, all disinterested respondents remarked, when pressed, something to the effect that, "after all, there's nothing I can do about it."

The only exceptions to the above were those respondents who had inventive aspirations of their own, or whose job stimulated an interest in the patent system. Of the 250 respondents of the student sample, there were 27 respondents who

evinced such aspirations (16 were in the engineer group, 11 were among the science majors of the undergraduate group). In such cases as these there was a perceptible interest in knowing more, but the interest tended to be rather specific—it was focused upon some particular problem or goal which the respondent either had or thought he might have. The 27 respondents with inventive aspiration were consequently interested mainly in knowing about (a) how to patent an invention, and (b) how to exploit a patent once received. In addition to the 27 respondents with inventive aspirations, there were three respondents (all in the engineer group) whose jobs brought them into contact with patents or inventions, and this too led to an interest in knowing more. But again, this desire was specific in its focus. One respondent, for instance, was especially interested in knowing more about infringements.

These very general observations indicate that we must expect people's interest in the patent system to be low unless it relates in some *perceived* way to their personal goals or problems. This suggests that any information or educational program should begin by trying to establish such a perceived relationship in the minds of the audience before attempting to give them information about the patent system. In a complicated society such as ours such relationships do in actuality exist, but they are indirect and not readily visible; hence people tend not to perceive them. Making people aware of the connections between their own lives and the patent system appears to be a necessary first step in any fact-giving program.

When all 250 student respondents were specifically asked what things they would like to know about the patent system, the replies were, as already mentioned, very broad and vague in most instances (such as, "how does it work?" and "how is it run and who runs it?") It was difficult to probe this area without putting words in the respondent's mouth. Only 53% of the student sample gave replies which were specific enough to warrant reporting. These items are listed below. None was mentioned by more than 1% of the respondents:

How are patent laws made?

What is the situation on financial returns to the inventor? What is the average income of inventors?

Just how extensive is patent suppression? Is the consumer being denied useful inventions in this way?

How does the patent system affect the consumer, in terms of prices and new products?

What are inventors really like? When employed, what kind of organizations do they work for?

What are the hazards facing the inventor with a patent?

What happens to patents that are not used?

What kind of patent attorney services are available? Are any of them free?

Just what is an "original invention"?

Where do you get information on the patent system?

When asked, "If you were to invent something, what would you like to know about patenting it?" the following replies were received: (a) what steps you must take in patenting (86%); (b) how much time, effort, and money it takes (83%); (c) what people, and how many, must you see (55%). (These per cents do not total 100 because many respondents gave more than one reply.)

The 27 respondents who displayed personal inventive aspirations were also asked "What information would encourage you in getting ideas for inventions?" Three classes of reply stood out with sufficient frequency to warrant reporting:

A catalog or series of volumes listing fields that have already been heavily patented and those which have not been heavily patented. (Slightly over half of the 27 respondents mentioned this.)

Materials describing assistance and procedures for marketing inventions. (11 of the 27 respondents mentioned this.)

A general survey of the rights and laws relating to holding a patent. (10 respondents mentioned this.)

Because of the extremely small sampling underlying these replies, very little significance should be attached to the figures. (Some respondents mentioned more than one item, hence the figures do not total to 27.) These replies are listed for their implications for an information program, not as a description of the relative strength of certain information needs.

# The Economic Impact of Patents\*

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## SUMMARY AND CONCLUSIONS

THE INFORMATION IN THIS REPORT is derived from 600 responses to questionnaires received from assignees in a scientifically selected sample of patents. Questionnaires were sent to assignees of 1,220 patents issued in 1938, 1948, and 1952, representing all the patents issued in these three years with patent numbers that ended in 10 and 59 (2% of the total). This is the fifth interim report based on the analysis of these returns.

About 75% of patents in our study are reported to have economic value to assignees. Fifty-seven per cent are used or about to be used in industry. Eleven per cent, though not used, have had or are expected to have other benefits. Seven per cent, not meeting either of the above criteria, are patents that are licensed.

Of the patents in current use (30% of the total) direct beneficial effects were reported to result from the use in 89% of the cases, most of these being in terms of increased sales and/or reduced production costs. For patents used in the past (19% of the total) beneficial effects were reported for 74%, mostly in terms of increased sales and/or reduced production costs. For the combined group of used patents the percentage with beneficial effects is 84.

For patents in current use, information was supplied by more than a third of the respondents (34%) in terms of estimated dollar gains or losses. For almost 90% of these net gain was reported, averaging nearly \$600,000 per patent. Since these patents were still being used in industry, and the net gain reported was as of the date on which the questionnaire was answered, the ultimate net gain per patent would be substantially greater than this amount. For the balance in this group a net loss was reported, averaging \$88,000. With the passage of time these losses would be reduced and, in most instances, converted into net gains.

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\* This is a research interim report on *Project 1a, Patent Utilization*, Mr. Robert L. Carter and Mr. Robert E. Grindle assisted on this project.

\*\* The Co-Principal Investigators of this project have insisted that Executive-Director L. James Harris join them as co-author in view of his invaluable technical, supervisory, and drafting contributions beyond his duties as Executive Director at every stage of the project.

For patents used in the past, specific dollar values are reported for less than a third (27%) of those returning a questionnaire. Of these, nearly two-thirds (63%) reported a net gain, averaging \$72,000 per patent. For the balance a net loss is reported, averaging \$14,000 per patent.

For patents about to be used, and for non-used patents losses reported average \$12,000 and \$4,500 per patent, respectively.

Details regarding the effect of used patents on the volume of sales and on reduction of production costs, separately and jointly, are presented and discussed in this report.

The findings as to the impact of patents on our economy suggested by this analysis appear to be diametrically different from commonly expressed views found in current literature.

#### INTRODUCTION

THIS REPORT PRESENTS DATA bearing on the economic impact of patents. The data are based on 600 questionnaires received from assignees of sampled patents.<sup>1</sup> The report deals with effects that "used"<sup>2</sup> patents have had on (1) increasing the volume of sales; (2) reducing the production costs; and (3) net profit and loss as estimated by the assignee. The report will also consider patents regarded by the assignees as having actual or potential value, though not used and not likely to be used in the immediate future, and also patents which are licensed, as being useful. A discussion of the consistency of information from assignees on use of patents will be found in *The Patent, Trademark, and Copyright Journal of Research and Education*, Vol. 2, 1958 Conference Supplement. The Conference Supplement also considers at some length representativeness of the sample analyzed herein. Based on that analysis, it appears that incompleteness of the returns has not appreciably biased the proportionate distribution of patents according to utilization status.<sup>2a</sup>

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<sup>1</sup> The 600 assigned patents analyzed in this report represent 49.2% of the 1,220 such patents in the sample. The 1,220 patents represent 2% of all the United States assigned patents issued to the residents of this country in 1938, 1948, and 1952. Of these 600 assigned patents with completed questionnaires, 596 are assigned to firms; these constitute 52.3% of the patents assigned to companies in our 2% sample. The remaining four are patents assigned to individuals.

<sup>2</sup> Use of a patented invention for this study is defined "making or selling the patented invention in the production of goods and services." We have not made an independent inquiry to ascertain whether the assignees actually adhered to this definition. However, judging from the consistency of the replies to many other questions in the questionnaire related to this definition of use, it appears that most respondents adhered to our definition. For details see the 1958 Conference Supplement of PTC J. Res. & Ed. A report prepared for the discussants of the Patent Utilization project at the 1958 Public Conference of the Foundation is available upon request. The report considers in detail the question of internal consistency of the replies to utilization.

<sup>2a</sup> See report prepared for conference discussants referred to in footnote 2.

## PROPORTION OF PATENTS USED

In previous reports we have indicated that a very high proportion of patents is used at some period between the filing date and the date of expiration.<sup>3</sup> Subsequent replies by assignees have not changed the patterns of the proportion of used patents. Table 1 shows the utilization status of the 600 assigned patents.

TABLE 1

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS, BY  
UTILIZATION STATUS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

UTILIZATION STATUS	NUMBER	PER CENT	PER CENT WITH SPECIFIC ANSWER
(1)	(2)	(3)	(4)
Total: Number.....	600	600	595
Per cent.....	—	100.0	100.0
In current use .....	183	30.5	30.8
Past use .....	113	18.8	19.0
Future use .....	47	7.8	7.9
Used or to be used .....	343	57.2	57.6
Not used .....	252	42.0	42.4
Don't know .....	2	.3	
Unanswered .....	3	.5	

The table indicates that of this group of 600 patents over 30% were reported by assignees to be in current use, 19% reported that the patent had been used in the past, and 8% indicated that it was to be used in the immediate future. Forty-two per cent were reported not used and no immediate prospect of its use. For patents issued in 1938 and never used, there is no possible future use as they have expired. This cannot be said of patents issued in 1948 and 1952, since there is a possibility that some of them may be used before expiration. This possibility of future use suggests that when all the patents in the sample reach expiration, 60% may have been used.<sup>4</sup> This percentage is subject to some uncertainty. How-

<sup>3</sup> For a description of the purpose and scope of the Patent Utilization Study see PTC J. Res. & Ed., I, No. 1 (June 1957) pp. 74-77, and PTC J. Res. & Ed. I., 1957 Conference Supplement, pp. 65-83, 150-155.

<sup>4</sup> This percentage is far different from that commonly found in the literature: "Non-working of patented inventions has been high on the list of grievances against patent protection. One must distinguish, however, between the non-use of inventions whose use would be uneconomic, and the suppression, or 'wrongful non-use' of patented inventions which could be used economically. [Footnote omitted] In the first category are inventions of unmarketable articles, inventions of inoperable or too expensive processes, and inventions of alternative processes, instruments, or products, not superior or perhaps inferior to those in actual use; neither the patentees nor any one else may want to use the inventions in question. It has been estimated that between 80 and 90% of all patents may be in this category. [Footnote omitted] 'Suppression' of patented inventions can be proved, at least prima facie, if others want licenses which the patentee refuses to grant, although he himself does not

ever, it is believed the "true" value would not be materially different from this estimate.<sup>5</sup>

Of the 296 patents reported as used, almost 96% answered question 13 affirmatively; that is, the patent was used to a measurable extent. Question 13 reads: "If the sampled patent is or was used in production, indicate if it is or was used: (a) extensively; (b) moderately; (c) to a limited extent; (d) other (specify)."<sup>6</sup> In 283 cases assignees answered by checking mostly "a"; two answered under "d"—"don't know"; five failed to make any entry under this question; and three were interview cases, in which this question was not asked. The determination of whether a patent is used or not is an important initial step in appraising the role of patents in our economy. Thus, question 13, regarding the extent of use, gives us some information on the importance of the patent in terms of intensity of its use, however loosely measured.

#### EFFECT ON SALES

Question 18 comes closer to indicating the economic impact which used patents may have. This question, restricted to patents in current or past use, reads: "Has the sampled invention increased your sales: (a) markedly; (b) moderately; (c) slightly; (d) not at all; (e) other (specify)?"<sup>6</sup>

The terms, markedly, moderately, and slightly, are not precise. Furthermore, no attempt was made to specify whether the yardstick of comparison was the total sales of the assignee or some identifiable sub-segment. Therefore, in terms of any absolute measure, some of the replies which indicated "marked" increase in sales may mean much less than the reply of another assignee who answered "slightly." Despite the foregoing limitations, the replies to question 18 are significant and impressive. The distribution of these replies for patents in current use and those used in the past as well as the combination of the two is given in Table 2.

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use the invention." Fritz, Machlup, "An Economic Review of the Patent System." Study of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, 85th Cong., 2d Sess., Pursuant to S. Res. 236, Committee Print, Study No. 15, Washington: United States Government Printing Office, 1958. p. 12. The italics are ours.

With respect to reasons given by assignees and inventors for current non-use of patents see Barkev S. Sanders, Joseph Rossman, and L. James Harris, "The Non-Use of Patented Inventions," PTC J. Res. & Ed., II, No. 1 (March 1958), pp. 1-60. With respect to licensing, our analysis of replies of 528 assignees showed that for only 12 patents was there unwillingness to license. Of these, three were patents that had been used in the past. Some of the remaining 9 gave other reasons for their unwillingness to license the sampled patent (see pp. 21-22 of PTC J. Res. & Ed. II, No. 1).

<sup>5</sup> Elements which contribute to this uncertainty are: (1) the patents issued in 1938, 1948, and 1952 studied are not representative of the 600,000 patents in force, at a given time; (2) possible bias in the returns because of failure of some assignees to respond; (3) possible misunderstanding of the meaning of "use" and, perhaps, a tendency to overstate "used" patents; (4) sampling variability which, however, could err in either direction, being too high or too low in relation to the "true" value. Companies that may wish to check these findings with their own patent portfolios are cautioned that our percentages, if valid, represent a cross-section of all types of patents. Patents in a particular art may have utilization patterns materially different from the pattern of a cross-section of all patents issued. Also, in any comparison one must not overlook sampling variability.

<sup>6</sup> PTC J. Res. & Ed., I, No. 1 (June 1957), p. 110.

TABLE 2

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS IN CURRENT USE AND THOSE USED IN THE PAST ACCORDING TO THE EFFECT OF USE ON SALES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

EFFECT OF USE ON SALES	IN CURRENT USE			USED IN THE PAST			COMBINED		
	No.	Per cent	Per cent with Specific Answer	No.	Per cent	Per cent with Specific Answer	No.	Per cent	Per cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number	183	183	160	113	113	96	296	296	256
Per cent		100.0	100.0		100.0	100.0		100.0	100.0
Markedly	29	15.9	18.1	6	5.3	6.2	34	11.4	13.3
Moderately	46	25.1	28.8	18	15.9	18.8	65	22.0	25.4
Slightly	41	22.4	25.6	30	26.6	31.2	71	24.0	27.7
Increased sales	116	63.4	72.5	54	47.8	56.2	170	57.4	66.4
Other	15	8.2	9.4	6	5.3	6.2	21	7.1	8.2
Not at all	29	15.9	18.1	36	31.9	37.5	65	22.0	25.4
Don't know	18	9.8		12	10.6		30	10.1	
Unanswered	5	2.7		5	4.4		10	3.4	

Considering the patents in current use first, in 16% of the cases the reply was that the effect on sales had been marked (Column 3); in 25%, moderate; and in 22%, slight. Thus, of the total, 63%, or almost two-thirds, indicated some effect on increasing sales. An additional 8% indicated definite benefits<sup>7</sup> from the patent, though it was not possible to say whether it increased sales. Another 10% indicated they did not know. A number in this latter group pointed out that the patent covered an improvement on a "larger machine," and it was not possible to ascertain the effect of the improvement on sales. About 16%, however, indicated use of the patent had not increased their sales. The remaining 3% failed to make any reply to question 18.

Column 4 of Table 2 gives the percentages for patents for which a specific reply was received. These percentages exclude (1) patents for which the assignee failed to give any reply, and (2) those for which the answer was "don't know." This column shows that of the total, only 18% indicated that use of the patent had no effect on sales. Accordingly, over 72% indicated some increase in sales directly attributable to use of the sampled patent, and an additional 9% indicated other beneficial effects without stating anything about sales.

Considering patents used in the past, only 5% of the assignees reported that use had increased sales markedly; 16%, moderately; and over 26%, slightly. In all, 48% indicated that use of the patent had increased sales to some extent. Some 5% indicated other beneficial results, usually stating that the contribution of the

<sup>7</sup> Illustrative "benefits" are customer satisfaction, greater safety, increased shelf-life, prestige, etc.



patent could not be gauged in terms of increased sales. Nearly 11% stated the effect that use of the sampled patent had had on sales could not, or had not been determined. Almost 32% indicated that use of the patent had not increased sales, and 4% failed to answer this question. Excluding the patents with unknowns and those without any entry, 56% of the replies indicated some increase in sales resulting from use of the patent. Another 6% indicated benefits, though not in terms of increased sales. Nearly 38% indicated no increase in sales.

The combined percentages in Columns 9 and 10 indicate that for all patents in current use or used in the past, 57 to 66% (depending on whether unknowns and those unanswered are included in the total) have increased sales as a result of use; 7 to 8% indicated other benefits, though no actual increase in sales. Twenty-two to 25% indicated that use of the patent had not increased sales.

Percentages in Columns 3 and 4, with respect to patents in current use, show greater effect on sales and other benefits in comparison with patents used in the past, Columns 6 and 7, respectively. Conversely, the proportion of patents with no effect on sales is substantially lower for patents in current use compared with those used in the past. These differences suggest a marked economic advantage of patents in current use in comparison with those no longer in use. This difference is partly real because, on the average, patents in current use have a higher concentration of valuable inventions and remain economically potent over a longer span of time in comparison with patents used in the past. It is equally probable, however, that some of the apparent differences may be spurious. Assuming that most patents go out of production use gradually, their effect on sales is likely to decline gradually as they approach this terminal point. For patents no longer in use this period of lowest effectiveness on sales, immediately before the terminal point of use, would probably influence the reply of the respondent regarding the economic effectiveness of the sampled patent no longer in use.<sup>8</sup>

#### EFFECTS ON PRODUCTION COSTS

The use of certain patents may be of much economic value by reducing the costs of production without necessarily affecting the volume of sales, especially if the volume is confined to products flowing directly from the use of the sampled invention of goods with an inelastic demand. Question 19 deals with this aspect of used patents. It reads: "Has the sampled invention resulted in the reduction of your production costs: (a) markedly; (b) moderately; (c) slightly; (d) not at all; and (e) other (specify)?"<sup>6</sup> Table 3 shows the analysis of replies to this question from assignees of patents reported in current use and those used in the past.

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<sup>8</sup> In the assignee questionnaires, questions 10 and 11 seek to obtain information on the time pattern of patents coming in to and going out of industrial use. The first question asks the date when the patent was initially put into use. This date can be related to the date the patent was applied for and the date it was granted. The second question asks the date the sampled patent went out of use. When these data are analyzed it should provide some information on patterns with which used patents come into use, remain in use, and go out of use. The length of time over which the patent remains in production may be correlated with its economic impact.

TABLE 3

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS IN CURRENT USE  
AND THOSE USED IN THE PAST ACCORDING TO THE EFFECT OF THE USE IN  
REDUCING PRODUCTION COSTS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

EFFECT OF USE IN REDUCING PRODUCTION COSTS	IN CURRENT USE			USED IN THE PAST			COMBINED		
	No.	Per cent	Per cent with Specific Answer	No.	Per cent	Per cent with Specific Answer	No.	Per cent	Per cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number	183	183	158	113	113	96	296	296	254
Per cent		100.0	100.0		100.0	100.0		100.0	100.0
Markedly	21	11.5	13.3	3	2.7	3.1	24	8.1	9.4
Moderately	26	14.2	16.4	16	14.2	16.7	42	14.2	16.5
Slightly	29	15.8	18.4	8	7.1	8.3	37	12.5	14.6
Reducing costs	76	41.5	48.1	27	23.9	28.1	103	34.8	40.6
New product	7	3.8	4.4	8	7.1	8.3	15	5.1	5.9
Other	15	8.2	9.5	4	3.5	4.2	19	6.4	7.5
Other benefits	22	12.0	13.9	12	10.6	12.5	34	11.5	13.4
Not at all	60	32.8	38.0	57	50.4	59.4	117	39.5	46.0
Don't know	8	4.4		5	4.4		13	4.4	
Unanswered	15	8.2		7	6.2		22	7.4	
Not asked	2	1.1		5	4.4		7	2.4	

Column 3 indicates that of the patents reported in current use, nearly 12% had reduced production costs markedly. For another 14% this reduction was reported as moderate, and for 16%, slight. In all, the assignees indicated that for approximately 42% of these patents use had reduced production costs in some measure. For another 12%, though the assignees could not specifically answer whether use of the patent had reduced production costs (because the product was new or other reasons) they indicated some benefit of an economic nature from use of the patent. In other words, replies to question 19 show that, independent of the specific effects on increasing sales, in almost 54% of the cases, the use of the patent had the effect of reducing production costs or brought some other related economic benefit independent of any possible effect through increased sales. For about one-third of the patents the assignees indicated that use had had no effect in reducing production costs. In about 4% of the cases it could not be determined whether use of the patent had reduced production costs. For 8% of the returns no entry was made in response to question 19. For 1% of the patents the information was obtained through interviews in which this question was not asked.

Since in the last three categories the information, were it available, could be either favorable or unfavorable as to the effect of these patents on production costs, the percentages in Column 4 may suggest a more realistic proportionate distribution of the effectiveness of use. In terms of this column, the use of 48%

of the patents had direct and measurable effect in reducing production costs. In another 14% the effect of use on production costs could not be clearly stated, but there was some related beneficial effect. In 38% of the cases, the use had no effect at all in reducing production costs.

With respect to patents used in the past, if we exclude those for which no specific information was obtained (Column 7), in 28% of the cases reduced production costs were indicated. Other beneficial effects were reported by over 12%.

TABLE 4

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS CURRENTLY USED, IN TERMS OF THE EFFECT OF THE USE ON REDUCING PRODUCTION COSTS AS ASSOCIATED WITH THE EFFECT OF THE SAME PATENTS IN INCREASING SALES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

EFFECT OF USE IN REDUCING PRODUCTION COSTS	EFFECT OF USE ON SALES								
	POSITIVE IMPACT						Not at all	Don't know	Unanswered
	INCREASED SALES				Other	Total			
	Markedly	Moderately	Slightly	Sub-total					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Markedly Per cent	8 (4.4)	3 (1.6)	4 (2.2)	15 (8.2)	2 (1.1)	17 (9.3)	4 (2.2)	—	—
Moderately Per cent	4 (2.2)	8 (4.4)	6 (3.3)	18 (9.8)	2 (1.1)	20 (10.9)	4 (2.2)	1 (.5)	1 (.5)
Slightly Per cent	1 (.5)	8 (4.4)	7 (3.8)	16 (8.7)	5 (2.7)	21 (11.5)	7 (3.8)	1 (.5)	—
Reducing costs Per cent	13 (7.1)	19 (10.4)	17 (9.3)	49 (26.8)	9 (4.9)	58 (31.7)	15 (8.2)	2 (1.1)	1 (.5)
New product Per cent	1 (.5)	2 (1.1)	2 (1.1)	5 (2.7)	2 (1.1)	7 (3.8)	—	—	—
Other Per cent	3 (1.6)	2 (1.1)	3 (1.6)	8 (4.4)	1 (.5)	9 (4.9)	2 (1.1)	3 (1.6)	1 (.5)
Other benefits Per cent	4 (2.2)	4 (2.2)	5 (2.7)	13 (7.1)	3 (1.6)	16 (8.7)	2 (1.1)	3 (1.6)	1 (.5)
Total with positive impact Per cent	17 (9.3)	23 (12.6)	22 (12.0)	62 (33.9)	12 (6.6)	74 (40.4)	17 (9.3)	5 (2.7)	2 (1.1)
Not at all Per cent	10 (5.5)	18 (9.8)	17 (9.3)	45 (24.6)	1 (.5)	46 (25.1)	7 (3.8)	6 (3.3)	1 (.5)
Don't know Per cent	1 (.5)	1 (.5)	—	2 (1.1)	1 (.5)	3 (1.6)	3 (1.6)	2 (1.1)	—
Unanswered Per cent	1 (.5)	4 (2.2)	2 (1.1)	7 (3.8)	1 (.5)	8 (4.4)	—	5 (2.7)	2 (1.1)
Not asked Per cent	—	—	—	—	—	—	2 (1.1)	—	—

Thus, some direct economic impact was reported for nearly 41% of these patents. For the balance, 59%, no reduction of production costs or any related benefits was indicated.

Columns 9 and 10 show the detailed distribution of the combined group of used patents. The over-all impact (Column 10) is that for about 41% some measurable effect in reducing production costs was reported. In another 13% it was not possible to measure reduction in production costs, but there was indication of related favorable economic impact. In other words, for 54% there were discernible benefits reported in connection with production costs. The balance, 46%, indicated no beneficial effect on the *cost* side.

#### AN INTEGRATED APPRAISAL OF THE ECONOMIC IMPACT

The use of certain patented inventions by industry may have favorable economic impact without direct effect on sales or production costs. The use of other patents may increase sales without reducing production costs or vice versa, or do both simultaneously. Table 4 shows this joint relationship for patents in current use. It is a cross tabulation of assignee replies to questions 18 and 19, respectively, for identical sampled patents.

The horizontal spread shows the distribution of patents with a specified classification with respect to replies to question 19 as related to replies to 18. Thus, of the total number there were eight patents which markedly reduced production costs and also markedly increased the volume of sales. The figures in parenthesis are percentages based on the number in each cell as related to the total of 183 patents reported in current use. For a general appraisal it is sufficient to concentrate on relatively broad categories of more or less homogeneous subgroups of patents with respect to cost reduction and increased sales, as summarized in Table 5.

Considering the broad and significant groups, Table 5 indicates that about 27% of the currently used patents had specific measurable effects on both production costs and sales. For about 15%, use at least reduced production costs; for some it had also other beneficial effects. For an additional 37%, the use at least increased sales volume. Combining these three groups shows reduced production costs and/or measurably increased sales volume in about 78% of all cases. For an additional 7% some beneficial effect was indicated in response to one or both of these questions. Therefore, for nearly 85%, some salutary economic impact resulted from use of the patent. In less than 4% of the cases the reply was "not at all" with respect to both questions. The reply was "not at all" with respect to either question combined with no information for the other question in less than 7% of the cases. For about 5% no information was provided for either question. If we eliminate this latter group, the remaining groups are distributed as follows: Some measurable effect on reducing production costs and/or increasing the volume of sales was indicated for almost 82% of the patents. For another 7% there were some beneficial results in response to one or both questions. This indi-

TABLE 5

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS IN CURRENT USE, ACCORDING TO THE SIMULTANEOUS EFFECT OF SUCH USE ON REDUCING PRODUCTION COSTS AND INCREASING SALES, IN BROAD JOINT CATEGORIES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

EFFECT ON PRODUCTION COSTS	EFFECT ON SALES	No.	PER CENT	PER CENT WITH SPECIFIC ANSWER
		(1)	(2)	(3)
<b>Total: Number</b>		183	183	174
<b>Per cent</b>			100.0	100.0
Reduced costs	Increased sales	49	26.8	28.2
Reduced costs	Other benefits	9	4.9	5.2
Reduced costs	No information	3	1.6	1.7
Reduced costs	No effect	15	8.2	8.6
	<b>Sub-total</b>	27	14.8	15.5
Other benefits	Increased sales	13	7.1	7.5
No information	Increased sales	9	4.9	5.2
No effect	Increased sales	45	24.6	25.9
	<b>Sub-total</b>	67	36.6	38.5
Other benefits	Other benefits	3	1.6	1.7
Other benefits	No information	4	2.2	2.3
Other benefits	No effect	2	1.1	1.1
No information	Other benefits	2	1.1	1.1
No effect	Other benefits	1	.5	.6
	<b>Sub-total</b>	12	6.6	6.9
No effect	No effect	7	3.8	4.0
No effect	No information	7	3.8	4.0
No information	No effect	5	2.7	2.9
No information	No information	9	4.9	

cates a favorable economic impact for almost 89% of these patents in current use. For 4% the answer was "not at all" to both questions, and for the residuum, about 7%, replies were a combination of "not at all" and "no information." Since for 7% "no information" on production costs or on sales was reported, it is possible that, were this information obtained, the percentage of patents in current use resulting in some definite economic benefit could very likely exceed 90%, perhaps approach 95%.

Table 6 cross classifies, with respect to patents used in the past, the effect of such use on reducing production costs, with the increase in the volume of sales. Table 6, like Table 4, shows the detailed interrelationship, for a given patent, of assignee replies to questions 19 and 18, respectively.

TABLE 6

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS USED IN THE PAST IN TERMS OF THE EFFECT OF SUCH USE ON REDUCING PRODUCTION COSTS AS ASSOCIATED WITH THE EFFECT OF THE SAME PATENT IN INCREASING THE VOLUME OF SALES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

EFFECT OF USE IN REDUCING PRODUCTION COSTS	EFFECT OF USE ON SALES								
	POSITIVE IMPACT						Not at all	Don't know	Unanswered
	INCREASED SALES				Other	Total			
	Markedly	Moderately	Slightly	Sub-total					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Markedly Per cent	1 (.9)	1 (.9)	—	2 (1.8)	—	2 (1.8)	1 (.9)	—	—
Moderately Per cent	—	2 (1.8)	4 (3.5)	6 (5.3)	1 (.9)	7 (6.2)	5 (4.4)	4 (3.5)	—
Slightly Per cent	—	—	3 (2.7)	3 (2.7)	1 (.9)	4 (3.5)	4 (3.5)	—	—
Reducing costs Per cent	1 (.9)	3 (2.7)	7 (6.2)	11 (9.7)	2 (1.8)	13 (11.5)	10 (8.9)	4 (3.5)	—
New product Per cent	1 (.9)	4 (3.5)	1 (.9)	6 (5.3)	—	6 (5.3)	—	2 (1.8)	—
Other Per cent	1 (.9)	—	—	1 (.9)	2 (1.8)	3 (2.7)	1 (.9)	—	—
Other benefits Per cent	2 (1.8)	4 (3.5)	1 (.9)	7 (6.2)	2 (1.8)	9 (8.0)	1 (.9)	2 (1.8)	—
Total with posi- tive impact Per cent	3 (2.7)	7 (6.2)	8 (7.1)	18 (15.9)	4 (3.5)	22 (19.5)	11 (9.7)	6 (5.3)	—
Not at all Per cent	—	11 (9.7)	20 (17.7)	31 (27.4)	2 (1.8)	33 (29.2)	22 (19.5)	1 (.9)	1 (.9)
Don't know Per cent	1 (.9)	—	—	1 (.9)	—	1 (.9)	1 (.9)	3 (2.7)	—
Unanswered Per cent	—	—	—	—	—	—	1 (.9)	2 (1.8)	4 (3.5)
Not asked Per cent	2 (1.8)	—	2 (1.8)	4 (3.5)	—	4 (3.5)	1 (.9)	—	—

The broad groupings, to facilitate the observation of a general association, are summarized in Table 7.

TABLE 7

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS USED IN THE PAST ACCORDING TO SIMULTANEOUS EFFECT OF SUCH USE ON REDUCING PRODUCTION COSTS AND INCREASING THE VOLUME OF SALES, IN BROAD JOINT CATEGORIES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

EFFECT ON PRODUCTION COSTS	EFFECT ON SALES	No.	PER CENT	PER CENT WITH SPECIFIC ANSWER
		(1)	(2)	(3)
Total: Number		113	113	104
Per cent			100.0	100.0
Reduced costs	Increased sales	11	9.7	10.6
Reduced costs	Other benefits	2	1.8	1.9
Reduced costs	No information	4	3.5	3.8
Reduced costs	No effect	10	8.9	9.6
	Sub-total	16	14.2	15.4
Other benefits	Increased sales	7	6.2	6.7
No information	Increased sales	5	4.4	4.8
No effect	Increased sales	31	27.4	29.8
	Sub-total	43	38.1	41.3
Other benefits	Other benefits	2	1.8	1.9
Other benefits	No information	2	1.8	1.9
Other benefits	No effect	1	.9	1.0
No information	Other benefits	—	—	—
No effect	Other benefits	2	1.8	1.9
	Sub-total	7	6.2	6.7
No effect	No effect	22	19.5	21.2
No effect	No information	2	1.8	1.9
No information	No effect	3	2.7	2.9
No information	No information	9	8.0	

Table 7 indicates that for nearly 10% of these patents both beneficial effects were present; for 14%, reduced costs were reported, in some instances, combined with other beneficial effects related to sales; and for 38%, sales were increased, in some instances combined with other benefits related to production costs. These three groups, that is, patents reported to have reduced production costs and/or increased sales, account for 62% of the total. Another 6% report some favorable effect either in response to question 19 or 18, or both. That is, of the total, 68% are reported to have had economic significance in some measure. For nearly 20% the replies indicate no favorable effect with respect to either reduced production costs or increased sales. More than 4% show no effect in combination with "lack of specific information," and 8%, no specific information with respect to both questions.

The percentages given in the last column are exclusive of patents with no information on either question. They show that for patents used in the past with specific replies to question 19 and/or 18, nearly three-fourths (74%) report some positive benefit in connection with reduction of costs or increased sales, or both. For most of the remainder (21%) no effect on either is reported. The rest (5%) consisted of replies in which "no effect" on one of the questions was combined with "no information" on the other. For this group of patents, it is possible that if the information were forthcoming, the percentage of patents used in the past with some beneficial effect with respect to production costs or increased sales might rise to 75% or higher.

Finally, Table 8 gives a consolidation of all the used patents in terms of these broad groupings of replies to question 19, associated with question 18.

TABLE 8

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS USED CURRENTLY OR IN THE PAST, ACCORDING TO THE EFFECT OF SUCH USE ON REDUCED PRODUCTION COSTS AND/OR INCREASED SALES, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

EFFECT OF USE ON PRODUCTION OR SALES	NO.	PER CENT	PER CENT WITH SPECIFIC ANSWER
(1)	(2)	(3)	(4)
Total: Number	296	296	278
Per cent		100.0	100.0
Effect on both	60	20.3	21.6
Reducing production costs	43	14.5	15.5
Increasing volume of sales	110	37.2	39.6
Measurable effect on both or either	213	72.0	76.6
Some favorable effect reported	19	6.4	6.8
Total with measurable effect or other benefit	232	78.4	83.5
No effect	29	9.8	10.4
No effect with no information	17	5.7	6.1
No information	18	6.1	

The summary Table 8 for all the used patents suggests that between 20 and 22% (depending on whether those without information on both questions are included in the total) have measurable favorable effects on both reducing production costs and increasing sales. Between 72 and 77% have had measurable effect with respect to either or both. If other beneficial effects are included, between 78 and 84% will be in this category. Only about 10% of the patents were reported as not having any favorable effect, and the balance represents patents with no effect either on production costs or sales, combined with no information for the other. As it has been indicated, were full information available with



respect to these patents, the percentages with beneficial effects could have exceeded 84.

#### REDUCED PRODUCTION COSTS VERSUS INCREASED SALES

Our analysis thus far clearly indicates that a higher proportion of patents measurably affect sales compared with those which reduce production costs. One explanation of this might be that often only process patents affect production costs, while all types of patents when used could contribute to increased sales. It is also possible that the latitude left for reducing production costs perceptibly is much more restricted, since in many industries the dominant component of production cost is labor. It is also possible that the accounting methods in industry are such that minor reductions in production cost are more likely to be lost sight of than gains in sales.

As a matter of fact, many assignees have frequently noted in their replies that the patented invention is only a small part of a complex of patents used, and often it is not possible, or it is deemed unimportant, to develop needed cost accounting procedures to apportion any reduction in production costs. Perhaps to a lesser extent, this difficulty accounts for the lack of a specific answer to question 18. It is unquestionably the common reason for those who answered "do not know" to 18 or 19. Even some of those who replied specifically "no effect at all" may have based their replies on assumptions that would have proved incorrect with appropriate cost accounting. These are matters that demand further firsthand study to appraise and interpret the replies from assignees with greater confidence.

#### A MORE "PRECISE" MEASURE OF ECONOMIC VALUE OF PATENTS TO ASSIGNEES

It was not through choice or lack of discrimination that we were led to include in our questionnaire such flexible criteria as the extent of use in terms of markedly, moderately, or to a limited extent, and the analogous questions regarding intensity with which use of the patent had affected production costs or the volume of sales.

Such questions were included because we were uncertain whether in many instances exact information was available. A further uncertainty was whether assignees that had more precise information would share it with us. But since the present study was an exploratory one, and we wanted to ascertain whether more precise information on costs and benefits associated with patents could be obtained, we included question 26 which reads: "What would you estimate as the net loss or gain that you have had to-date from the sampled inventions: (give the estimated amount (a) net loss; (b) net gain; and (c) other (specify))?"<sup>9</sup>

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<sup>9</sup> PTC J. Res. & Ed., I, No. 1 (June 1957), p. 111.

Question 27 reads: "Is the amount in 26: (a) a recorded figure; (b) an informed guess; and (c) other (specify)?"<sup>9</sup> While we shall not present an analysis of this question at this time, it appears that the predominant answer was in terms of "b," that is, an informed guess. Also, the comments which we have received indicate that many assignees did not have such information, and some that did, did not wish to share it with us. Therefore, though in form question 26 may appear more precise, the actual replies may not be more specific and dependable than the replies to the more or less subjective and qualitative questions such as 13, 18, or 19.

Table 9 presents the information elicited from assignees who returned a completed questionnaire on net gain or loss. Although the question has significant meaning primarily for used patents, we have presented the replies for all 600 patents with completed questionnaires.

For the different types of patents, in terms of utilization status, the distributions give some information on the costs involved in obtaining these patents.<sup>10</sup> The table also serves as an index of internal consistency of the completed questionnaires returned by assignees between the reporting of utilization status and net gain or loss. The table is unique in that a much larger proportion of the returns fail to give a specific answer in comparison to that observed with respect to other questions. Thus, of the 183 patents reported in current use, for 74 (40%) the reply was unknown or undeterminable. An additional 6% made some observation but gave no useful information. One assignee stated such information was confidential; another said "gain expected" though the question asked for net loss or gain as of the time the questionnaire was completed. An additional 8% failed to make an entry. Of the total, 102 (56%) gave no useful information. Still others indicated loss or gain but failed to specify an amount. Only 62 respondents gave an amount, some showing a range of amounts, and eight others indicated that there was no loss or gain.

Of the 113 patents reported used in the past, for 42, (37%) assignees indicated "unknown" or "undeterminable." For another 10% no entry was made and for 6% the entry provided no useful information. Thus, of the total, in 60 cases (53%) the reply was useless.

Among patents about to be used, 47 in all, no useful information was supplied by 20 (43%). Of the 252 patents reported never used, no useful information was provided by 42%.

It may be observed that the percentage of patents without useful information is highest for patents in current use, 56%. This is understandable, since these

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<sup>10</sup> The assignee questionnaire has three other questions that bear on costs. One of these is limited to patents which were purchased, in terms of the amount paid, (question 2, see Footnote No. 9); another seeks amount spent on the invention in developing it to the stage of patenting and the cost of patenting (question 3 see Footnote No. 9); and a third asks for developmental costs with the view of commercial exploitation of the patent (question 6 see Footnote No. 9). For patents which have not been used as yet, the amount recorded in question 26 should not be different from the sum reported under 2 and 6, or 3 and 6, as the case may be, depending on whether the patent was purchased or developed. But for used patents the amounts would be quite different. These questions have not been analyzed as yet.



patents represent a difficult task of cost accounting, and perhaps confidentiality of cost data is also an important consideration. Second in rank, with respect to the percentage of patents without useful information, are patents used in the past. Fifty-three per cent of these patents had no useful information as to net gain or loss. For these patents, in addition to difficulties of cost accounting, was the availability of old records. A relatively high proportion of these patents were issued in 1938, and records may not have been conveniently available. Third in rank were patents about to be used, 43%. For these patents accounting should be relatively simple compared to used patents. Confidentiality, however, may be as important as that for patents in current use. The lowest percentage of patents with no usable returns is with respect to "never used" patents, 42%. For these patents, accounting problems are the simplest of all, and confidentiality is not likely to be an important factor.

Another characteristic of the table is its internal consistency in terms of utilization status. While patents in current use and those used in the past show a significant number with net gains, patents about to be used and never used in no case show a net gain.

Of the patents in current use, 30% show net gains of specified amounts; an additional 6% are reported to have resulted in net gain, but no amount is given. When the percentages are restricted to patents for which information was supplied on losses or gains (Column 4), the percentage with gain is 80, and that with loss, 10.

The most important data are the amounts shown as net gain.<sup>11</sup> Column 3 shows that of the patents in current use, close to 3% reported net gains in excess of one million dollars; about 4%, between one-half million and one million; and over 3% between \$100,000 and half a million. There are 8% that reported \$15,000 to \$50,000 net gain and 7% \$5,000 to \$15,000.

Of the patents in current use, there are only 8, (4%) that reported net losses. In all probability, these patents required far more than average developmental costs,<sup>12</sup> and, have come into production relatively recently. Probably most, if not all would, in time, shift from a net loss to a net gain. Also with respect to patents with net gain, the amounts shown will continue to increase in most, if not all cases, until these patents become obsolete or are taken out of production for other reasons.<sup>13</sup>

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<sup>11</sup> These figures are important since this is, perhaps, the first time that information of this nature has been elicited, at least starting with a probability sample of all patents issued in a given year. We are aware, of course, that because of the many selective factors, patents for which specific information is given with respect to net gain or loss cannot be regarded as a probability sample. On the other hand, at least, it is not a "selected" sample to prove or disprove any position.

<sup>12</sup> This is purely inferential, but as has been indicated we have asked information with respect to developmental costs. Thus this inference is susceptible of checking with the facts as reported in questions 2 and 6, or 3 and 6. (See Footnote 10).

<sup>13</sup> If the sample of patents for which net gains or losses are shown could be considered a random sample of all the patents in current use, then it can be demonstrated that the present mean gain (\$600,000) from these patents collectively would represent less than one-half of the ultimate gain. In a probability sample drawn from all patents in current use on the average half of their useful life would have passed. In the first half, some of the gains made would be offset

We have no knowledge of how consistent and dependable the accounting procedures are on which these replies are based. Even more important is the uncertainty as to whether these patents for which net loss or gain is reported are representative of all patents in current use. We wish to emphasize the limitations of these statistics.

Of the patents used in the past, 21% of the total show net gain, most of the gains falling between \$5,000 and \$100,000. Nearly 10% of the total show losses, most of them between \$5,000 and \$25,000. When the percentages are restricted to those patents with specific information showing net gain or net loss, about 45% of the patents used in the past show net gain and about 21% show a net loss.

For the remaining categories there could be losses only at the time the questionnaire was completed. For patents about to be used there are over 8% with no gain or loss. This suggests the possibility that this 8% ("future use") have been used, perhaps on an experimental basis since their initial costs appear to be covered. Of patents about to be used 49% indicate net losses, mostly under \$10,000 per patent. Nearly 11% of the "never used" patents also show no loss. Thus some of them might have been used on a limited, experimental basis or may have been traded for something equivalent to the assignees' outlay. Forty-eight per cent of the never used patents show net losses and are concentrated under \$3,000 per patent.

In terms of averages, for patents for which specific amounts of net gain or loss were reported, results are as follows:\*

UTILIZATION STATUS	NUMBER	APPROXIMATE NET GAIN MEAN	NUMBER	APPROXIMATE NET LOSS MEAN
In current use	55	\$577,000	7	\$88,000
Used in the past	19	72,000	11	14,000
Future use	—	—	23	12,000
Never used	—	—	108	4,500

\* These were obtained from actual amounts reported and not from the distributions shown in Table 9. Where a range was given the midpoint was used in obtaining the average.

These averages appear highly significant. Patents in current use with net gain average nearly \$600,000 per patent.<sup>13</sup> Those with net losses average \$88,000. In other words, patents in current use have had large developmental costs, and this is particularly true for the select ones that still show a net loss. But, of course, the currently used patents as a group show very large gains also. Patents used in the past show comparatively much smaller net gains, on the average \$72,000. (Some of this difference may be psychological. As has been indicated earlier, often these figures are conjectural.) These also appear to be patents with relatively smaller average investment. In this group those with net loss average \$14,000.

by prior costs, but there would be none of this in the second half. Moreover, with growing inflation, actual dollar returns should average higher from the second half. Of course, we cannot say that the patents for which information was given represent a random sample of all the used patents.

Patents to be used in the future also have comparatively low initial cost, \$12,000. For these, perhaps, some of the heavy developmental costs may occur in the future. As for the never used patents, expenses are the smallest by far, less than \$4,500 per patent. Perhaps this amount comes closest to reflecting the average cost incurred by assignees in obtaining a patent. These averages, though they may not be representative, appear to be highly significant and may indicate the value of our patent system in encouraging large investments where the prospects of very large returns exist.<sup>14,15</sup>

#### ADDITIONAL CRITERIA OF USEFULNESS OF PATENTS

Although our chief criterion in the Patent Utilization Study has been the actual commercial exploitation of the patent, it would be fallacious to assume that all patents which fail to meet this criterion are to be considered of no value economically or otherwise. It was with this consideration in mind that we included question 20 in the assignee questionnaire. It reads: "Describe any other benefits which you have derived or expect to derive from your right(s) in the sampled invention."<sup>9</sup> The intent of this question is to bring out benefits not associated with increased sales and reduced production costs. A number of assignees indicated benefits not elsewhere reported, such as the patent opened the way to other highly profitable inventions; it was found useful as an alternative process (especially during World War II when certain shortages had to be met by substitutes); it increased safety; it increased the shelf life of the product, and so on.

Aside from these benefits, we are inclined to regard licensed patents of some value. If we use these two criteria of usefulness (benefits reported in response to question 20 and licensing reported in 21), in addition to those actually used or about to be used, we significantly increase the percentage of "useful" patents. If these additional criteria of usefulness are applied to the 29 patents (see Table 5) in current use for which we had no information regarding the effect of use on sales and on production costs, or in those cases where no effect was stated, we find that many proved useful in terms of question 20. Others not having this information are, nevertheless, licensed.

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<sup>14</sup> The incompleteness of specific responses to question 26 indicates the difficulties of this type of study. If we try to get precision, we lose respondents. This is illustrated most forcefully by the proportion of specific replies to the different questions in the assignee questionnaire considered in this report. Question 13, simplest of all, required an over-all impression reply and elicited the most specific answers. For patents in current use, 96% responded to the question specifically. With respect to question 18, the effect of the use of the patent on increasing sales, about 87% gave usable answers; and the percentage was 86 for those who responded to question 19, effect of use on production costs. While in question 26, failure to make any entry accounted for 9%, another 39% answered "don't know" or "indeterminable." Actually, useful information was supplied by 45% of those who reported their patents were used. Probably, by including question 26, we also discouraged a number of assignees who otherwise might have returned a completed questionnaire. These are matters that a researcher must weigh in deciding to what extent he should try to obtain "precise" information.

<sup>15</sup> Report prepared by The Harvard Business School "Patents and the Corporation, A Report on Industrial Technology Under Changing Public Policy" Boston, May 1958, pp. 34-41.

This is also true, though to a somewhat lesser extent, with respect to patents used in the past (see Table 7) that had neutral or no replies with respect to questions 18 and 19 (effect on sales and production costs).

#### APPLICATION OF ADDITIONAL CRITERIA TO THE "NEVER USED" PATENTS

In terms of question 20 and in terms of licensing (question 21, when answers to question 20 are negative or indifferent) an appreciable proportion of the "never used" patents are reported to be presently or potentially useful to their assignees. These are shown in Tables 10 and 11.

TABLE 10

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS NOT USED AND NOT LIKELY TO BE USED, AT LEAST IN THE IMMEDIATE FUTURE, ACCORDING TO OTHER REALIZED OR PROSPECTIVE BENEFITS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

BENEFITS DERIVED OR TO BE DERIVED	"NEVER USED" PATENTS		
	No.	Per cent	Per cent with Specific Answer
(1)	(2)	(3)	(4)
Total: Number	252	252	124
Per cent		100.0	100.0
Actual or possible exploitation	24	9.5	19.4
Actual or possible royalties or sale	17	6.7	13.7
Development of the art	18	7.1	14.5
An alternate process	5	2.0	4.0
Sub-total	64	25.4	51.6
None	60	23.8	48.4
Unknown	2	.8	
Unanswered	126	50.0	
Sub-total	128	50.8	

On the basis of assignee replies to question 20 (Table 10) we are led to infer that at least one-fourth of these so-called "never used" patents (25.4%) have proved useful, or the assignee expects them to be. For another fourth of these patents the assignee indicates that he expects no "other" benefits from the sampled patent. With respect to the balance, constituting about half of these patents, the assignee made no reply to this question, and in two instances the reply was "don't know." Whether some of these patents, for which no statement was made may have had some utility we do not know. Replies to question 21, with respect to licensing, have been analyzed for patents to which the response to question 20 was negative or non-specific. These results are shown in Table 11.

Column 4 of Table 10 shows that, excluding the patents for which we have no specific information with respect to "other" benefits, about 52% represent patents with some realized or future economic benefits. The remaining 48% are those with no benefits.

TABLE 11

NUMBER AND PERCENTAGE DISTRIBUTION OF UNUSED PATENTS WITH NO ASSIGNEE REPLY ON POSSIBLE BENEFITS OR A REPLY OF "NONE," CLASSIFIED ACCORDING TO LICENSING STATUS BASED ON ASSIGNEE RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

LICENSING STATUS	REPLIES TO QUESTION 20						
	NO BENEFITS		UNANSWERED		UNKNOWN	TOTAL	
	No.	Per cent	No.	Per cent	No.	No.	Per cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total: Number	60	60	126	126	2	188	188
Per cent		100.0		100.0			100.0
Licensed	5	8.3	35	27.8	—	40	21.3
Not licensed	55	91.7	91	72.2	2	148	78.7

Table 11 indicates that of the 60 "never used" patents in our sample of 252 for which the assignees indicated no other benefits, 8% were licensed at the time and could be considered "useful" on this ground. Of the 128 patents without specific information as to any "other" benefits, 28% were licensed. Therefore, of this group of 252 patents, for about 25% the assignees indicate some benefit realized or hoped to be realized. Another 16% are licensed. We may consider, therefore, that about 41% of these "never used" patents have proved useful or are expected to prove useful.

This analysis would suggest that our earlier conclusion with respect to used patents was too conservative, if "useful" patents are defined to include not only (1) patents in current use, (2) those used in the past, (3) those about to be used, but also (4) those categorized "never used" where assignees report some realized or hoped for benefit, and (5) those not meeting any of the previous four criteria, but are licensed. The number and percentages of patents that meet one or more of these criteria of "usefulness" in our 600 assigned patents is shown in Table 12.

Table 12, as far as the first three categories are concerned, is identical with Table 1 in this report and needs no comment. It shows, on the other hand, that in addition to the 57% of used patents, there are nearly 11% which, though not used according to our definition of "use," have or are expected to yield benefits. There is an additional 7% of patents which are licensed and not in any other category in Table 12. In sum, Table 12 indicates that about 75% of the patents in our sample show some "usefulness" (defined to include the additional criteria). The balance are patents for which the assignees have indicated no benefits or often have failed to furnish specific information.

The percentages given in Table 12 are almost completely contrary to those cited by Professor Machlup in his recent monograph for the U.S. Senate Subcom-



TABLE 12

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS IN TERMS OF USE OR OTHER SPECIFIED BENEFITS,  
BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

UTILIZATION STATUS	NUMBER	PER CENT	
		All	Excluding "others"
(1)	(2)	(3)	(4)
Total: Number	600	600	447
Per cent		100.0	100.0
In current use	183	30.5	40.9
Past use	113	18.9	25.3
Future use	47	7.8	10.5
Used or to be used	343	57.2	76.7
Other benefits indicated (n.e.c.)	64	10.7	14.3
Licensed (n.e.c.)	40	6.7	9.0
"Useful" patents	447	74.5	
All others (n.e.c.)	153	25.5	

mittee on Patents, Trademarks, and Copyrights in considering various grievances against the patent system, in which he writes, "It has been estimated that between 80 and 90% may be in this category,"<sup>16</sup> meaning patents that are of no use.

Machlup's monograph, after 79 pages of discussion of the economic importance of patents, comes to the conclusion that "No economist, on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss upon society."<sup>17</sup> We subscribe to this conclusion. Equally revealing of the barrenness of much of the past criticism of the patent system is the following statement also from Machlup: "In presenting the criticisms or counter-arguments, some of the authors who participated in the patent controversy of the 19th century (1850-73) will be cited. These references serve only as samples, since in most instances many writers have made the same point. *Indeed, if one always cites only the first and true inventor of an argument concerning the patent system, one will rarely be able to cite an author of the 20th century.*"<sup>18</sup> In other words, nothing new has been added by the critics of the patent system in the last 80 to 90 years. The above observations underscore the crying need for firsthand empirical studies of the patent system<sup>19</sup> of the type presented herein.

<sup>16</sup> *Id.* at 12, note 4 *supra*.

<sup>17</sup> *Id.* at 79.

<sup>18</sup> *Id.* at 22. [Italics ours]

<sup>19</sup> It should be noted that most of the evidence against the patent system appears to be derived from the relatively small number of patents before the courts—less than one-half of 1% of the patents in force over the 17-year period—since these patents attract widespread attention. This is bound to distort perspective. It is just as fallacious to formulate a theory of the characteristics of patents in terms of litigated patents as it would be for an anatomist or physiologist to limit his studies of man to unusual cases found in the medical literature.

The findings summarized in Table 12, indicate that within the definitional and other limitations specified, three-fourths of the assigned patents issued to the residents of the United States are considered “useful.”

# Patents and Other Factors in the Aluminum Processing Industry\*

MARSHALL C. HOWARD, Research Associate

## STRUCTURE OF INDUSTRY

**B**EFORE WORLD WAR II the production of basic aluminum from bauxite was dominated by the Aluminum Company of America. By the end of the war there were two more large producers of basic aluminum pig and ingot. These firms are highly integrated vertically. There now are, or soon will be, three additional basic aluminum producers as a result of backward integrations. War, government construction of facilities, antitrust action, and the increasing demand for aluminum have all contributed to expansion in this stage of the industry.

At a second stage of the industry there are firms that buy this basic pig or ingot and further process it. In a real sense they are "semi-processors." They extrude, roll, draw, forge, cast, or produce flake or powder—that is, engage in some process of shaping aluminum. They may also anodize, polish, or fabricate by bending or drilling or bolting together final fabricated products; but typically they either do not make final products themselves or engage only incidentally in such production. They are small relative to the business units in the first stage of basic production, although they may be fairly large in absolute terms—for example, with respect to the number of employees.

The secondary smelters, who produce from scrap, may also be considered as belonging to this stage of the industry. They do not engage in basic production from the original ores, but provide a second distinct source of supply.<sup>1</sup>

Some firms in the second stage of the industry fabricate, but more fabrication takes place in other industries. Thus, aluminum is fabricated in industries supplying building materials, consumer durable goods, containers and packaging, electrical and other machinery, scientific and technical instruments, transportation equipment, ordnance, and other products. The trade magazine *Modern Metals* estimated in 1955 that more than 24,000 plants in such industries used aluminum in their fabrication processes.<sup>2</sup>

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\* Dr. Howard, Associate Professor of Economics at the University of Massachusetts, prepared this research interim report on a case study designed and conducted by him under the general direction of Dr. Irving H. Siegel, Consultant for Project 3a, "Role of Patents on the Creation and Growth of Small Industrial Units."

<sup>1</sup> United States Department of Commerce, Business and Defense Services Administration, *Materials Survey-Aluminum*, November 1956, p. III-5. These secondary smelters have come to be the principal source of supply for about 3,500 aluminum foundries and die casters.

<sup>2</sup> Report of Sub-committee No. 3 on Minerals and Raw Materials to the Select Committee on Small Business, *Small Business and the Aluminum Industry*, House Report No. 2954, (84th Cong., 2d Sess., 1956), p. 7.

It is the second stage of the industry, the semi-processors, with which this research study is concerned. Except for the secondary smelters, the firms in this stage of the industry depend for supplies almost entirely upon the vertically integrated "Big Three," plus some imports from Canada from Aluminium Limited. Indeed, they depend largely upon suppliers who do more semi-processing than they do themselves. But basic supply is expanding rapidly. In 1940 total U. S. primary production was 206,000 tons of pig and ingot. In 1952 output amounted to 937,000 tons. By January 1, 1958, the capacity had increased to 1,841,500 tons, and new additions will raise plant capacity by 1960 to more than 2,600,000 tons.<sup>3</sup>

In 1955 there were complaints by semi-processors that supply available from the integrated producers was inadequate.<sup>4</sup> Yet, in four of five major categories of aluminum mill shapes, the semi-processors have improved their relative share of the market,<sup>5</sup> and their number has been increasing at a fairly rapid rate. Thus supply limitation does not seem to have significantly hindered small non-integrated firms.

#### NATURE OF SAMPLE

In addition to about 3,500 foundries and die casters, the second stage includes about 350 other semiprocessors. The latter figure includes secondary smelters.

Our sample includes 34 firms in a particular geographic area. This area was selected for study because the firms therein represent so well the diversity of the industry. Its compactness and proximity also simplify the follow-up problem. The sample has 30 firms of the kind included in the national figure of 350 cited above. All these 30 firms were sent questionnaires. A random selection was made of four additional firms for canvass so that every important type of second-stage activity is covered in our survey. The composition of the sample is as follows: sheet and plate, 3; foil, 2; extrusions, 8; tube, 2; powder, 3; wire, 4; forgings, 4; secondary smelters, 4; anodizing, 1; foundries, 2; and general products, 1.

#### DESIGN OF QUESTIONNAIRE

The questionnaire itself was constructed only after interviews or correspondence with persons connected with the industry—an extruder, a wire manufacturer, a basic producer, a trade association representative, and a consultant to the industry. The final questionnaire was so designed as to isolate or identify any particular area of operations in which patents might be a restrictive factor. It also sought to

<sup>3</sup> Statement of Gordon Gray, Director, Office of Defense Mobilization before Sub-committee No. 3 of the House Select Committee on Small Business, May 6, 1958.

<sup>4</sup> See House Report No. 2954, *op. cit.*, *passim*.

<sup>5</sup> See U. S. Department of Commerce, Business and Defense Services Administration, Aluminum and Magnesium Division, *Gross Shipments of Aluminum Mill Shapes by Integrated and Non-integrated Producers, 1950-1957*, May 7, 1958.

ascertain whether these relatively small firms engaged in research and development activity and, if so, the nature and goal of such activity (e.g., patents and trademarks). Third, it aimed at ascertaining the directions in which such firms might desire to expand. Fourth, an open-end question was provided for opinions as to the non-patent factors deemed important to the creation and growth of small firms in aluminum processing.

#### RESPONSE AND PRELIMINARY FINDINGS

Even as this report goes to press the response may be rated as highly gratifying. The first returns numbered 15, or 44.4%. After the first follow-up, five more were received to make a total of 20, or 58.8%.

Analysis of the returned questionnaires is not complete. At this point, the most important factors involved in the origin and growth of a small firm in aluminum processing would appear to be those same factors that have come to light with respect to the creation and success of small business in general. Thus, access to capital and availability of technical "know-how" rank very high. Only about one firm out of five reports having registered a trademark with the Patent Office.

Patents apparently are not playing a decisive role in the creation and development of aluminum semi-processing firms. Patent licenses do not appear to be required; nor do firms hold or seek to hold their own process patents. Research and development appears to be largely confined to improvement of processing know-how.

# Patents and Other Factors in the Plastics Fabricating Industry\*

MURRAY BROWN, Research Associate

## SUMMARY

A QUESTIONNAIRE WAS SENT TO 207 firms in the plastics fabricating industry and 53, or one quarter, responded. The survey revealed that about one-eighth of the responding firms, mostly small ones, had been established on the basis of patented processes. About three fourths of the companies claimed to have developed patentable techniques; one half of this group went on to obtain patents. The firms that went on to obtain patents were generally larger than those that did not. Nine out of every ten companies engaging in research activity indicated that they would seek patents.

All reporting firms believed that know-how had increased their markets, and most thought it helped also to cut costs. Half of the respondents, mostly medium and large firms, believed that trademarks had increased their markets. About one-fifth thought that patents had.

These factors, among others, were also considered vital in *current* operations. The proportion of firms stressing the benefits of owned and licensed patents was greater than the ratio cited for patents in the preceding paragraph. Larger and faster-growing firms had an especially favorable opinion of the current contribution of patents.

None of the respondents attributed a significant role to patents in helping their competition to get business.

THIS PAPER IS AN INTERIM REPORT on a project which attempted to evaluate the role of patents, among other things, on the creation, development, and operation of firms in the plastics fabricating industry. Since we are interested in the role of knowledge and other factors which firms deem relevant, attention is directed not only to patents but also to such factors as know-how, advertising and marketing effort, government contracts, and trademarks in their influence on the firms. The evaluation of these factors rests on a questionnaire sent to 207 fabricating firms,

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\* This paper was prepared by Dr. Murray Brown, Assistant Professor of Economics, Wharton School of Finance and Commerce, University of Pennsylvania. This is an interim report on one of several studies conducted under the general direction of Dr. Irving H. Siegel as part of Project 3a, "Role of Patents in the Creation and Growth of Small Industrial Units." The author is indebted to his assistant, Mr. Joel Friedman, for critical comments; to Professor George Fisk, of the Marketing Department of the Wharton School, for aid in constructing the questionnaire; and to the numerous individuals in the industry who offered valuable advice in conversation and correspondence.

data culled from external sources, and conversations with key members of the industry.

#### FUTURE OF INDUSTRY

The plastics fabricating industry is comprised of establishments engaged in molding plastics for intermediate use and also in manufacturing finished plastic products.<sup>1</sup> Technically, these firms are extruders, laminators, calenderers, and molders. They shape primary plastics under pressure.

The fabricated plastics industry is less than a century old. Although nitrocellulose was discovered in 1846 (by Schonbein in Switzerland), it was not utilized commercially until 1868-70, when Wesley Hyatt of the U. S. produced the plastic to which he gave the name celluloid. The Celluloid Company, now called Celanese Corporation, was formed. In 1890, Adolph Speteller of Germany discovered the world's second plastic, casein, which was introduced commercially into the United States by Aladdin Company in 1919. In 1909, Dr. Leo Baekeland discovered the first thermosetting plastic, Bakelite. This plastic represented a technological breakthrough, for it would not soften under various heat conditions. This invention was exploited commercially by the Bakelite Corporation.<sup>2</sup>

According to the 1954 Census of Manufactures, the industry's value of shipments was \$1.2 billion, and the number of employees was 92,000. The majority of the establishments were "small," with 75% employing less than 100 people and 50% having an invested capital of less than \$100,000. Even the largest firms were "small" in terms of invested capital and employment.

"Small," of course, is a relative term. For the purposes of our discussion the arbitrary cut-off point of 500 workers is misleading. In the industry under study, those firms employing between 20 and 249 employees are considered "medium" size, those employing between 1 and 19 workers are said to be "small," and those employing between 250 and 2,499 are called "large." In other words, the cut-off points need to be lowered considerably to take into account the way in which firms in the industry conceive of their impact.

Geographically, plastics fabricating firms are located throughout the country, with about  $\frac{1}{4}$  of the firms in New England,  $\frac{1}{3}$  in the Middle Atlantic States, another  $\frac{1}{4}$  in the west north central states, and most of the remaining firms in the far west. The main plants of the large primary plastics producers are located in the Middle Atlantic States.

Molders comprise the largest segment of the fabricated plastics industry. They cast primary plastics into molds under heat. Laminators are next in importance; then come the extruders and calenderers in that order.

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<sup>1</sup> See definition in the *Census of Manufactures*, U. S. Department of Commerce, 1954, Vol. II, Part 2, p. 39D-1. The Standard Industrial Classification designated is 3971, Plastic Products, N.E.C.

<sup>2</sup> Carleton Ellis and H. R. Simonds. *Handbook of Plastics*. (Princeton, New Jersey: Van Nostrand, 1943), pp. 4-60.

The suppliers of the primary plastics form an oligopolistic market; a few firms produce a very large proportion of the product, and each firm is large enough to affect the policies and actions of its rivals. On the other hand, the fabricators comprise a competitive market—that is, no firm is large enough to affect substantially the programs of its rivals. It is reasonable to suppose that patent behavior in a competitive industry differs in significant respects from that observed in an oligopolistic industry.

No descriptive summary of the plastics fabricating industry would be adequate without mention of its growth. In terms of value added, the industry has enjoyed a long term growth rate of 91% a year, including the war years. The industry has grown at the rate of 34% a year in terms of employment. These two figures taken together suggest that the firms were increasing their fixed capital per employee. In other words, through the years, the industry was becoming more capital intensive.

The implications of equipment growth for patent problems cannot be developed within the limits of the present study. The plastics fabricating industry purchases or rents the machinery it uses from various machinery producers. Thus the increase in capital intensity in the plastics fabricating industry reflects technological improvements in other industries. The relationship between patent activity and improvements in the machinery used in the industry would have to be investigated by examining these other industries. Conversations suggested that there is a feedback of information between the plastics fabricators and the machinery producers and that the fabricators did make modifications on the machinery. However, there was no intimation that the feedback or the modifications were important from a patent viewpoint. It is often difficult, of course, to dissociate improvements in fabricated products and in methods of making them from machinery improvements, but, in plastics fabricating, the machinery is standardized and requires only slight modifications even when new products are introduced.

#### THE SAMPLE

Our study is based primarily on a questionnaire sent to 207 firms in the plastics fabricating industry taken at random from *Thomas' Register* for 1956. Fifty-three of the firms, or approximately 25% of the sample, responded. We assumed from the outset that one of the major factors in a firm's patent and economic behavior was its size. Therefore, the important question arose as to how closely the size distribution (i.e., how many firms employed 1-4 workers, 5-9 workers, etc.) of the 53 responding firms approximated the size distribution of all the firms in the industry.

For our purposes, the two distributions are sufficiently close (see Appendix II) to permit interpretation of many responses as "representative" of the industry as a whole. Nevertheless, all our conclusions and generalizations necessarily have a



*tentative* character. The present study must be regarded as introductory rather than definitive.

The firms in our sample were established in the period from 1860-1955. (One was established before 1860, but since plastics were not known then, we conclude that it diversified about 1860-70.) The founding of firms followed closely the pattern of the industry's development. There was a bunching of firms established just after the two world wars, as new kinds of and uses for plastics became available for peace-time exploitation.

The corporate form is dominant regardless of the size of firm. Many firms originally organized as partnerships and proprietorships have since reorganized as corporations. This trend follows the trend in manufacturing in general.

The oldest firms in our sample and in the industry as a whole were established in the Northeast or the Middle Atlantic region of the United States. Again, this follows the pattern of manufacturing in general. There seems to be no relation between the current size of the firm and its location.

#### THE QUESTIONNAIRE

Although we elicited information from several sources for this study, our main source, as already noted, was a mail questionnaire. (See Appendix I.) This questionnaire had four sections dealing with:

- (1) the nature and origin of the firm (the date of origin, products made, number of employees, and relevance of product patents to origin).
- (2) the development of the firm (with reference to the roles of know-how, trademarks, government contracts, patents, and advertising).
- (3) the current operation of the firm (with reference to some factors mentioned in (2)).
- (4) miscellaneous items (factors helping firm's rivals and relation between patent system and firm's current research activity).

From (2) and (3), it is clear that the questions were designed to illuminate the role of other factors in addition to patents. We were interested also in the contribution of patent licensing as well as ownership.

The responses to all mail questionnaires are subject to special biases that need not be discussed here. Suffice it to say that these biases must be added to the distortions that may result from the failure of many firms to respond to the questionnaire altogether.

#### PATENTS AND THE ORIGIN OF THE FIRMS

About one-eighth of the responding sample firms (12%) stated that they had been established on the basis of patented processes that were owned or licensed.

These firms are clustered in the smallest size group (measured by number of employees).<sup>3</sup> This result may run counter to expectations. These firms may be specialized and may normally conduct research, but this surmise has not been checked.

We found no relation between *original* size of firms and establishment on the basis of patented processes.

#### THE DEVELOPMENT OF THE FIRM AND THE PATENT SYSTEM

About one-third of the responding firms owned or licensed patented processes, and two-thirds (65%) did not.

About three quarters of the firms reported that they had developed patentable processes. However, about half of the firms which developed processes had patented them. Furthermore, the firms that had patented the processes were significantly larger than those firms which had developed processes but not patented them. This finding conformed to the expectations of certain key members of the industry as indicated in conversation.

The following were among the reasons given for not obtaining patents: (1) small firms regard the costs as prohibitive, (2) markets had not been developed, (3) protection under the patent is inadequate, and (4) patents are a "road map for your competition."<sup>4</sup>

Those firms that did patent their processes were also the ones which licensed processes from other firms. Since these were the larger firms, the question arose as to why larger firms were also most active in obtaining licenses to processes of other firms. Our respondents offered no information on this but opinions expressed by industry leaders amounted to this: "The little fellows can get away without licensing because (a) litigation is too expensive for the firm holding the patent and (b) the courts are 'predisposed' to favor the small firms."

#### PATENTS AND RESEARCH

We asked whether the firms would patent eligible results of research. Eighty-five per cent of the 39 respondents to this question answered affirmatively. Of those firms which employed research workers, 91% said they would patent eligible results.<sup>5</sup> We should mention that the attitude of firms toward patenting eligible results had no relation to their size—all size firms answered affirmatively.

<sup>3</sup> This was derived by correlating the yes-no answers to the question with the original sizes of the responding firms. The contingency coefficient was .53.

<sup>4</sup> For additional reasons, see W. Welfling, "Patents in the Boston Area Electronics Industry," this *Journal*, December 1957, pp. 218-219. For a discussion of the factors which induce an entrepreneur to patent an invention rather than keep it secret, see H. A. Toulmin Jr., *Patent Law for the Executive and Engineer*. Second edition (Dayton; Research Press, 1948, Chapter III).

<sup>5</sup> See George Backeland's testimony in T.N.E.C., Congress of the United States, 75th Congress, *Patents*, Washington: U. S. Government Printing Office, 1939, p. 1083.

The only captive firm in our sample claimed that the patent system obliquely influences the direction of its research: it does not attempt to duplicate work covered by existing patents.

Another firm suggested that basic techniques are adopted from technologically related industries, such as metal stamping or the rubber industry. It is not clear how much of this cross-fertilization of techniques takes place via the patent system.

#### PATENTS AND THE FIRM'S MARKET

The larger the firm, the more likely it is to see the patent system as offering an opportunity to increase its share of the market. The control of patented processes, however, may not have contributed to largeness. Some large firms felt that patents had no effect on their share of the market.<sup>6</sup>

Even though some large firms felt that patents had no effect on their market, these same firms participated in patent activity—owning, licensing, etc. At least two explanations may be offered. First, as noted above, large firms tend to respect the patent system and not to infringe. Second, some firms “follow” the technological lead of other firms and engage in patent activity as a defensive measure.<sup>7</sup>

The large firms which reported that patents increased their share of the market grew at a greater rate (in terms of number of employees) than the small firms which responded in the same fashion. In other words, holding patents constant, we find in the plastics fabricating industry that size itself is an important element in the rate of the firm's growth. The statistics seem to say that if the firm is large, it will grow fast, irrespective of the influence of the patent system. In economic terms, this is the familiar case of “increasing returns to scale.”

When we compare the large firms which reported that patents increased their market and the large firms which reported that patents had no effect on their market, we find that the former group grew at a greater rate. Here, we are holding size constant and examining the influence of patents, which appears favorable.

Large firms which reacted favorably to the patent system grew more rapidly than small firms which claimed that patents had no effect on their market. It is not clear which factor is operating, patents or size, but size is probably dominant.

#### FACTORS IMPORTANT IN THE FIRM'S DEVELOPMENT

All the responding firms felt that know-how increased their market. Sixty-nine per cent reported that know-how decreased costs of manufacture. This reply was given by one-third of the small size firms, four-fifths of the medium size firms, and three-fifths of the large size firms.

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<sup>6</sup> In this connection, see W. Welfling “Patent and Other Factors in the Growth of the Electronics Industry in the Boston Area,” this *Journal*, June 1957, p. 125.

<sup>7</sup> See the testimony of the Commissioner of Patents, T.N.E.C. *Hearings*, Part 3, Washington, U. S. Government Printing Office, 1939, pp. 843 *et seq.*

With respect to advertising and marketing efforts, 56% of the responding firms felt that these techniques increased their share of the market. Furthermore, large size firms are more likely to regard these factors as favorably affecting their market than medium and small size firms.

Trademarks were believed by 50% of the responding firms to increase their markets. The medium and large size firms were more interested than small firms in trademarks, perhaps because they tend to rely more heavily on product differentiation.

In response to the question of how much of the firm's sales were on government contract, 81% of our sample reported selling under 25% of their output to the government. Of the 19% that sold more than 25% of their output to government, the medium and larger firms dominated. The fact that most of the output and employment in the industry is concentrated in the medium size firms may explain why most government contracts were held by these rather than the large or small firms.

Patents were felt to increase the market of 19% of the responding firms. The larger firms tended more than the medium size firms to regard patents as increasing their market.

Other factors were also indicated as increasing the firm's markets. Sales efforts and service, in the sense of attention paid to particular needs of customers, were reported by eight firms. An increasing market for plastics in general was cited by four firms, and should doubtless have been indicated by many more respondents. Our only captive firm mentioned the financial soundness of its parent. Finally, another firm indicated that the growth of related industries increased its market.

#### FACTORS AFFECTING THE CURRENT OPERATIONS OF THE FIRMS

We also inquired into the importance which firms attributed to know-how, trademarks, government contracts, advertising, and patented processes licensed to the firm in terms of their *current* operations. Roughly the same ordering of these factors was generated as in the previous section. Thus, 90% of the firms felt that fabricating skill and know-how were important, 87% stressed advertising, 49% emphasized trademarks, 40% mentioned government contracts, 37% cited patented processes developed by the firm, and 32% cited patented processes licensed to the firm.

More of the large size firms tended to feel that patented processes, both developed and licensed, were important in current operations than either the medium or small size firms. The same is true with respect to trademarks.

The fastest growing firms (over 50% per year) in terms of employment tended to find both patented processes developed and licensed to be important. Interestingly, though, the firms growing at a medium rate (25%-50% per year) were the

ones which found government contracts to affect their current operations favorably. Parenthetically, the fact that the patterns with respect to current operations were consistent with patterns noted in the development of the firms provided an internal check on the responses to the questionnaire.

#### THE SECRET OF "MY RIVAL'S" SUCCESS

Twenty-five per cent of the respondents indicated that financial strength, fabricating skill, and advertising and marketing helped their competitors. Fifteen per cent indicated the importance of scale of plant, 7% indicated the importance of government contracts, and 3% denoted trademarks. No firm reported that patents helped their competitors in getting business.

#### TOWARD A GENERAL EXPLANATION

The principal purpose of this paper is to present the findings of the sample survey. At a later date, the author hopes to find the opportunity to elaborate a theoretical framework for explaining the various behavior patterns noted herein. Such a theory may indicate, for example, that large company size is at the same time a condition and a reward of technological leadership (measured, for example, by patent and research activity). It would also propose hypotheses concerning the differential impact of the patent system on oligopolistic and competitive industries.

#### APPENDIX I

##### QUESTIONNAIRE

##### ON

##### FACTORS AFFECTING THE DEVELOPMENT AND OPERATION

##### OF THE

##### FABRICATED AND MOLDED PLASTICS INDUSTRY

1. Does your firm have a separate research and development department? Yes..... No.....
2. Please list the products contributing most to your sales.
3. When your firm was established, what were the most important products that were produced?
4. Was your firm established on the basis of patented processes? Yes..... No.....  
If yes, what were these processes?  
Were these patented processes owned by your firm..... licensed to your firm..... or  
acquired in some other way.....?  
(If acquired in some other way) Could you explain this a little more?
5. Approximately how many production workers were employed when the firm was established?  
Approximately how many research chemists, physicists and engineers were employed when  
the firm was established?
6. How many production workers were employed on the average in 1957?  
How many research chemists, physicists and engineers were employed on the average in 1957?

7. In which of the following ways does the patent system affect your firm's current research activity?  
 Stimulates..... Retards..... Has no effect at all..... on the volume of research activity.  
 Influences the type of research your firm carries on.....  
 (Could you explain this a little more)  
 Other..... (Please explain)  
 Would your firm seek patents on eligible research results? Yes..... No.....  
 (If No, could you explain this a little more)
8. In which of the following ways has fabricating skill or know-how affected your firm?  
 Increased..... Decreased..... Had no effect at all..... on your share of the fabricated and molded market.  
 Increased..... Decreased..... Had no effect at all..... on costs of manufacture.  
 Other..... (Please explain)
9. In what ways have trademarks affected your firm?  
 Increased..... Decreased..... Had no effect at all..... on your share of the fabricated and molded market.  
 Increased..... Decreased..... Had no effect at all..... on costs of manufacture.  
 Other..... (Please explain)
10. In the past year, approximately what per cent of your total sales were on government contract?  
 Over 75%..... 50%-74%..... 25%-49%..... Under 25%..... None.....  
 Is this greater or less than your sales to government in an average year?  
 Greater..... Same..... Less.....
11. In which of the following ways have patented processes affected your firm?  
 Increased..... Decreased..... Had no effect at all..... on your share of the fabricated and molded market.  
 Increased..... Decreased..... Had no effect at all..... on costs of manufacture.  
 Other..... (Could you explain your answer a little more)
12. In what ways have marketing and advertising efforts contributed to your sales?
13. Besides fabricating skill, know-how, government contracts, trademarks, patents, advertising and marketing efforts, what other factors, if any, have affected the development of your firm?
14. How would you rate the following factors as affecting your firm's CURRENT OPERATIONS?

	Very Important	Important	Not Important	Adversely
Fabricating skill & know-how				
Trademarks				
Government contracts				
Advertising & marketing				
Patented processes developed by your firm				
Patented processes licensed to your firm				
Patented processes acquired in other way				
Other (Please specify)				

15. In your opinion, which of the following have helped your competitors in getting business?  
 Scale of plant..... Financial strength..... Trademarks..... Fabricating skill.....  
 Government contracts..... Patents..... Advertising & marketing..... Other.....  
 (Please explain)

16. What processes have you developed in the last ten years?  
Have these processes been patented? Yes..... No.....  
(If No, could you explain your answer)
17. What percentage of your current production processes are operated under patent licenses?  
Over 75%..... 50%-74%..... 25%-49%..... Under 25%..... None.....

*Classification of the Firm*

18. Is your firm a corporation..... a partnership..... an individual proprietorship.....?
19. In what year was your firm established?
20. Was the firm established as a corporation..... a partnership..... or an individual proprietorship.....?
21. Have there been any mergers or consolidations (that is, a union of assets between two firms) in the history of your firm? Yes..... No.....  
(If Yes) In your opinion, what was the most important reason for the consolidation?

APPENDIX II

SAMPLE AND INDUSTRY DISTRIBUTIONS

	NUMBER OF EMPLOYEES								
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-2499
Percentage of firms in sample	4	12	8	32	8	20	6	6	2
Percentage of firms in population	33	17	16	18	8	5	2	1	less than 1%
Percentage value added of firms in population	2	3	6	14	15	22	16	16	6

# The Parking Meter Industry\*

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## SUMMARY

On March 28, 1944, Judge Leahy rendered decision in favor of the Government and against Vehicular Parking, Ltd., a patent holding corporation, and substantially all of the prewar members of the parking meter industry. The government complaint had alleged, and Judge Leahy found, that the patent licenses entered into by Vehicular Parking and the associated business activities of the defendants, gave rise to illegal price fixing and other violations of the Sherman Act. The decision indicated that the patents of Vehicular would be made subject to compulsory licenses. Later decrees so ordered.

There have been two major entries into the parking meter business since the decision and decrees. One was Magee-Hale Park-O-Meter Company. The other was International Meters, Incorporated, whose product did not involve features covered by any of the Vehicular patents and did not give rise to any patent infringement controversies. In 1952 the International meter business was sold to Mi-Co—a prewar meter concern which has since marketed the meter.

Vehicular charged that the Magee-Hale Meter construction infringed four Vehicular patents. After some initial legal proceedings, Magee-Hale (organized by Carl Magee and others who had been instrumental in building up Dual Parking Meter Company, the principal prewar concern) elected to take a license under the compulsory licensing decree provisions. The principal stockholder of Magee-Hale finally purchased the Vehicular patents for \$95,000, bringing the controversy to an end.

There are six significant parking meter manufacturers at the present time, the same number as in the prewar period. Data indicate that Duncan Parking Meter Corporation, the chief competitor to the Dual Parking Meter Company during the prewar period, is the leading concern in terms of sales, with substantially more than a third of the sales volume, followed by Magee-Hale with about a third of the total sales volume. The other

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\* Mr. Frost prepared this research interim report on *Project 4a, Effects of Certain Antitrust Decrees Involving Patents as a Major Factor*.



four concerns share the remaining portion of well under one third of the meter sales.

The effects of the compulsory licensing decree provisions have been very mild. Activity on both the Magee-Hale meter and the International meter commenced well before the antitrust opinion and decrees and for this and other reasons cannot be credited to the compulsory licensing provisions. In addition, the patents in the industry during the postwar period have been of the detailed engineering improvement variety for which alternative fully competitive structures are available. While the members of the industry do have a lively interest in product improvement, attention is directed to improving existing meter designs and not to basically new forms of meters. The only recent meter design that can be classed as wholly new in terms of principle is the Duncan Automaton, which has not been stressed by Duncan in its sales effort and has not enjoyed any large sales volume.

## INTRODUCTION

THIS REPORT RELATES TO THE SECOND of two case studies selected as pilot projects on the effects of compulsory licensing decrees in antitrust cases. The first study was of the so-called *Besser* case, relating to the concrete block making machine industry. This study is reported in Volume 2, Number 1 (March, 1958) of the *Journal* at pages 61 to 134. The second and present study is directed to the so-called *Vehicular Parking* case, involving the parking meter industry. The conclusions of the present report, beginning at page 376, include a comparison of the results of the two studies and a discussion of their significance in relation to the conditions in other industries.

The parking meter industry can be traced to the first commercial installation of such meters in Oklahoma City in 1935. When the war interrupted meter production, the importance of parking meters to municipalities was evident. By that time, some 150,000 meters had been sold by six major concerns. At the conclusion of the war there was a tremendous accumulated demand for meters, with the consequent sellers' market that prevailed until about 1950. The peak year for the industry as a whole was probably 1948, when about 195,000 meters were sold at a dollar volume of about \$12 million.

Meters are sold to municipalities for installation on street curbs and in parking lots to control parking. In most instances the price of the meter is paid to the manufacturer out of the revenues produced by the meter, a fixed percentage of such revenue—such as 50 or 75%—being paid over to the manufacturer. Once paid for, the meters constitute a substantial source of revenue to the municipality. For example, Rochester, New York, in 1944 collected \$90,017 from 1,855 meters, or about \$50 per meter. The City of Chicago in 1956 collected \$2,412,835 from

28,909 parking meters, or about \$85 per meter.\* This substantial revenue, coupled with the effectiveness of the meters as a policing device, accounts for the present wide popularity of the meters.

## PRE-WAR HISTORY OF THE PARKING METER INDUSTRY

The rudiments of the parking meter idea find expression in proposals made in the 1920's.<sup>1</sup> However, the first commercial parking meter installation was not made until 1935, when Dual Parking Meter Company installed 2,000 meters in Oklahoma City.<sup>2</sup> This installation was largely the result of the efforts of Carl W. Magee, who was the first effective proponent of parking meters and remained an outstanding figure in the industry until his death in 1946. Magee's efforts began at least by 1932 and progressed in successive steps to the 1935 construction.<sup>3</sup>

The Oklahoma City installation was a well-publicized immediate success. Dual promptly engaged in the substantial manufacture of parking meters. As then manufactured, the Dual meter included all of the essential elements of the modern "manual" type meter. In this type meter, the user inserts a coin and turns a handle. Turning the handle winds the clock mechanism and sets the clock pointer to the paid-for number of minutes. The clock mechanism thereafter drives the pointer toward the zero time position as time passes, thus causing the pointer to indicate zero time and a parking violation upon expiration of the paid-for time. The essential elements of this mechanism—curb mounting, coin operation to set the paid-for time, manual setting, and indication of elapsed time—are shown in patents issued well prior to the 1935 Oklahoma City installation.<sup>4</sup>

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\* *Chicago Daily Tribune*, Part 4, p. 8 (Jan. 17, 1957).

<sup>1</sup> The early proposals are recorded in a series of patents issued on applications filed around 1930. They include Homan patent 1,620,098, filed in 1925 and directed to a "Parking Meter" in the form of a clock to be affixed to the automobile; Hutches patent 1,749,977, filed in 1923 and directed to a similar device; Doyle patent 1,752,071, filed in 1926 and directed to a device carried by the automobile which was to be run (with an indicator showing that fact) while the auto was parked and was to be periodically recharged by the police upon payment of a prescribed charge; Ogilvie patent 1,879,438 filed in 1930 to a "Parking Device" consisting of a curb-mounted coin-operated timer in which a green disk showed during a passage of the time paid for and a red disk appeared upon expiration of that time; and Babson patents 1,731,839 and 1,973,275, filed in 1929 and 1930, respectively, and similarly directed to a curb-mounted coin-operated timing device.

In addition to the antecedent parking meter patents, the parking meter industry may also be traced to coin-operated timers generally. Prior to 1930 these had been used to control coin-operated hotel radios, appliances, gas and electric supply, and other things. An example of such a patent that became important in later parking meter patent litigation is found in Miller patent 1,799,056, filed in 1930 and ultimately assigned to Duncan Parking Meter Corporation.

<sup>2</sup> The history of the parking meter industry—and this initial installation by Dual—is discussed in *Business Week*, April 21, 1945, p. 44. See also *Business Week*, May 17, 1947, p. 31.

<sup>3</sup> The Magee 1932 construction is shown in Magee patent 2,039,544, issued in 1936 to a "Parking Meter." This unit consisted of a box similar in shape to a farm mail box, mounted on a post. The user inserted a coin and pulled a lever to actuate the timing mechanism and lower the signal flag. Upon expiration of the paid-for time, the timer in the device elevated the signal flag to "violation" position. No time indication was otherwise provided. In 1933 Magee filed patent 2,088,300 to a "Parking Device." This patent related to the internal mechanism of the meter. In 1935 Magee filed patent 2,118,318 to a "Coin Controlled Parking Meter." This patent is discussed in the text.

<sup>4</sup> The Ogilvie patent, see note 1 *supra*, showed a parking meter with all of these features, except an indication of the time as it passes. All of these features, including the indication of time are in

The earlier patents prevented Dual from obtaining any broad patent protection to the meter developed by 1935. This meter did, however, become the subject matter of Magee patent 2,118,318 which attained later importance as a major patent owned by Vehicular Parking Ltd. Claim 10 of this patent is of rather broad scope to a meter in which a flag is moved to a retracted position when the meter is in operation and—at the conclusion of the paid-for time—is swung to signalling position to indicate a parking violation.<sup>5</sup>

Following the success of the Dual installation in Oklahoma City, a number of other business concerns began the manufacture and sale of parking meters. The principal competitor was Duncan Parking Meter Company of Chicago, Illinois, which began manufacture about 1935. Its entry into the industry was due to the similarity between parking meters and the coin-operated timers made for other purposes by Miller Meters, a related company. Similar considerations dictated the entry of M. H. Rhodes of Hartford, Connecticut, which began manufacture at least by 1940. Rhodes was then, and still is, in the business of manufacturing timer mechanisms for other purposes. Parkrite Corporation began the manufacture of meters by 1936 and by 1938 was absorbed by the Karpark Corporation. The parties in interest in these companies were financiers, together with Walter J. Herschede who was in the business of manufacturing clocks. The remaining major pre-war parking meter manufacturer was Mi-Co Meter Company, which began manufacture in 1936. Mi-Co was initially operated as a subsidiary of Michaels Art Bronze Company of Erlanger, Kentucky, a manufacturer of non-ferrous architectural and ornamental products for use on public buildings. Michaels entered the parking meter field because of the similarity of market between the new product and products then being sold by the company. The other substantial pre-war concern in the industry, Standard Meter Corporation, did not survive the war period.

Dual was the leader in the prewar parking meter industry, and had sold about 43% of the meters installed at the end of 1941. Duncan had sold about 17% of the meters at this time. Rhodes was third, with about 15% of the meters, Karpark was fourth with 13% and Mi-Co was fifth with about 11% of the aggregate sales. About 150,000 meters had been sold by all companies by the end of 1941.

The "automatic" type meter was the major pre-war technical development. In the automatic meter the user merely inserts a coin. The meter is thereupon automatically set for operation and proceeds to time. The user is not required to operate a handle to wind the clockwork mechanism or otherwise condition the meter for operation. Operating power in the automatic meter is provided by an electrical

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the timer for radio sets and similar applications shown in Miller patent 1,799,056.

While these earlier patents thus showed the essential features of the parking meter as later developed, they did not—with the exception of the Doyle patent 1,752,071—pose any significant patent infringement threat to the manufacture of parking meters. The Doyle patent contained claims that could be construed broadly to cover the later-developed commercial parking meter. This patent was ultimately acquired by Vehicular and was emphasized by Vehicular to induce manufacturers to take licenses.

<sup>5</sup> Claim 10 of patent 2,118,318 is directed to the combination of the violation-indicating flag with the time-indicating mechanism. The prior art Ogilvie patent, see note 1 *supra*, showed such a violation indicator without the time-indicating mechanism.

or a spring drive mechanism which is activated upon insertion of the coin. The spring type automatic meter must be periodically wound by meter maintenance personnel. Electrically driven coin-operated timers not using an actuating lever had previously been designed to control appliances.<sup>6</sup> The principal patent to the "automatic" meter is patent 2,168,302 which issued to Magee and his co-workers on an application filed in 1936.<sup>7</sup> The claims of this patent are important but not essential to the manufacture of a practical automatic type meter.<sup>8</sup>

In short, by the time World War II interrupted parking meter production, parking meters were recognized as an effective solution to the parking problem, a number of manufacturers were well established, and both the manual and automatic type meter had been commercially developed. Patents had issued to both types of meters, but were directed to specific constructions because of the prior art patents to parking meters and coin-operated timers generally.

### THE PARKING METER ANTITRUST LITIGATION

In July 1942 the Department of Justice filed a civil complaint under Section 4 of the Sherman Act charging violation of that act by the principal concerns then in the parking meter industry, the patent holding company (Vehicular Parking, Ltd.), and the principal officers of these companies.<sup>1</sup> The alleged violation centered about the formation and activities of Vehicular Parking, Ltd. which—by that date—had acquired ownership of the principal patents to the parking meter and had licensed the participating manufacturers to make meters.

Vehicular Parking, Ltd. had been formed in 1937 by the management of Parkrite. The first agreement was made in that year with Karpark and Parkrite. It provided for the assignment of the patents owned by these concerns to Vehicular Parking and a license back from Vehicular to each of these concerns. The patents so assigned included Doyle 1,752,021, which could be literally construed to cover essentially all parking meters.<sup>2</sup> Mi-Co agreed to take license in September 1939,

<sup>6</sup> E.g., Seeburg patent 2,038,963, filed in 1931, to a coin-operated electrically driven timer mechanism for radios, refrigerators, etc.

<sup>7</sup> In the mechanism of this patent one end of the spring is connected to drive the clock mechanism continuously. At the other end the spring is connected to the violation flag and time pointer and serves to set the time pointer and lower the flag when the coin is inserted.

<sup>8</sup> The broadest claim is claim 12, which calls for spring means driving both the resetting mechanism and the timer. An example of an automatic meter not involving such mechanism is found in Fink patent 2,359,754. In this meter the setting mechanism is gravity operated. The Fink unit was initially made by International Meters and is now manufactured and sold by Mi-Co.

<sup>1</sup> The defendants were Vehicular Parking Ltd., The Karpark Corp., Dual Parking Meter Corp., M. H. Rhodes, Inc., The Standard Meter Corp., Peerless Oil and Gas Co., Duncan Meter Co., Frank L. Michaels and Alfred R. Miller, doing business as Mico-Meter Co., Vernon L. Taylor, John Howard Joynt, Walter J. Herschede, Guy Kelsey, H. D. Timberlake, George E. Tribble, Carl C. Magee, M. H. Rhodes, Donald F. Duncan, and T. W. L. Newson.

<sup>2</sup> The Doyle patent is described at p. 378, note 1 *supra*. It should be emphasized that the Doyle structure was intended for use inside the vehicle, was not coin operated, and in appearance and actual operation was quite unlike the parking meter as it subsequently commercially developed. The broad construction of this patent was based on the sweeping language of some of its claims. Under the doctrine expressed in *Westinghouse v. Boyden*, 170 U. S. 537 (1898) and more recent cases such as *The Texas Company v. Globe Oil & Refining Co.*, 225 F.2d 725, 735 (7th Cir. 1955), the commercial parking meter would not be considered to infringe the Doyle patent, irrespective of the language of the claim.

conditioned on the taking of similar licenses by at least five of the seven meter manufacturers. In January 1940—after its prospective customers had been given patent infringement notices by Vehicular Parking—Rhodes took a license conditioned on Dual taking a similar license. Duncan agreed to take a license when Dual did so.

The management of Dual resisted the licensing efforts of Vehicular Parking. In March of 1940, Vehicular brought a patent infringement suit against Dual on the Doyle patent and on Toce patent 2,190,553.<sup>3</sup> Dual retaliated in May of the same year by bringing a patent infringement action against Karpark in the same court on Magee patent 2,118,318<sup>4</sup> and McGay patent 2,168,302.<sup>5</sup> Both Vehicular and Dual notified cities and municipalities of the litigation. In consequence, the sale of meters by both Dual and Karpark was—in the words of a Vehicular attorney —“virtually at a standstill.”<sup>6</sup> In June of 1940, one Tribble acquired a controlling stock interest in Dual and became a director. Dual then took a license from Vehicular and sold its existing patent rights to Vehicular for the sum of \$55,000. At that time, or shortly thereafter, the licenses to Mi-Co, Rhodes, and Duncan became effective. Standard took a license in October 1940, after its customers had been given patent infringement notices.

Thus by fall 1940, Vehicular had acquired the patents of Karpark, Parkrite, and Dual, and had licensed all the substantial companies in the business, namely Karpark, Parkrite, Dual, Duncan, Standard, Mi-Co, and Rhodes.

The licenses issued by Vehicular were essentially uniform and embodied a number of provisions charged by the Government and held by the district court to violate the Sherman Act. The significant provisions in this respect were summarized by Judge Leahy as follows:<sup>7</sup>

- (1) “Manual” meters would not be sold below \$35 and “automatic” meters not below \$45.
- (2) “Reasonable” prices would be charged for standards, collars, other parts and services.
- (3) A 2½% discount would be maximum. 5% interest per annum would be charged on deferred payments.
- (4) No trade discounts in the form of free meters.
- (5) 40% of the sales price would be the maximum commission payable to salesmen and distributors. No commissions in advance and not more than \$75 per week would be paid as selling expense to salesmen.
- (6) No free service or maintenance. Guarantees against defective workmanship to be limited to one year.
- (7) Installation of meters for trial periods of less than six months prohibited.
- (8) No rental of meters.
- (9) Giving of a patent infringement bond in excess of \$10,000 to cities prohibited.
- (10) No deliveries in anticipation of price advances.

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<sup>3</sup> The Toce patent, entitled “Parking Meter Expansion Clamp,” originated with Karpark Corporation. The patent is directed to an expansion clamp to which a parking meter may be mounted on the open top of a support post or pipe. The scope of the patent is confined to the specific clamp structure, for which numerous perfectly practical substitutes are available and are in use.

<sup>4</sup> See p. 379, note 5 *supra* and accompanying text.

<sup>5</sup> See p. 380, notes 7 and 8 *supra*, and accompanying text.

<sup>6</sup> Letter of June 4, 1940, written by Mr. John Howard Joynt, Plf. Ex. 57 in the Government suit.

<sup>7</sup> *United States v. Vehicular Parking, Ltd.*, 54 F. Supp. 828, 833, 61 U.S. P.Q. 102, 109 (D. C. Del. 1944).

- (11) Used and reconditioned manual meters not to be sold below \$25, such automatic meters not below \$35.
- (12) Maximum of \$15 for trade-in allowance on second-hand meters.
- (13) Sales to cities on credit only if 75% of meter income to go to seller until purchase price is paid and payment to be completed within fifteen months.
- (14) Minimum prices fixed for manual type of meter not to exceed those established for the automatic type.
- (15) Each manufacturer to have an agreement no more favorable than the other.
- (16) Violations of agreement subject to fines.
- (17) Vehicular to enforce patents held by it against other manufacturers of parking meters.
- (18) Corporate defendants to pay Vehicular 4% of the sales price of each meter in order to police the industry.
- (19) Agreements to terminate on the expiration date of the last patent listed in the agreements.
- (20) Each manufacturer admitted its own meters were within the scope of the patents held by Vehicular and agreed to mark its meters with the numbers of the patents held by Vehicular.
- (21) If any of the pooled patents were held invalid royalty payments to abate.

On March 28, 1944, Judge Leahy rendered his decision in favor of the Government.<sup>8</sup> With respect to the terms of the license agreements, he stated that "Assuming Vehicular's patents are valid, the agreements in suit attempt to extend the lawful patent monopoly in an illegal manner." With respect to the over-all patent pooling relationship of the defendants, he stated:<sup>9</sup>

Where the defendant corporations control from 95% to 98% of an industry, with threat of competition removed, upon agreement that others will be refused "to join the fold," a tight monopoly exists, especially where the parties to the agreement before they became parties to it were in free and open competition and sold the devices at prices to the public much below those established by the agreement.

In his conclusions of law, Judge Leahy declared that covenants in the various license agreements were unenforceable because of the violation of the antitrust laws. Conclusions 19 and 20 were directed to patent enforcement and read:<sup>10</sup>

19. The defendants have effectuated a conspiracy to obtain and use patents and patent rights in violation of the Sherman Act and therefore should be enjoined from enforcing those patent rights, whether by suits for infringement or suits to collect royalties.

20. The defendants have effectuated a conspiracy to obtain and use patents and patent rights in violation of the Sherman Act, and therefore should be required to grant licenses under such patents and patent rights to any applicant therefor.

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<sup>8</sup> See note 7, *supra*. The decision of Judge Leahy was preceded by the decision of the Kenton Circuit Court of Kentucky in *Vehicular v. Mi-Co.*, No. 44,455, decided July 22, 1942. In that case the Kentucky court dismissed an action by Vehicular against Mi-Co to recover royalties due under the license agreement, holding that the agreement was invalid under the Sherman Act. See n. 12, 54 F. Supp. 834, 61 U.S.P.Q. 110.

<sup>9</sup> 110 F. Supp. 838, 61 U.S.P.Q. 113.

<sup>10</sup> 61 U.S.P.Q. 118. The Government had concluded its brief with the following paragraph:

"In the present case the only means of restoring competition to the industry is to remove the source of the monopoly power of the defendant. In accordance with prayer 7 of the complaint, this can be accomplished by enjoining the defendants from instituting patent infringement litigation and compelling the defendants to give all applicants royalty-free and unrestricted licenses under their respective patents and patent applications for the lives of such patents and applications.

"The patent pool and the licensing system created by Vehicular in collaboration with the other defendants are the nucleus of the monopoly. Simply to decree a dissolution of the

In his opinion, Judge Leahy indicated doubt that the patents should "be virtually cancelled by the inclusion in the proposed decree of the provisions commanding royalty-free licensing." In an opinion rendered a few months later, he postponed consideration of this matter in view of the pending decision of the Supreme Court in the *Hartford-Empire* case.<sup>11</sup> He did, however, enjoin the defendants from instituting or threatening to institute suits for past infringement or to collect royalties.

On May 6, 1946, a final decree was entered.<sup>12</sup> This decree provided for the compulsory grant of patent licenses on reasonable royalties in the following language:

Each of the individual defendants, each of the company defendants, and each of their directors, officers, agents, employees, successors and assigns be and they are hereby ordered to grant to any applicant therefor, to the extent to which the defendants or any of them possess the power to do so, an absolutely unrestricted, whether as to the duration or otherwise, license or sublicense to use, manufacture and sell under any or all United States letters patent and patent applications including all renewals, extensions or reissues of such patents or patent applications, listed in Schedule A which is annexed hereto, provided, after the date of the entry of this order amending the judgment entered July 18, 1944, a reasonable royalty may be charged for such licensing of the United States letters patent and patent applications, including all renewals, extensions, or reissues of such patents or patent applications, listed in Schedule A annexed hereto, provided, further, the provisions of this paragraph 9 shall not be deemed to adjudicate any defense which any person might raise or claim in any suit or proceeding by any defendant, its successors or assigns for infringement, damages, injunction or compensation on account of the patents and patent applications, including all renewals, extensions or reissues of such patents or patent applications, listed in Schedule A annexed hereto.

This provision applied to a list of patents owned by Vehicular Parking.<sup>13</sup>

In a press release at the time of the 1944 opinion, the Department of Justice stated:<sup>14</sup>

As a result of the Court's decision upholding the Government's charges against eight companies and ten individuals engaged in the manufacture and sale of parking meters, cities throughout the country will be free to purchase such equipment from any manufacturer at competitive prices, terms and conditions of sale.

Heretofore parking meters could be purchased only from the defendants in this case at fixed, high and arbitrary prices. Furthermore, purchasers were required to review their bid specifications to conform with the restrictions imposed upon them by the defendants.

The Court's decision, therefore, is of particular interest to all municipalities of the country as well as an important step in the Department's program to clarify the relationship between the antitrust laws and the patent laws. The Court by limiting the patent to the precise terms of its claims, re-affirmed the position of the Department that the patent grant contains no implied license to violate the antitrust laws.

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monopoly without neutralizing the patents would be totally ineffective. Such a decree would leave the defendants free to use the source of their monopoly power." (Govt. Main Brief, p. 67).

<sup>11</sup> *United States v. Vehicular Parking*, 56 F. Supp. 297, 63 U.S.P.Q. 54 (1944).

<sup>12</sup> *United States v. Vehicular Parking*, 61 F. Supp. 656, 67 U.S.P.Q. 115 (1945).

<sup>13</sup> The list was modified on July 16, 1953, in respects not here pertinent.

<sup>14</sup> See CCH Trade Reporter 54,019 (1944).

## DEVELOPMENTS IN THE PARKING METER INDUSTRY SINCE 1944

The decrees in the government antitrust proceedings approximately coincided with the end of the wartime moratorium on parking meter production and the resumption of parking meter manufacture. The demand for parking meters evident during the early war years fully materialized, with the consequence that the meter manufacturers enjoyed a sellers' market for a considerable period, followed by strong meter demand running beyond 1950. Meter production promptly rose to many times the pre-war rate. As compared with the pre-war peak of 48,000 meters in 1941, 1946 production was about 190,000 meters and orders taken in the latter year have been estimated at about 300,000 meters. In 1948—probably the peak production year—the Federal Trade Commission estimated that some 195,000 meters were sold for a total price of about \$12 million.

The accumulated wartime meter demand has now tapered off. Current sales are for new installations incident to continued urban growth, additional meter locations in existing urban areas, and replacement meter sales. These, however, add up to a considerable total meter production which at present writing probably exceeds 120,000 meters per year.

Substantial changes have taken place in the business concerns in parking meter business. Magee left Dual soon after Tribble gained control in 1940. In August of 1945 Magee formed Magee-Hale Park-O-Meter Company with Gerald Hale and two other individuals who had a part in the pre-war activity of Dual. A second post-war entry into the industry took place when International Meters began operations. This company was a subsidiary of American LaFrance Foamite Corporation. Its meter design can be traced back at least to 1942. With these two additions, the major meter concerns at the start of the post-war period were Dual, Duncan, Mi-Co, Rhodes, Karpark, International, and Magee-Hale. In 1952 International sold its assets to Mi-Co, thereby leaving Dual, Duncan, Mi-Co, Rhodes, Karpark, and Magee-Hale as the principal concerns in the industry. As a result, the number of major manufacturers of parking meters at the present writing is the same as the number immediately before the war.

No data are available with respect to the year-by-year production of the individual parking meter manufacturers. However, the last Vehicular Parking survey of 1948,<sup>1</sup> the American City survey of 1954,<sup>2</sup> and the list compiled by Magee-Hale

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<sup>1</sup> Vehicular Parking Ltd., *Parking Meters in the United States*, year ending Dec. 31, 1948.

<sup>2</sup> The American City List of Parking Meter Installations, *American City Magazine*. This list was compiled in 1954 upon the basis of an extensive survey and compilation of data from the cities and from the manufacturers. Some question arises as to the date that can be assigned to this survey, since it includes data from different sources at different times. The date of Dec. 31, 1953, appears to be a reasonable approximation of the time for which the survey data applies.



of its own installations as of August 15, 1957,<sup>3</sup> and data supplied by the management of Duncan, provide the following figures:

	ACCUMULATED TOTAL METER PRODUCTION			
	Dec. 31, 1948	Dec. 31, 1953	Aug. 15, 1957	Sept. 1958
Dual.....	134,000	231,000	561,000	750,000
Duncan.....	174,000	401,000		
Karpark.....	76,000	128,000		
Magee-Hale.....	140,000	385,000		
Mi-Co.....	58,000	136,000		
Rhodes.....	92,000	117,000		
International.....	4,000			
Others.....	4,000	13,000		

From the above figures, the following average annual production figures can be derived:

	AVERAGE ANNUAL METER PRODUCTION		
	1949-1953	1954-Aug. 15, 1957	Calendar 1954-1957 Annual Average
Dual.....	19,000	51,000	65,000
Duncan.....	45,000		
Karpark.....	10,000		
Magee-Hale.....	49,000		
Mi-Co.....	16,000		
Rhodes.....	5,000		

The above figures must be taken with some caution because the respective surveys were not necessarily made on the same basis, it has been necessary to assign a specific effective date of the American City survey, and other factors are believed to render the figures not exact. The data nevertheless do show the general relationship of the respective meter manufacturers, and support a conclusion that Duncan and Magee-Hale are each doing over one-third of the business, Dual and Mi-Co are each selling about 10% of the meters sold, and that the remaining sales are primarily by Karpark and Rhodes, with each selling well under 10% of the total number of meters.

Parking meter prices in the postwar period reflect a number of factors, including particularly the accumulated wartime demand and seller's market (which tended

<sup>3</sup> Magee-Hale Park-O-Meter Company, Park-O-Meter Installations as of Aug. 15, 1957.

to increase prices) and the maturity of the industry (which tended to decrease prices). In this setting it is not possible to isolate the effect of the compulsory licensing decree provisions on prices. The prices do, however, generally reflect a somewhat smaller increase over the prewar figures than would be expected on the basis of declining dollar values.<sup>4</sup>

From the standpoint of product improvement, the parking meter industry now has the characteristics of a mature industry. In the post-war period only three wholly new meter designs have been introduced. These are the "Alfco Twin," made by International, the "Park-O-Meter" of Magee-Hale, and the Duncan "Automaton." Improved operating mechanisms, improved coin collection arrangements, and other refinements have been incorporated in many of the other meters, but the operating principles have remained unchanged. There is considerable product rivalry between Magee-Hale—which sells only the traditional type "automatic" meter—and Duncan—which sells only the traditional type "manual" meter and the "Automaton" which is wound by the act of inserting the coin. Other manufacturers also stress their own product improvements, but generally make available both the "manual" and "automatic" meter types. At the present time, however, this product competition is largely confined to the incorporation of specific advantages in existing mechanisms and not to radically new meter designs.

Patent rights are of limited importance in the parking meter industry today. Indeed, the chief importance of such rights at the present writing appears to be that of preventing the copying of specific meter features by competitors. In a number of instances patent rights have been the occasion for royalty payments. Patent rights in no way foreclose the manufacture of the basic manual and automatic meter types, or the inclusion of refinements as necessary to make fully competitive meter designs.

There are no indications of agreements in the parking meter industry today similar to those that accompanied the activity of Vehicular Parking prior to the war.

With these introductory remarks we shall now turn to a discussion of the activities and history of the individual companies.

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<sup>4</sup> As noted above, the prices set by the Vehicular licenses were \$35 for manual meters and \$45 for automatic meters. These prices were in effect for the 1940-1941 period. The ratio of the 1950 consumer price index to that for 1940 is 1.72, the ratio of the 1950 price index for metals and metal products to that for 1940 is 1.76, and the ratio of the 1950 price index for motor vehicles to that for 1940 is 1.86 (See, Department of Commerce, Office of Business Economics, 1957 Biennial Edition, pp. 26, 31, and 30, respectively). Based on these ratios, the prices set in the licenses, in 1950 dollars, were in the \$60-\$65 range for manual meters and the \$77-\$84 range for automatic meters.

The Federal Trade Commission figure of 195,000 meters sold for \$12 million in 1948 leads to an average price of \$61.50 per meter. In 1949 the average Magee-Hale price was \$60. In April 1950 the City of Chicago invited bids on parking meters and initially received bids averaging \$70 per meter (the highest figure being about \$84 and the lowest about \$65). The city thereupon called for new and lower bids. The average price on the second set of bids was \$53 (the highest figure being about \$70 and the lowest about \$40).

## DUNCAN PARKING METER CORPORATION

There is a consensus in the industry—borne out by the tabulation on page 385 above—that Duncan and Magee-Hale are the leading concerns in the parking meter industry today. As the tabulation also indicates, Duncan currently is selling a somewhat greater number of meters than Magee-Hale.

During the pre-war period Duncan was the chief competitor to Dual, then the industry leader. In the post-war period, Duncan became a leader in sales and by the close of 1948 the aggregate Duncan sales had exceeded those of Dual.

As is discussed above in connection with the pre-war history of the industry,<sup>5</sup> Duncan started in the parking meter business in the middle 1930's in cooperation with the Miller Meter Company, a related company. Miller was engaged in the manufacture of timing devices, including coin-operated devices for washing machines, hotel radios, and the like, from which entry into the parking meter business was a natural change. Miller Meters makes all of the parts for the Duncan meter (except for die castings) and assembles the meters. Die castings are made by another concern owned by the same parties. Total employment of Miller and Duncan is about 250 persons.

Duncan maintains a plant in Montreal to supply the Canadian market.

Duncan has sold all the meters used by the City of Chicago.

Prior to 1950, Duncan manufactured only manual meters. In that year it brought out the "Automaton." This meter was designed by Robert Broussard who testified in the Magee-Hale tax proceedings<sup>6</sup> that he was paid a license royalty of 50 cents per meter. Broussard also testified that 30,000 "Automaton" meters had been sold prior to 1955, an average of about 6,000 per year. The "Automaton" employs a distinctive semispherical glass upper case design.

Duncan currently sells three meter models. One of these—the Duncan-Miller Model 50—was designed prior to the war.<sup>7</sup> It is a manual meter. The second current Duncan meter—the Duncan-Miller Model 60—is a modernized version of the Model 50 featuring among other improvements a more refined coin collection mechanism, improved case design, and improved visibility of the time scale and pointer.<sup>8</sup> It is likewise a manual meter. The third meter—the "Automaton"—is discussed above.<sup>9</sup> It is an automatic meter in the sense that the user does not have to rotate a handle to initiate meter operation. It differs from other automatic meters (and is like a manual meter) in that the spring winding required for meter operation is supplied by the operator, in this case by the force exerted on the coin as it is forced into the meter.

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<sup>5</sup> See p. 379, *supra*.

<sup>6</sup> *Magee-Hale Park-O-Meter Co. v. Commissioner*, No. 43,058 (Tax Court of the United States), R. 355.

<sup>7</sup> The structure of this meter is shown in patent 2,070,445, filed July 30, 1936.

<sup>8</sup> The appearance of this meter is approximately that shown in patent 2,768,783.

<sup>9</sup> This meter is shown in its general appearance in patent 2,483,805.

Current Duncan advertisements stress the absence of winding operations with the Duncan meters (including the "Automaton"). In this respect Duncan offers an advantage over Magee-Hale and the automatic meters made by other competitors, for all of these involve either the cost of electrical apparatus or require periodic winding by city officials. By way of disadvantages, the Duncan manual meters (like all manual meters) require the hand operation to set the meter when the coin is inserted, and the "Automaton" requires finger pressure in inserting the coin.

Duncan follows a policy of obtaining patents to its meter improvements where possible, including patents in Canada.<sup>10</sup> In the case of the Model 50 manual meter, the patents marked on the meter have now expired.<sup>11</sup> Detail patents to specific aspects of the Model 60 construction, especially the coin collecting arrangement, remain alive.<sup>12</sup>

With respect to the "Automaton," a series of patents have issued, of which some cover the spring winding mechanism based on coin pressure in fairly broad terms.<sup>13</sup>

Duncan brought a patent infringement suit against Rhodes in 1946.<sup>14</sup> Claim 15 of Miller patent 1,799,056 was asserted to be infringed. This patent, as discussed above,<sup>15</sup> was directed to a coin controlled timer and includes no description of a parking meter as such. Duncan took the position that claim 15 was of sufficient scope to cover the accused Rhodes parking meter, which was a manual type meter. The district court held the claim invalid, but infringed if valid.<sup>16</sup> The Court of Appeals for the Third Circuit affirmed per curiam.<sup>17</sup> The patent expired almost concurrently with the Court of Appeals decision.

Following the antitrust decree, Duncan refused to take a patent license from Vehicular. In 1948, Vehicular filed the so-called "Chicago" suit alleging patent

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<sup>10</sup> The following patents are assigned to Duncan: Broussard, 2,465,146, filed Dec. 23, 1946, entitled "Coin Gate Mechanism"; Broussard and Sollenberger, 2,483,805, filed March 5, 1948, entitled "Coin Mechanism Housing" (Canadian 470,354); Broussard, 2,594,388, filed Sept. 23, 1946, entitled "Automatic Pay Station" (Canadian 470,492); Broussard, 2,596,123, filed March 27, 1945, entitled "Parking Meter and Coin Slot Therefor"; Broussard, 2,596,124, filed March 27, 1945, entitled "Parking Meter"; Broussard, 2,596,122, filed March 27, 1945, entitled "Parking Meter and Coin Slot Therefor"; Broussard and Sollenberger, 2,613,792, filed July 12, 1948, entitled "Coin Handling Apparatus"; Broussard and Miller 2,613,871, filed April 12, 1949, entitled "Coin Handling Apparatus," (Canadian 470,694); Broussard, 2,618,371, filed Dec. 23, 1946, entitled "Parking Meter"; Broussard, 2,633,960, filed Jan. 14, 1948, entitled "Coin Handling Apparatus" (Canadian 476,061).

The following patents are assigned to Miller Meters: Anderson, 2,604,259, filed Feb. 2, 1949, entitled "Coin Box for Coin Operated Machines"; Broussard, Miller, and Christensen, 2,660,283, filed Feb. 2, 1950, entitled "Parking Meter"; Broussard 2,685,953, filed Sept. 22, 1951, entitled "Parking Meter"; Broussard, Miller, and Sollenberger, 2,695,090, filed Feb. 2, 1950, entitled "Parking Meter"; Broussard, 2,752,924, filed Jan. 14, 1948, entitled "Coin Handling Apparatus"; Arzig, 2,768,783, filed July 29, 1954, entitled "Coin Receptacle" (Canadian 497,420); Canadian 497,053, filed April 16, 1953, entitled "Coin Handling Apparatus."

<sup>11</sup> The patents so marked are Miller 1,799,056 (expired in 1947); Miller 2,070,445 (expired in 1954); and Design 101,237 (expired in 1950).

<sup>12</sup> E.g., Arzig 2,768,783, filed July 29, 1954, entitled "Coin Receptacle."

<sup>13</sup> E.g., Broussard 2,580,400, filed March 27, 1945, entitled "Parking Meter and Coin Slot Therefor."

<sup>14</sup> Duncan Meter Corp. and S. L. Miller v. M. H. Rhodes, Inc., No. 740, D. Del.

<sup>15</sup> See p. 378, note 1, *supra*.

<sup>16</sup> Duncan Meter Corp. *et al.* v. M. H. Rhodes, Inc., 68 F. Supp. 89 (1946).

<sup>17</sup> Duncan Meter Corp. *et al.* v. M. H. Rhodes, Inc., 161 F.2d 1022 (1947).

infringement by Duncan.<sup>18</sup> The charges were initially directed to the Model 50 manual meter. A total of five patents and 12 claims were listed in the complaint.<sup>19</sup> It is believed that the most troublesome of the infringement charges was claim 10 of Magee patent 2,118,318, relating to the flag mechanism on the meter.<sup>20</sup> In May 1950 the complaint was amended to add charges of infringement by the "Automaton." Vehicular named four patents and six claims in this infringement charge.<sup>21</sup> The principals in Magee-Hale purchased the Vehicular patents soon after this amendment to the complaint. The "Chicago" litigation was then settled for a \$25,000 payment by Duncan and, on April 16, 1951, an order was entered on stipulation dismissing the complaint, declaring four patents non-infringed, and ordering their dedication to the public.<sup>22</sup>

The activities of Duncan are of particular interest to the present study for a number of reasons. First, Duncan is one of the two largest manufacturers of parking meters today, with a sales volume of the order of a third of the industry sales and in excess of the sales volume of Magee-Hale. Second, the Duncan manufacturing and product improvement efforts do not appear to have been influenced one way or another by the compulsory license provisions of the antitrust decree. As the Chicago suit shows, Duncan was ready to face the Vehicular patents rather than pay the royalties sought by Vehicular. Third, in introducing the "Automaton" Duncan made the most recent substantial innovation in the parking meter industry. Finally, Duncan is of interest in that it does not make a conventional automatic meter and in this respect is in product competition with the manufacturers of automatic meters, including Magee-Hale which makes only an automatic meter.

#### MAGEE-HALE PARK-O-METER COMPANY

Magee-Hale requires detailed discussion because of its important role in postwar parking meter industry developments.

It will be recalled that Dual Parking Meter Company was organized mainly through the efforts of Carl C. Magee. Magee initially owned 50% of the stock and Gerald A. Hale, J. B. McGay and George Nicholson, with others, had minority stock holdings. Magee was president of Dual when Tribble acquired a majority interest in its stock in 1940 and remained president for a time thereafter. Hale also continued as an employee of the new majority owner for a time. McGay and

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<sup>18</sup> Vehicular Parking Ltd. v. Duncan Meter Corp., 48 C 1899. On the same day, Duncan sued Vehicular in the Northern District of Ohio, seeking declaratory judgment of patent invalidity and non-infringement. This case was dismissed on Dec. 31, 1948, apparently by agreement of the parties to litigate the issues in Chicago.

<sup>19</sup> Patent 2,088,300 (claims 2, 3, 4, 5, and 6); patent 2,118,318 (claims 10 and 11); patent 2,137,111 (claim 8); patent 2,262,783 (claims 2 and 3); patent 2,328,043 (claims 6 and 8).

<sup>20</sup> See p. 379, *supra*.

<sup>21</sup> Patent 2,162,191 (claims 9 and 10), patent 2,262,783 (claim 2), patent 2,328,043 (claims 6, 7 and 8), patent 2,190,555 (claim 1).

<sup>22</sup> The patents dedicated were 2,162,191, 2,190,555, 2,262,783, and 2,328,043.

Nicholson owned and operated Macnick Company which fabricated meters for Dual.

Magee, Hale, McGay and Nicholson organized Magee-Hale Park-O-Meter Company on August 9, 1945.

In 1943, prior to the formation of Magee-Hale, Hale undertook the design of a new parking meter to be made and sold after the war. Magee, McGay and Nicholson also worked on the project. The meter is shown in patent 2,625,250 issued on January 13, 1953, on an application filed on October 1, 1945. All meters sold by Magee-Hale to date closely conform to the design of this patent. The patent claims, are confined to specific improvements, including (a) actuation of the tripping mechanism by the force exerted by the operator on inserting a coin into the meter, (b) operation of the meter by various combinations of coins or multiples of coins, (c) resetting the time indicator according to the value of the coin inserted and (d) a coin display window to discourage the use of slugs.

In recognition of the work of Magee, McGay, and Nicholson, Hale assigned to each an undivided one-fourth interest in the meter design and patent rights. On September 5, 1945, an exclusive license was entered into between these parties and Magee-Hale, providing for a royalty of four dollars per meter. These same four parties (Magee, McGay, Nicholson and Hale) each also owned a one-fourth interest in each class of Magee-Hale stock.

Operations by Magee-Hale were a success from the start. By 1947 its sales volume was in excess of that of the entire industry for 1941, the best pre-war year. The record for the first four years of operation is as follows:

	*1946	*1947	*1948	*1949
Net meters sold.....	9,480	49,164	59,191	49,251
Earned revenue on meter sales.....	\$45,777.24	\$707,540.03	\$1,337,612.87	\$1,460,262.93
Net parts sales and other income.....	3,697.75	8,875.29	20,213.81	37,783.57
Gross income.....	49,474.99	716,415.32	1,357,826.68	1,498,046.50
Expenses other than taxes and royalties.....	52,083.93	479,127.89	959,115.79	1,040,767.27
Net income before taxes and royalties.....	** (2,608.94)	237,287.43	398,710.89	457,279.23
Royalty paid.....	3,868.00	66,272.00	112,256.00	190,076.00
Net income before taxes.....	** (6,476.94)	171,015.43	286,454.89	267,203.23
Federal and state taxes.....	-----	65,693.55	113,150.80	103,179.85
Net income after taxes.....	** (6,476.94)	105,321.88	173,304.09	164,023.38

\*Fiscal years ending on July 31 of each year indicated.

\*\*Deficit.

The extent of the business success of Magee-Hale through fiscal 1949 is best brought out by the relationship of the earnings before taxes and royalties to investment. The aggregate par value of the issued stock was only \$70,500. Earnings for the period totaled \$1,090,668.61 before taxes and royalties, or about 15.5 times the investment. This is equivalent to about 12% return compounded annually over the four-year period. Over and above this return "officers commissions" paid during the period totaled \$246,277.02. These figures become even more impressive when it is recalled that Carl Magee died prior to the close of the first year of business of Magee-Hale, leaving management essentially in the hands of Hale, whose major interest lies in the engineering aspects of the business.

Initially, the Macnick Company fabricated the Magee-Hale meters on order from Magee-Hale. Magee-Hale, however, owned essentially all of the tools and dies. In March 1957 Magee-Hale began to manufacture meters in its own plant in Oklahoma City. It is interesting that in April 1947, Rockwell Manufacturing Company—which later bought Dual—bought the capital stock of Macnick. Precision Products Company of Delaware makes the timers used in the Magee-Hale meters.

On May 23, 1946, Vehicular wrote Magee-Hale that it was ready and willing to grant a patent license to Magee-Hale. Considerable correspondence followed, culminating in a letter dated November 28, 1946, from Vehicular to Magee-Hale stating specifically that the Magee-Hale meter infringed claim 10 of Magee patent 2,118,318, claims 4, 5, 6, 8, 9, 10, 11, 12, 13, and 14 of McGay patent 2,168,302, claims 1-3, 5, and 9 of Woodruff patent 2,198,422, and claims 4 and 5 of McGay patent 2,284,221. The Vehicular standard blanket license offered to Magee-Hale called for a 4% royalty, but not less than \$1.40 per manual meter and \$1.80 per automatic meter. Early in December 1946 Magee-Hale asked for a royalty rate as to the specific four patents alleged to be infringed, to which Vehicular replied that it could not make any exceptions to the standard license terms. On December 18, 1946, Magee-Hale filed petition for leave to intervene in the antitrust proceeding, seeking an injunction against interference by Vehicular with its business and an order fixing the rate for a compulsory license.

An initial question arose as to whether Magee-Hale was entitled to apply for a determination of reasonable royalties under the judgment.<sup>23</sup> Paragraph 13 stated that jurisdiction was retained to enable "any of the parties to this judgment" to apply to the court for such determination. It was argued that Magee-Hale was not a "party" to the judgment.

Judge Leahy granted leave to intervene, reasoning that the compulsory license provision of the decree would be rendered ineffective unless such intervention was permitted.

Five months later Judge Leahy also decided that Magee-Hale need only take licenses under the four patents for which license was sought and not under all the patents of Vehicular. He also held that the court should fix a reasonable royalty

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<sup>23</sup> United States v. Vehicular Parking, Ltd. 74 U.S.P.Q. 289 (1947).

if Magee-Hale so desired. The only other important issue was whether Magee-Hale would be required to take a license after the court had fixed a reasonable royalty. Judge Leahy did not consider his court as a "place for litigious business men to stress and strain as they try to make a deal,"<sup>24</sup> and therefore held that a license was mandatory if a royalty was fixed pursuant to the decree procedure.

On November 26, 1947, Magee-Hale filed a written election to take license under the four Vehicular patents. Judge Leahy appointed Arthur G. Connelly, Esq., as special master to determine a reasonable royalty. The order of reference, dated October 19, 1948, provided that the master should consider the prior art in fixing the scope of the patents, but not to the extent of concluding that any patent was without meaning. Eight days later Magee-Hale filed suit in the same court for a judgment declaring the four patents invalid. Judge Leahy dismissed this complaint on the ground that so long as Magee-Hale was a potential licensee it could not question the validity of the patents for which it sought license. This order was affirmed on appeal. The Court of Appeals noted, however, that the Magee-Hale motion to test validity in the license proceeding was not finally disposed of.<sup>25</sup>

In the reasonable royalty proceedings before the special master, Vehicular placed its main emphasis upon an agreement under which Magee-Hale paid \$4 per meter royalty to Hale, Magee, McGay, and Nicholson. It contended that this payment for an exclusive license on a single narrow improvement patent showed conclusively the reasonableness of the 4% offer of Vehicular (which would amount to about two dollars per meter at the October 1946 Magee-Hale sales price). Magee-Hale took the rather extreme position that only nominal royalties should be ordered. It argued that Vehicular paid only a small purchase price for the patents to be licensed, that Vehicular only charged 4% royalty for a license under its entire group of 31 patents and did not increase this rate when the patents involved in the royalty proceedings were included, that the patents were of limited scope in view of the prior art, that the parking meter industry was one of low profits, and that Vehicular had failed to restrict its proofs on the value of the patents to the portion of the parking meters covered by them.

The special master filed a preliminary report on April 20, 1950. He concluded that Magee-Hale was entitled to a nonexclusive license at the rate of 1% royalty for each of the patents in question, with a maximum royalty rate of 3% for any three or all four of the patents.

The preliminary report of the master is reproduced as Appendix A. In summary, the master—after noting that there was no evidence relating to the Patent Office histories of the respective patents—concluded that the prior art patents relied upon by Magee-Hale did not compel a narrow patent construction. He considered that the structures of these patents required substantial modification to make a parking meter. The special master also concluded that the prices paid by Vehicular for the patents did not represent arm's length transactions but rather

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<sup>24</sup> This opinion is not published.

<sup>25</sup> *Magee-Hale Park-O-Meter Co. v. Vehicular Parking, Ltd.*, 180 F. 2d 897, 899; 84 U.S.P.Q. 395, 398 (3rd Cir. 1950).



involved an element of duress. He accordingly considered that the purchase prices did not indicate the value of the patents or a license to them. The royalty previously charged by Vehicular for licenses was not considered controlling because the licenses were taken to police the industry rather than to repay the patent owner. The argument that the industry would not support substantial royalties was dismissed as contrary to the record. Finally, the master concluded that Vehicular was justified in not segregating the patented structure from the parking meter as a whole. On this point he noted the doctrine of earlier patent accounting decisions to the effect that where a complete product is made possible by the patented invention the complete product and not just the patented combination is the measure of the damages for patent infringement.

As above noted, the Magee-Hale stockholders purchased the stock of Vehicular for \$95,000. This took place before further proceedings on the master's report and brought the litigation to an end.

#### *The Magee-Hale Tax Proceedings*<sup>26</sup>

It will be recalled that on September 5, 1945, Hale executed an exclusive license to Magee-Hale to make, use, and vend the subject matter of what became patent 2,625,250. The exclusive license required a royalty of \$4 per meter manufactured. On September 17, 1945, Hale assigned an undivided one-fourth interest in the patent rights to Magee, McGay, and Nicholson, so that each of the four principals in Magee-Hale received a royalty of \$1 per meter.

Royalties were thereafter paid out pursuant to the agreement. Magee-Hale deducted the royalties paid as a reasonable allowance for depreciation of a capital asset, namely its exclusive license interest in the patent. The Hales (and evidently the other parties as well) paid tax at capital gains rates on the theory that the exclusive license constituted a sale of a capital asset held for over six months. The government contended that the payments made by Magee-Hale to the Hales were dividends and assessed a deficiency against the Hales based on the difference between the tax paid and the tax based on ordinary income rates and a deficiency against the company in the amount of the tax due on the amount deducted from the corporate income to make the payments.

The Tax Court held for the Hales and Magee-Hale. Judge Tietjens concluded that the agreement between Magee-Hale and its majority shareholders was genuine. The court noted that Magee-Hale not only received an exclusive license to the prospective patent but also received rights to an accumulative indexing mechanism, the parking meter design and the trade name "Park-O-Meter." The value of the patent rights was proved, in the court's opinion, by the later commercial success of the Park-O-Meter. The court considered the \$4 per meter royalty paid by Magee-Hale's Canadian licensee and the sum of over \$4 per meter paid by the British licensee as a measure of the value of the patent rights to the Park-O-Meter.

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<sup>26</sup> Magee-Hale Park-O-Meter Co. *et al.*, v. Commissioner, 15 T.C.M. 254 (1956).

The court also held that the exclusive license granted by the Hales to Magee-Hale was the sale of a capital asset entitling them to treat the royalties as capital gains.

### *The Present Status of Magee-Hale*

Magee-Hale is currently in a strong position in the parking meter field. As above noted, it and Duncan each sell about one third of the current meters, with the additional third of the meters being divided among Dual, Mi-Co, Rhodes and Karpark.

Magee-Hale meters are manufactured in Canada by the Park-O-Meter Company of Canada, Ltd. operated by David A. McGowan, 81 Main Street, Toronto. License was entered into with Magee-Hale on July 1, 1950. Just prior to this date the Canadian patent to the Park-O-Meter (No. 459,961) was assigned to Magee-Hale for \$40,000. According to the Tax Court testimony the Park-O-Meter sells for \$86 in Canada and 9,000 were sold between 1950 and 1955. Park-O-Meter of Canada was sued for patent infringement by Dual's Canadian licensee. The same infringement charges were made as in the U. S. compulsory license proceedings. The proceedings lasted one and one-half years and ended in a settlement under which McGowan (the Magee-Hale licensee) agreed to pay a royalty of \$1.75 per Park-O-Meter manufactured.

Magee-Hale meters are sold in Europe<sup>27</sup> by the British licensee, Venner Time Switches, Ltd. of London. This license was entered into on January 1, 1953. The royalty amounts to 8% of the sales price of the meters, which ranges from \$70 to \$84.

While Magee-Hale emphasized the value of the Hale patent, 2,625,250 in the tax proceedings, other considerations indicate that its value is limited. No domestic competitor is known to have sought a license, nor has any infringement notice been sent. There is considerable evidence, including some of the Tax Court testimony, indicating that the principal reason Canadian and British licenses were taken was the desire to make the successful Magee-Hale meter without change or other expense and not because an equally effective design could not be made without access to the patent. Moreover, there were no claims in the tax proceeding that the patent covered more than the specific mechanisms.<sup>28</sup>

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<sup>27</sup> See *Business Week*, April 6, 1957, p. 81.

<sup>28</sup> The Tax Court stated that the 13 claims of the '250 patent "... related to improvements in the operation of the parking meter, such as (a) actuation of the tripping mechanism by the force of the operator's insertion of a coin in the meter, (b) operation by various combinations of coins or multiples of coins, (c) resetting the time indicator according to the value of the coin inserted, and (d) a coin display window to decrease the use of slugs ..." 15 TCM 254, 256-57 (1956). In the 1949 meter survey for the City of Chicago these features received no emphasis, and the report is critical of the coin window which could easily be pushed out. See City of Chicago Parking Meter Survey 1949. Results of Investigation of Commercial Parking Meters.

Gerald Hale has been issued a total of six patents since 1945.<sup>29</sup> The original patent (2,625,250), however, is the only one marked on the meter. The management of Magee-Hale considers that the basic structure of patent 2,625,250 is so complete that no important changes are necessary. The company undertakes research and engineering directed to improvements in materials and construction and other engineering refinements.

The success of Magee-Hale prompts inquiry as to the reasons the company went into the business and the reasons for this success. In the first place, it seems clear that the formation of Magee-Hale was motivated by a desire on the part of Magee and Hale to reenter the parking meter business, and to do so outside the Vehicular group. Magee and Hale were cognizant of the Vehicular patents at the time. They considered, however, that the key need was that of developing a meter fulfilling existing operating requirements and adjustable to meet future needs. They were ready to take their chances on the patents when and if the problem became acute. They felt that the Vehicular patents were not entitled to a broad interpretation, and that the patents were unenforceable because acquired under duress, with little investment, and in violation of the antitrust laws.

There can be no doubt that the principals in Magee-Hale found comfort in the antitrust proceedings. By March 28, 1944, when Judge Leahy entered his first decision, it was evident that in all probability at least reasonable royalty licenses would be available under the Vehicular patents. This decision was regarded by Magee-Hale as giving "back stop" protection with respect to charges of infringement of the Vehicular patents. This decision came before full scale manufacturing activity had commenced and before the major production investments in the Park-O-Meter had been made. In addition, the Vehicular decrees were of value to Magee-Hale in minimizing patent infringement threats against prospective Magee-Hale customers.

While the antitrust proceedings thus eased the entry of Magee-Hale into the parking meter business, the present writers believe that Magee-Hale would have entered the business and would have had essentially the same success whether or not the decree was entered. The past resistance of Magee to the Vehicular group and his past success with Dual made it almost certain that he would re-enter the business with a new company just as soon as the wartime moratorium on meter production was lifted. The major design efforts of Hale and Magee took place while the war was still in progress and during a time when the outcome of the antitrust proceedings was not certain. While a different termination of the antitrust proceedings could have prompted a change in plans by Magee-Hale, every present indication is that it would not have done so, and it is considered almost certain that Magee-Hale could and would have entered the industry regardless of the decree.

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<sup>29</sup> Patent 2,532,906, filed May 7, 1949 entitled "Cumulative Indexing Mechanism"; patent 2,599,912, filed January 12, 1951 entitled "Coin Tube and Opener Therefor"; patent 2,620,971, filed June 10, 1950 entitled "Coin Collector"; patent 2,625,250, filed August 1, 1945 entitled "Automatic Parking Meter"; patent 2,631,710, filed August 3, 1950 entitled "Automatic Parking Meter"; patent 2,655,797, filed March 21, 1949 entitled "Timer Apparatus for Parking Meters."

Duncan and Magee-Hale are the present leaders in the parking meter industry. Magee-Hale's success, like Duncan's, appears to be the consequence of the combination of a high quality product, a favorable price, and aggressive sales technique, all based on prior experience in the business. Although Carl Magee died before the middle of 1946, he did have an opportunity to carry the business over its initial efforts. As to the meter design, Hale's earlier experience with Dual doubtless enabled him to avoid pitfalls such as those that plagued International. In the postwar seller's market, Magee-Hale was able to take full advantage of its resources and establish itself in a manner that assured its present position in the industry. The Vehicular antitrust proceedings were of some aid to Magee-Hale, but were not responsible for the entry of Magee-Hale into the industry or for the success of the company.

#### DUAL PARKING METER COMPANY

Dual is the oldest parking meter manufacturer, having been founded in 1935 by Carl C. Magee. The company was operated by Mr. Magee in Oklahoma City until shortly before World War II when Tribble purchased a majority stock interest and brought the company into the Vehicular patent licensing arrangement.<sup>80</sup>

In July 1944, Union Metal Manufacturing Company of Canton, Ohio, purchased the assets of Dual and made Dual a subsidiary. Union was then, and now is, a manufacturer of street lighting and other equipment for sale to municipalities. It made the purchase to expand the line of products it sold to municipalities. The meters were manufactured by Superior Switchboard and Devices Company, another subsidiary of Union. Soon after purchasing Dual, Union also purchased Vehicular. Vehicular was operated as a statistical agency for a period of time, publishing statistics of parking meter installations for the benefit of municipalities. This operation was discontinued by 1947. After this date, Vehicular was only a patent holding company.

During the prewar period Dual was the clear leader in the parking meter industry, with about 41% of the sales. Postwar sales, however, have been at a much smaller volume. Currently, as above discussed, Dual is probably selling less than half the volume of either Duncan or Magee-Hale.

As is discussed above with reference to Magee-Hale, Union Metal sold the Vehicular patents to the Magee-Hale management in 1950. A paid-up license was retained by Union to assure to Dual a continued freedom to manufacture under the Vehicular patents.

In late 1956 Rockwell Manufacturing Company of Pittsburgh announced that it had acquired Dual Parking Meter Company and certain other Union Metal assets relating to the parking meter business. Rockwell is in the business of manufacturing valves and other products for sale to municipalities. Its own manufac-

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<sup>80</sup> See p. 381, *supra*.

turing experience in connection with taxi meters provided it with a fund of knowledge as to the manufacture of timing mechanisms generally. Rockwell had prior contact with the parking meter industry when it purchased Macnick Company, which was manufacturing parking meters for Magee-Hale.

Rockwell has since moved Dual from Canton, Ohio, to Pittsburgh and has transferred manufacturing operations to its own plants. Following the acquisition, Dual advertised that it would have the benefits of the Rockwell research laboratories.

The principal meter construction manufactured by Dual since the war is an automatic meter. This meter uses a housing shape similar to that of the pre-war Dual meters.<sup>31</sup> Improvements have been made in the operating mechanism, as represented by a number of patents that have issued to Superior Switchboard.<sup>32</sup> The changes involved, however, are of the detail variety and represent no fundamental changes in the meter design.

Dual also manufactures a manual meter, to which minor sales emphasis is given. While the housing of this meter was restyled after the war, and detailed improvements have been made over the years, the construction of this meter is fundamentally the same as prior to the war.

Dual parking meters are made and sold in Canada by Dual Parking Meter Ltd., which is an independent operating company.

It is too early to evaluate the effect of the Rockwell purchase on Dual and on the parking meter industry. Rockwell employs almost 7,000 persons and its sales volume is in excess of \$100 million annually, making it far larger in size than any other parking meter manufacturer. Its experience as the manufacturer of about 70% of all domestic taxi meters,<sup>33</sup> as well as other products, indicates an impressive production know-how. Its water meters and other products sold to municipalities give it experience with the sales side of the parking meter business. With all of these assets it seems clear that Rockwell could alter greatly the status of Dual, both in terms of meter design and production and in terms of sales effort. To date, however, there are no indications of activity in this direction, and Dual continues its advertising and sales at essentially the same level as prior to purchase by Rockwell. Indeed, with the exception of advertisements made at the time of the purchase by Rockwell, Dual continues to place major advertising stress on the success of past Dual installations.

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<sup>31</sup> See e.g. Clough patent 2,570,920.

<sup>32</sup> Patent 2,551,914, filed September 10, 1949, entitled "Coin Register Parking Meter"; patent 2,556,123, filed September 21, 1949, entitled "Flywheel Governor for Parking Meters" (Canadian 473,164); patent 2,570,920, filed June 4, 1949, entitled "Parking Meter Coin Discharge Guiding Construction" (Canadian 482,883); patent 2,588,271, filed March 12, 1951, entitled "Hinge Construction For Parking Meter Doors; patent 2,696,899, filed August 22, 1949, entitled "Time Selecting and Coin Handling Mechanism (Canadian 501,700); patent 2,718,954, filed July 3, 1951, entitled "Parking Meter" (Canadian 532,861); patent 2,755,904, filed June 6, 1951, entitled "Manually Operated Parking Meter."

Dual has been issued Canadian patent 390,658, filed January 16, 1936, issued 1940; (U.S. 2,118,318); patent 390,659, filed March 17, 1936, issued 1940 (U.S. 2,137,111); patent 390,660, filed May 26, 1936, issued 1940 (U.S. 2,168,302) and patent 395,164 filed June 17, 1937, issued 1941 (U.S. 2,162,191).

<sup>33</sup> See *New York Times*, Sept. 2, 1957 and *Christian Science Monitor*, June 4, 1957.

## INTERNATIONAL METERS, INC.

International Meters, Inc. was formed in 1945 as a subsidiary of American LaFrance Foamite Company. The latter company is the leading producer of fire engines and similar equipment sold to municipalities. The parking meter business was thought to be a natural avenue for expansion in the postwar era.

The meter manufactured by International was the twin type meter of Louis F. Fink patent 2,359,754, filed in 1942. An inspection of the patent and the operation of the meter indicates that in terms of over-all complexity and effectiveness of operation the structure could form a competitive parking meter. The twin meter feature had a positive advantage at the time of its introduction in 1946 in that it reduced meter stands, housings, and the like by nearly one-half and simplified collection and winding operations. The meter was introduced with a vigorous advertising program in 1946 and the company followed an optimistic policy as to the prospective sales. The company is reported to have contracted for 100,000 clockworks per year in 1946, to supply the equivalent of 200,000 single meters.

International had difficulties from the start. The Vehicular survey for 1946 indicates that no International meters were installed as of the end of that year. As meters were installed, difficulties of a mechanical nature plagued International. Meters were returned in considerable quantities and considerable delay was encountered in diagnosing the trouble and correcting it. By 1949 International had made less than 1% of the meter installations in the United States. Moreover, the unfavorable experience of municipalities with the parking meter imposed a risk that the American LaFrance sales of other products would be adversely affected. International discontinued advertising in 1951.

An indication of the difficulties encountered by International is found in a report made for the City of Chicago. With respect to the Alfco-Twin meter, this report states:<sup>34</sup>

These meters gave considerable trouble throughout our tests. It is possible to "operate" these meters continuously (until the spring runs down) by placing of a penny in the slot and following with a single nickel partially inserted into the coin slot.

American LaFrance sold the International Meter assets to Mi-Co in 1952. The International twin meter became the Mi-Co automatic meter. The experience of Mi-Co in making and selling the International type meter since the purchase has been satisfactory.

International appears to have had no difficulty with Vehicular Parking. An examination of the Fink patent structure and the various patents owned by Vehicular indicates that Vehicular could not justifiably charge International with patent infringement. Indeed, the indications are that International studied the Vehicular patents and took them into account in the design of its meter. The experience of International thus shows that it was possible to design a competitive meter in 1946 that would not infringe the Vehicular patents.

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<sup>34</sup> Results of Investigations of Commercial Parking Meters, Jan. 7, 1949, included in City of Chicago, Parking Meter Survey, 1949.

There are no indications that the antitrust proceedings had any influence on the activity of International. The meter design must have commenced well before the 1942 filing date of the Fink patent and hence well before the antitrust decision. Also, since infringement of the Vehicular patents was not a problem, International had little to gain or to lose by the antitrust proceedings.

Moreover, the difficulties experienced by International appear to have no relation to the patent aspects of the meter. Rather, they appear to have been wholly related to production problems. The subsequent experience of Mi-Co with the International meter confirms this conclusion and shows that there was no fundamental difficulty in the International meter design as such. The experience of International thus stands as a practical demonstration of the conclusion derived from a study of the Vehicular patents that a competitive non-infringing meter could be made.

#### MI-CO METER COMPANY

Mi-Co, now a division of Michaels Art Bronze Company, is a manufacturer of non-ferrous and stainless steel architectural metalwork sold primarily to general contractors. Mi-Co entered the parking meter business in 1936 and has been in the business ever since.<sup>35</sup>

Mi-Co is located in Erlanger, Kentucky. The basic meter parts, with the exception of the clock mechanism, are made on the premises and stocked for use in meter manufacture. Parking meters constitute about a quarter of the total business of Michaels Art Bronze Company.

Prior to 1952 Mi-Co confined its manufacture and sale to a manual type meter. In that year it purchased the assets of International Meters and began the manufacture and sale of the "Alfco" automatic twin meter as a Mi-Co meter. Like the other pre-war meter manufacturers, Mi-Co enjoyed a considerable sales volume in the immediate post-war years, but due to reduced market demand its sales volume has decreased in more recent years. Current sales volume has been estimated by Mi-Co management to be in the neighborhood of 10% of the domestic total of original and replacement meters.

Mi-Co currently employs one experimental engineer who devotes his time exclusively to improving the meters and their accessories. The company management does not feel that either the commercial or patent opportunities in an over-all meter redesign are as favorable as those associated with improvements in accessories and portions of the meters, such as the coin collection equipment and related devices. For this reason product improvement emphasis is placed on accessories and specific portions of the meters. The current Mi-Co manual meter incorporates the same over-all meter construction as the pre-war models. The automatic meter utilizes the same over-all construction as was embodied in the meter at the time Mi-Co purchased the business from American LaFrance.

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<sup>35</sup> See p. 379, *supra*.

The numbers of six patents are currently placed on the Mi-Co manual meter.<sup>36</sup> All but two of these patents were filed prior to the war. The automatic meter is marked with three patents.<sup>37</sup> All of these patents relate to details of construction and no assertions have been made by Mi-Co that competitors are infringing either these or any other of the patents it owns. Mi-Co has followed a rather active policy of filing patent applications, and currently owns about 29 patents.<sup>38</sup> The company is not currently interested in foreign patents, but management indicates that a different policy will be followed in the event foreign sales become more significant.

Mi-Co meters are sold in Canada by Mi-Co Meter Sales and Service, Ltd. The Canadian company was sued under the Canadian Vehicular patents by Dual Parking Meter Company of Canada, which case has been settled.

The Mi-Co postwar experience is of particular interest with respect to the Mi-Co twin meter. The Mi-Co activity since purchasing this business from American LaFrance indicates that Mi-Co regards the meter as a fully effective competitive meter. Indeed, this meter is stressed in Mi-Co advertising on an equal basis with the manual meter. Available trade information indicates that the Mi-Co experience with the twin meter is entirely satisfactory and that the twin meter has been accompanied by no more than the usual servicing and other problems. This experience strongly indicates that the difficulties with the twin meter initially put out by International were not inherent in the meter design as such but rather were due to other matters.

M. H. RHODES, INC.

M. H. Rhodes is located in Hartford, Connecticut, and began the manufacture of parking meters in 1935. The company was then, and still is, engaged in the manufacture of other timing devices, of which expansion into the parking meter business was a natural extension.<sup>39</sup> About a quarter of the Rhodes business is in parking meters.

Rhodes makes the "Mark-Time" meter. This meter is manufactured in the manual type only. It is distinctive in the use of only a single window permitting the dial to be viewed only from one side. The meter uses a rotating shield rather than the pointer and violation indicator used on the Magee-Hale, Dual, and Dun-

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<sup>36</sup> Patent 2,268,716 filed May 12, 1936, entitled "Parking Meter"; patent 2,311,242, filed July 3, 1939, entitled "Parking Meter"; patent 2,397,878, filed October 30, 1941, entitled "Parking Meter Mechanism"; patent 2,429,478, filed October 30, 1941, entitled "Counting Attachment for Parking Meters" (Canadian 422,427); patent 2,563,182, filed Jan. 21, 1949, entitled "Parking Meter Mechanism" (Canadian 498,656) design patent 100,975.

<sup>37</sup> Patent 2,213,240; patent 2,359,754, filed June 26, 1942, entitled "Plural Parking Space Meter"; and design patent 154,716.

<sup>38</sup> The most recently issued patents are 2,563,182, filed Jan. 21, 1949, entitled "Parking Meter Mechanism"; patent 2,628,699, filed May 28, 1948, entitled "Parking Meter Mechanism"; patent 2,642,170, filed Sept. 29, 1949, entitled "Coin Loss Preventer"; (Canadian 493,224) patent 2,721,641 filed June 30, 1949, entitled "Parking Meter Mechanism", and patent 2,749,978, filed Sept. 1, 1953, entitled "Twin Parking Meter."

<sup>39</sup> See p. 379, *supra*.



can meters. All parts for the meter, including the timing mechanism, are made on the premises.

Rhodes shared in the large meter sales volume of the immediate postwar years. The Vehicular survey for 1948 showed that as of the end of that year Rhodes had made about 14% of the parking meter installations. Since that time the Rhodes volume has decreased in both relative and absolute terms. The management feels that the sales volume is about 10% of the total domestic volume, although the computations made above suggest that the figure is under 5%.<sup>40</sup>

Rhodes does not apply any patent numbers to its meters. Since the war it has been issued two patents to such meters.<sup>41</sup>

Rhodes meters are manufactured and sold in Canada by Sperry Gyroscope of Ottawa, Ltd.

As above discussed in connection with Duncan,<sup>42</sup> Rhodes was sued by Duncan for patent infringement in 1946. This litigation terminated in favor of Rhodes in 1947. Aside from this suit, Rhodes has not been engaged in any patent litigation since the war and has neither received nor sent any patent infringement notices. Rhodes' freedom from action on the Vehicular patents appears to be due to the use of the shield construction mentioned above.

## CONCLUSIONS

Insofar as the court found a violation of the Sherman Act, the *Vehicular Parking* decision rests on traditional principles of antitrust and patent law. The effort to monopolize the industry by collecting the available patents in a single entity, the understandings respecting the number of licensees, the price fixing license provisions, the restrictive license terms directed to unpatented subject matter, the agreements not to contest the patents, and similar practices had all been held illicit in closely analogous prior cases.<sup>1</sup> In enjoining these practices, and in declaring the various agreements illegal and unenforceable, the court applied the traditional remedies for like cases under Section 4 of the Sherman Act.<sup>2</sup> No facts coming to the attention of the authors of the present study cast any doubt on the success of these decree provisions in bringing the Sherman Act violations to an end.

The decree provisions requiring compulsory licensing of the patents rest on a somewhat different footing.<sup>3</sup> They were necessarily based on the premise that restoration of normal competition in the industry required something more than cessation of the prior illegal conduct. These decree provisions were implicitly

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<sup>40</sup> See p. 385, *supra*.

<sup>41</sup> Patent 2,437,556, filed October 25, 1943, entitled "Timing Device"; patent 2,553,332, filed October 25, 1943, entitled "Timing Device."

<sup>42</sup> See p. 388, *supra*.

<sup>1</sup> *E.g.*, *Standard Sanitary Mfg. Co. v. United States*, 226 U.S. 20 (1912).

<sup>2</sup> For a general discussion of antitrust relief measures in patent cases, see Frost, Oppenheim, and Twomey, "Compulsory Licensing and Patent Dedication Provisions of Antitrust Decrees—A Foundation for Detailed Factual Case Studies," *PTC J. Res. & Ed.*, I, No. 1 (June, 1957), p. 127. And see *Report of the Attorney General's National Committee to Study the Antitrust Laws*, 225.

<sup>3</sup> See Frost, Oppenheim, and Twomey, *supra* note 2, pp. 136-8.

based on the conclusion that access to the patents on at least a reasonable royalty basis would make some measurable contribution towards undoing the anticompetitive effects of the prior agreements. To what extent does the subsequent experience of the industry bear out the effectiveness of these decree provisions?

The compulsory licensing provisions of the *Vehicular Parking* decree have had little effect in initiating the entry of substantial new firms into the parking meter industry. This was probably inherent in the limited nature of the patent rights of Vehicular. The only patent that could possibly be accorded broad scope covering all practical parking meters was the Doyle patent. Its application to the commercial parking meter was at best dubious, as the principals in the Vehicular program repeatedly observed. In any event the Doyle patent expired in 1947. Meter manufacture in 1946—the first complete post-war year—and after was practically free from any risk of injunction under this patent (even if it were accorded an unexpected validity and scope) because of the time required for trial and possible appeal. As to the other Vehicular patents alternative constructions not involving significant infringement problems were available.

Only two firms of significance entered the parking meter industry in the post-war period. These were Magee-Hale and International. Their histories indicate that at best the compulsory licensing decree provisions gave their managements some comfort with respect to patent infringement claims by Vehicular. Neither firm was moved to begin manufacture by the compulsory license decree provisions.

Magee-Hale was founded by persons previously associated with the highly successful operations of Dual Parking Meter Company. It was the activity of these persons—especially Carl Magee—that had established the commercial importance of the parking meter. Once Magee lost control of Dual and had left that firm, it was probably inevitable that he would re-enter the industry as soon as the wartime parking meter moratorium was lifted. There is ample evidence that he and his associates had this thought in mind from the start. Initial design activities on the Magee-Hale meter began in 1942, when the content of the ultimate antitrust decree was at best conjectural. To be sure, the Magee-Hale meter was later charged to infringe a number of Vehicular patents, and the special master on the limited record before him refused to give the patents a narrow construction. It seems clear, however, that a designer with the capabilities of Gerald Hale could have devised an entirely successful meter without running afoul of the patents, as did International and others.

The Magee-Hale history is revealing in another respect. From the outset the company was a success. Gross income was over \$700,000 in 1947 and by 1949 was essentially \$1,500,000. In relation to either gross sales or invested capital the company income was most impressive. At the same time Vehicular, then without any license income, had limited resources and at best faced highly speculative patent infringement proceedings if it was to prevail against Magee-Hale, even if the patents were not subject to compulsory licenses. One could go far to resolve doubts favorably to Vehicular and against Magee-Hale in such patent infringement proceedings and still not have a situation where Vehicular was likely to deter Magee-Hale

in its activities. As it turned out, the master's preliminary report in the compulsory licensing proceeding was quite favorable to Vehicular—largely because the issue of patent validity was foreclosed and the record did not include the Patent Office histories of the patents involved. The strong likelihood is that Vehicular was in a stronger position vis-a-vis Magee-Hale by reason of this decision than it ever would have been in any conventional patent infringement proceeding. Yet the Vehicular patents were promptly sold outright to the Magee-Hale principals for the comparatively modest sum of \$95,000 which imposed little hardship on Magee-Hale.

The judgment of Magee-Hale and Duncan as to the worth of the Vehicular patents is indicated by the prompt settlement of the Chicago suit after the Magee-Hale principals purchased the patents, the \$25,000 consideration paid by Duncan in the settlement, and the dedication of the patents required by the consent decree in that suit. This sum was less than one year's royalties on Duncan's sales at the rate set by the master.

Unlike Magee-Hale, International commenced operations with a meter that was apparently designed to avoid the use of the violation flag and other structures involved in the principal Vehicular patents. The meter design had been started well prior to 1942, when the nature of the antitrust decree provisions was conjectural. Had the International management thought the violation flag and other features of the Vehicular patents to be worth a reasonable royalty, the meter construction could have been modified after the March 1944 antitrust decision to include these features. No such modification took place. For these reasons it seems clear that the compulsory licensing provisions had no significant influence on the entry of International into the parking meter business or on its subsequent activity.

To be sure, International was not successful and the reliability of the meter construction was one of its problems. This difficulty, however, appears to have had little if any relation to the presence or absence of structure to which the Vehicular patents related. The subsequent experience of Mi-Co with the International meter indicates that the International meter construction was not inherently impractical.

The Government unsuccessfully sought royalty-free compulsory licensing in the *Vehicular Parking* case. The present study indicates that such relief, if granted, would not have substantially altered subsequent competition in the industry. To be sure, such decree provisions would have made the Magee-Hale compulsory licensing proceedings unnecessary, and would have prevented the Chicago litigation involving Duncan. None of these proceedings, however, involved expenses of substantial amount in relation to the other sums involved in the activity of Duncan and Magee-Hale, and it seems perfectly clear that no activity these concerns might have undertaken was prejudiced by the litigation.

The further question arises of whether the compulsory licensing decree provisions in the *Vehicular Parking* case altered product improvement activity in the industry. Analytically, it would seem that the decree provisions would not be

likely to have significant effect, since they affected only certain existing patents owned by Vehicular, leaving all the other concerns in the industry (including those named as defendants in the antitrust proceedings) free to use their patent rights in the normal fashion. The actual experience has been that the concerns in the field proceed with product improvement activities uninfluenced by the antitrust decree.

This does not mean, however, that patents are a strong factor in the parking meter industry today. In terms of product design the industry is quite mature. Indeed, many of the meters on sale today are covered only by expired patents. To be sure, many of the concerns point with pride to their product improvement efforts, but the resultant meter changes in the last decade (with the exception of the Duncan "Automaton") relate only to specific features of a character not leading to broad patent rights. Indeed, the principal role of patents in the industry in recent years is that of preventing the copying of specific features and requiring royalty payments. Such payments have been made in the case of the Duncan "Automaton" and the \$4 per meter payments from Magee-Hale to the principals in that concern. Significant royalty payments have also been made by foreign licensees of domestic manufacturers. In no instance, however, do patent rights limit the ability of competitors to devise practical noninfringing constructions.

There is, of course, the possibility of some radically new meter design. The most recent change that might fall in this classification is the Duncan "Automaton," with its departure from both the manual and the automatic meters of the past. Duncan prefers, however, to place its major sales emphasis on the manual meter. At the present writing there are no signs of specific activity by any of the companies directed towards a radically new meter. This observation, however, is hardly very significant in view of the probability that such activity would be highly secret. A number of the companies interviewed indicated an alertness to the possibility of a radically new meter and indicated that they would actively pursue any such development with the expectation of obtaining significant patent rights.

The conclusions here reached invite a comparison with the results of the study of the antitrust decree in the concrete block making machine industry.<sup>4</sup>

There are substantial similarities between the industries studied. Each involves a rather small number of manufacturers. Each involves what is now a well-developed product with limited present prospects for radical change and the incident broad patent rights. The important technology in each instance is freely available to all the concerns. In each of the industries the principal competitive effort is directed to product reliability, cost, service, and sales, and the compulsory licensing provisions of the antitrust decrees have had very mild effects.

In each of the industries studied, moreover, a clear antitrust law violation was found before the decrees were entered. In the parking meter case, the key activities were the effort to obtain patent rights to form a pool monopolizing the industry, the restrictive patent license policy, and similar activities directed towards

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<sup>4</sup> PTC J. Res. & Ed., II, No. 1 (March, 1958), p. 61.

elimination of price and other competition between the six concerns then in the industry. In the concrete block case the acts were in the nature of individual monopolization by Besser, the major concern in the field, and to a smaller degree were related to the patent licensing agreements involving Stearns.

In the concrete block case two concerns credited the compulsory license decree provisions with bringing about their entry into the business. Neither of these concerns is now a major concern in the field, although there is the possibility that one might develop to such position in the future. In the parking meter case the compulsory licensing provisions of the judgment cannot be credited with the entry of any substantial concern into the business. However, the time since the judgment has seen the growth of Magee-Hale, which is now one of the two major concerns in terms of current meter sales volume.

Caution must be observed, however, in drawing general conclusions from these results. Each of the industries studied is characterized by application engineering rather than organized research activities. Neither industry has had any radical product changes during the periods the judgments have been in effect, and there are no indications that the situation would have been any different absent the decrees. For these reasons the results of the present two studies form no basis for assuming that similar conclusions would be drawn in industries where product improvement is carried on at a more rapid rate, especially where the decree provisions impinge upon the activities of research laboratories with substantial budgets. The conclusions to be drawn in these other situations must await a substantial number of additional case studies.

## APPENDIX

### In The

United States District Court

District of Delaware

United States,  
Plaintiff  
vs.

Vehicular Parking, Ltd. *et al.*  
Defendants

*Civil Action No. 259*

Magee-Hale Park-O-Meter Company,  
Intervenor

## MASTER'S PRELIMINARY REPORT

This is a proceeding to determine a reasonable royalty for a license under certain patents pertaining to parking meters. The patents in issue are McGee 2,118,318, McGay *et al* 2,168,302, Woodruff *et al* 2,198,422, and McGay 2,286,221.

There are numerous other patents and patent applications concerned with parking meters owned by Vehicular Parking, Ltd. They had been licensed previously to selected parking meter manufacturers under substantially similar agreements which provided, *inter alia*, for royalties of 4% of the sales price of each meter, price fixed without regard to the scope of the licensed patents, and

many restrictive practices designed to eliminate competition. These practices were held to be in violation of the antitrust laws, the license system was held to be void, and the parties were enjoined from future performance thereunder. *U.S. v. Vehicular Parking et al*, 54 F. Supp. 828, 841 (D.C. Del. 1944).

To carry into effect the purpose of the antitrust laws, and restore a broad base of competition in the parking meter industry, Vehicular was ordered to license its patents for a reasonable royalty. Magee-Hale thereupon was permitted to intervene and seek a license under the four patents here in issue. The present reference was made for the purpose of ascertaining a reasonable royalty for the Magee-Hale license.

Under the order of reference Vehicular was charged with the burden of proof. Its prima facie case was in large part confined to the examination of Magee-Hale officers and books. As noted in the memorandum filed herein on September 16, 1949, this evidence was sufficient to meet the minimum requirements of a prima facie case, but left many pertinent inquiries undeveloped. Magee-Hale then had the opportunity to complete the record, but rested without introducing any evidence. Hence this determination of reasonable royalty must necessarily be based on a record which leaves many questions unanswered.

Vehicular based its position largely on the undisputed fact that Magee-Hale pays to its officers four dollars per meter pursuant to the terms of an agreement whereby it acquired an exclusive license under a pending patent application of its president for an improved parking meter. Vehicular asserts that the sole consideration for this payment is the license under the Hale application, which is of much less value to this industry than any of the four patents in issue. Hence, urges Vehicular, it should receive at least this amount for a license under its patents of established merit. In answer Magee-Hale asserts that the patent license is but a small part of the consideration for the four dollar payment, so inferentially the transaction should be ignored.

Magee-Hale was not dealing at arms length with its officers when it entered into this agreement, and in any event, the payments which it made involved more than the mere purchase of a license under the Hale application. This license, however, constituted an important part of the consideration of the agreement. Thus, it is entitled to substantial weight in this proceeding.

Magee-Hale in addition to attacking the materiality of the agreement discussed above, asserts several additional grounds for reducing the rate to an insignificant basis. These grounds are (a) the small purchase price Vehicular paid for the patents in issue; (b) the fact that Vehicular charged but 4% royalty for the licenses held to be illegal in the antitrust suit, covering 31 patents, and did not increase this royalty when the patents now under consideration were included therein; (c) the very limited scope to which the patents are entitled in view of the prior art; (d) the small profits in the parking meter industry; and (e) Vehicular's failure to restrict its proofs to the portion of the parking meters covered by the patents at bar.

Considering the foregoing contentions seriatim, I find that neither individually nor collectively do they justify the conclusion that a reasonable royalty hereunder should approximate a nominal amount. As to point (a), the purchase price of the patents is not persuasive inasmuch as the record shows they were acquired under duress, first by suing their former owners for patent infringement and, secondly, by a change of stock control of the owner. *United States v. Vehicular Parking Ltd.*, *supra*, at page 832.

The royalty previously charged by Vehicular under its illegal licensing program (point *b supra*) is not persuasive inasmuch as the main consideration for these licenses was the restrictive provisions designed to eliminate competition, which the Court condemned in the antitrust suit. It appears that the sole purpose of this royalty was to defray the expense of policing the industry, rather than repay the patent owner for the license. *United States v. Vehicular Parking Ltd.* at page 833.

The patents need not be narrowly construed in view of the prior art (point *c supra*). The prior art patents for the most part are not concerned with parking meters, and the most pertinent structures which they disclose would have to be modified substantially to adapt them for use in this industry. Whether the required modifications would be within the knowledge of the man skilled in the art is doubtful from the present record, but in any event it bears on the question of validity and is forbidden territory under the Order of Reference. File wrappers of the patents at bar were not introduced in evidence, so there can be no finding that a restricted interpretation of the patent claims is required by the proceedings in the Patent Office. There is a serious question that at least two of these patents made a profound impression on the parking meter industry, and have been widely followed by Magee-Hale and others. Hence these patents claim commercially important devices, and, on the present record, are entitled to a liberal construction.

The contention that the profits in this industry are so small that they could only support an inconsequential royalty (point *d supra*) is at variance with the record. The exhibits and testimony

establish that Magee-Hale's operations resulted in a most attractive return on the investment. Mr. Hale, its president, testified that while he had no way of knowing the profits of competitors they should be greater than of Magee-Hale (Transcript 109). Thus the industry profits are substantial, and can defray a sizeable royalty.

The last contention which appeared to be seriously urged by Magee-Hale concerned the failure of Vehicular to segregate the patented structure from the parking meter as a whole (point *e supra*). Inasmuch as the patents in issue do not include in their claims such elements as the coin box, counter, meter, support, and sidewalk flanges, the failure of Vehicular to eliminate such unclaimed elements from its proofs is asserted to be fatal. The very heart of the parking meters under discussion is the combination covered by the patents at bar. Without them the meters could not be sold as marketable articles. Hence, under the controlling doctrine of *Garretson v. Clark*, 111 U.S. 120 (1884), the entire value of the parking meter may be considered.

From the foregoing discussion it is evident that, in my opinion, Vehicular should not be reduced to an insignificant royalty for its patents. They have a broad scope and describe and claim devices of great commercial importance, which are being sold in large quantities at a substantial profit. At the same time, I believe that the \$4 per meter payments made by Magee-Hale to its officers (in part for an exclusive license under the Hale application) is too high, even though a non-exclusive license under the four patents in suit should be considerably more valuable to the recipient than an exclusive license under the Hale application and any patent which may ultimately issue thereon.

It is self-evident that a non-exclusive license under all Vehicular patents which are infringed by Magee-Hale's parking meter is essential to the latter. The antitrust litigation established that a competitor who infringed a patent was practically at the mercy of the patent owner. When sued his only alternatives were to capitulate or face bankruptcy. Mr. Hale testified herein, without contradiction, that "cities would not buy meters from a company involved in patent litigation" (Transcript 41). Inasmuch as the main market for these meters is closed to an infringer involved in litigation, it is apparent that virile competition will prevail only if patent litigation is minimized by suitable patent licenses.

To restore competition a simple and workable royalty schedule should be adopted. Unquestionably, each of the patents at bar is not of equal importance to the industry or each licensee. Yet, the uncertainty and delay which would accompany any attempt to meticulously appraise each patent as applied to each device would defeat entirely the fundamental objective of the proceeding—"to restore a broad base of competition in the parking meter industry." See *United States v. Vehicular Parking et al, supra*, at page 841.

It might also be noted in passing that a meticulous calculation of a fair patent royalty is for all practical purposes a physical impossibility. The field of economics is not subject to the uncanny precision of mathematical sciences such as astronomy and electronics, since, unfortunately, business men do not behave like heavenly bodies or charged particles. To strive for such precision would only serve to defeat the purpose of this reference.

To accomplish the objectives of this proceeding I find that each patent should be subject to the same royalty rate. The total royalty for a license under all four patents in issue, however, should not be the arithmetic sum of all the patents licensed, but rather three times the royalty for a license under any one patent. The same rule would apply if all of Vehicular's patents were licensed instead of four.

This is a rough rule of thumb, but I find it much more workable, and fairer to all parties concerned, than any of the numerous formulas which I originally attempted to evolve from the record in this case.

For the royalty rate per patent, I find that 1% based on the sale or rental price of each licensed meter is fair. This is preferable to basing royalties on a flat sum per meter, as fluctuations in the prices of different meters due to changes in design or competition might make such an arrangement onerous to the licensee.

Under this formula, Magee-Hale would pay a royalty of 3% of its sale or rental price for each licensed meter which infringed three or more licensed patents in return for an unrestricted non-exclusive license under the four patents in issue. If it wished a license under additional patents of Vehicular its maximum royalty would still be 3%, regardless of the number of licensed patents. On the other hand, if it redesigned its meters so that they infringed but one or two Vehicular patents it would have to pay but 1% or 2% royalty respectively on the redesigned meters.

An order may be submitted providing for the filing of exceptions to the above report, with supporting memoranda, within a reasonable time. The order may also provide for the filing of proposed findings of fact and conclusions of law, with supporting memoranda, if the parties so desire.

ARTHUR G. CONNOLLY  
Special Master

April 20, 1950

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## STUDENT PAPERS\*

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# An Analysis of Antitrust Consent Decree Provisions Affecting Foreign Patent Rights

WILLIAM F. UPSHAW

### SUMMARY

THIS PAPER SEEKS TO DETERMINE whether the imposition of restrictions upon the exercise of defendants' foreign patent rights is frequently encountered in antitrust consent decrees and the general forms these restrictions have taken.

The author finds that the imposition of such restrictions is not uncommon. Restricting provisions were embodied in 15% of the total number of antitrust consent decrees entered during the period 1946-1956. These restrictions have taken many forms, depending upon the circumstances of the individual case, and have affected foreign patent holdings of foreign corporations as well as of domestic corporations.

Although compulsory licensing of foreign patent rights has been ordered in several adjudicated cases, commencing with *United States v. National Lead Co.*, 332 U.S. 319 (1947), these judicial decrees have had no discernible impact upon the severity or composition of consent decree provisions relating to such rights.

IT IS NOW WELL ESTABLISHED that federal antitrust laws apply to foreign activities of U. S. corporations and even to such activities of foreign corporations, from which a substantial effect on United States imports or exports results.<sup>1</sup> In

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\* Among the objectives of the seminar and lecture series given by the Foundation in conjunction with The George Washington University Law School are the stimulation of student interest and the initiation of a source of publishable student material for the *Journal*. By making available the best papers, students receive an incentive and our readers will appreciate the evidence of scholarly development in the fields of interest. The Foundation invites educational and research institutions to submit informative student manuscripts on the patent, trademark, copyright and related systems.

<sup>1</sup> *United States v. Sisal Sales Corp.*, 274 U.S. 268, (1927); *United States v. Pacific & Arctic Railway and Navigation Co.*, 228 U.S. 87, (1913); *United States v. National Lead Co.*, 63 F. Supp. 313, (D.C.N.Y. 1945) *aff'd* 332 U.S. 319, (1947); *United States v. Timken Roller Bearing Co.*, 83 F. Supp. 284, (D.C. Ohio 1949) *aff'd* 341 U.S. 593, (1951); *United States v. General Electric Co.*, 82 F. Supp. 753 (D.C.N.J. 1949); *United States v. Aluminum Company of America*, 148 F. 2d 416 (2d Cir. 1945); *United States v. Imperial Chemical Industries*, 100 F. Supp. 504 (D.C.N.Y. 1951), *decree granted* F. Supp. 215 (D.C.N.Y. 1952).



fact, the Sherman Act makes specific reference to "trade or commerce" with foreign nations.<sup>2</sup> The courts have not hesitated to apply any remedial measures deemed necessary in order to correct abuses where violations of the antitrust laws have been established. Compulsory licensing (in one form or another) of foreign patents has been resorted to in several litigated cases where foreign patents were used for unlawful purposes by defendants.<sup>3</sup>

The bulk of compulsory licensing of foreign patents has occurred in antitrust cases settled by consent decree, however, rather than as a result of court judgments following adjudication of cases. During the years 1946-1956, inclusive, a total of 39 cases were settled by consent decrees in which some form of limitation or restriction on foreign patent rights was imposed.<sup>4</sup> Table 1, below, compares the number of consent decrees involving restriction or limitation on foreign patent rights and the total number of consent decrees entered in each year during the period 1946-1956. As shown by this table, the greatest proportion of consent decrees involving foreign patent licensing, or similar remedial measures relating to foreign patents, occurred in 1946. Of a total of nine decrees entered in that

TABLE 1  
NUMBERS OF CONSENT DECREES CONTAINING RESTRICTIVE CONDITIONS  
IMPOSED ON FOREIGN PATENT RIGHTS

1946-1956

YEAR	CONTAINING FOREIGN PATENTS CLAUSE	NO FOREIGN PATENTS CLAUSE	TOTAL	NUMBER OF DECREES CONTAINING FOREIGN PATENTS CLAUSE AS A PERCENTAGE OF TOTAL DECREES
1946	6	3	9	66-2/3%
1947	3	8	11	27-1/5%
1948	7	21	28	25%
1949	3	7	10	30%
1950	1	9	10	10%
1951	3	21	24	12½%
1952	3	20	23	13%
1953	2	27	29	6-4/5%
1954	5	42	47	10-3/5%
1955	2	33	35	5-7/10%
1956	4	29	33	12-1/10%
Totals:	39	220	259	15%

Source: "Antitrust Consent Decrees," Commerce Clearing House Trade Cases, 1946-1956.

<sup>2</sup> 26 Stat. 209 (1890), 15 U.S.C. (1952).

<sup>3</sup> United States v. National Lead Co., 63 F. Supp. 513 (D.C.N.Y. 1945), *aff'd* 332 U.S. 319, (1947); United States v. Imperial Chemical Industries, Ltd., 100 F. Supp. 504 (S.D.N.Y. 1951), *Relief granted* 105 F. Supp. 215 (S.D.N.Y. 1952); United States v. General Electric Co., 82 F. Supp. 753 (D.C.N.J. 1949).

<sup>4</sup> "Antitrust Consent Decrees," CCH Trade Cases, 1947-1956.

year, six involved licensing or immunity provisions relating to foreign patents. The seven decrees negotiated in 1948 represent the greatest number of decrees containing some form of compulsory foreign patent relief in any one year. For the entire 11-year period, 39 out of a total of 259 consent decrees, representing 15% of the total, embodied some form of restrictions on the use of foreign patent rights. A year-by-year breakdown of consent decrees, classified according to the presence or absence of foreign patent licensing clauses, is presented in Table 1. All consent decrees containing foreign licensing provisions entered from 1946 through 1956 are listed in Appendix I, with citations to the source of such decrees.

Among the types of relief relating to foreign patent rights which have been decreed in consent judgments are the following:<sup>5</sup> (1) compulsory licensing of foreign patents upon payment of reasonable royalties;<sup>6</sup> (2) compulsory licensing of foreign patents on a royalty-free basis;<sup>7</sup> (3) dedication to the public of certain foreign patents;<sup>8</sup> (4) grants of immunity from suit under foreign patents corresponding to U. S. patents, where compulsory licensing of U. S. patents is required;<sup>9</sup> (5) compulsory licensing of future U. S. patents and royalty-free immunity grants under corresponding foreign patents;<sup>10</sup> (6) injunction against enforcement of foreign patents where such enforcement would have as its purpose or effect the preventing or impeding of exportation of certain products from the United States;<sup>11</sup> (7) injunctions requiring or limiting numerous practices or specified contractual arrangements;<sup>12</sup> (8) requiring defendant to supply know-how necessary to successful operation under patents licensed as a result of the decree;<sup>13</sup> and (9) to refrain from transferring or disposing of patents in a manner which

<sup>5</sup> For a short discussion of some of these types of relief, see Wilbur L. Fugate, *Foreign Commerce and the Antitrust Laws*, Boston: Little, Brown & Co., 1958, pp. 312-317.

<sup>6</sup> *United States v. American Steel Foundries*, Case No. 1258 in the Antitrust Division of the Department of Justice, Sept. 30, 1955, CCH Trade Cases, 1955, Para. 68,156.

<sup>7</sup> *United States v. United States Rubber Co.*, Case No. 967 in the Antitrust Division of the Dept. of Justice, May 28, 1954, CCH Trade Cases, 1954, Para. 67, 771.

<sup>8</sup> *United States v. Westinghouse Electric & Manufacturing Co. and Westinghouse Electric International Co.*, Case No. 818 in the Antitrust Division of the Department of Justice, CCH Trade Cases 1952-1953, Para. 67501.

<sup>9</sup> *United States v. The Permutit Company and W. Spencer Robertson*, United States District Court S.D.N.Y., No. 32-394, June 29, 1951, CCH Trade Cases 1950-1951, Para. 62, 888.

<sup>10</sup> *United States v. Western Electric Company, Incorporated and American Telephone and Telegraph Company*, Case No. 971 in the Antitrust Division of the Dept. of Justice, Jan. 24, 1956, CCH Trade Cases 1956, Para. 68, 246.

<sup>11</sup> *United States v. American Optical Co.*, United States District Court, S.D.N.Y., Civil Action No. 10-391, Sept. 17, 1948, Para. 67, 727.

<sup>12</sup> For example, exchanging exclusive patent rights with foreign corporations (*United States v. Scophony Corp. of America*, United States District Court, S.D.N.Y., Civil Action No. 34-184, July 6, 1949, CCH Trade Cases 1948-1949, Para. 62236); requiring certain defendants to grant other defendants the right to *sub-license* along with any future patent licenses granted to such defendants (*United States v. Owens-Corning Fiberglas Corp.*, United States District Court for the N.D. of Ohio, Western Division, Civil Action No. 5778, June 23, 1949, CCH Trade Cases 1948-1949, Para. 62, 442); prohibiting grant backs as a condition to granting foreign licenses (*United States v. Morton Gregory Corp.*, United States District Court, N.D. Ohio, Western Division, Jan. 3, 1951, CCH Trade Cases 1950-1951, Para. 67, 750); securing, claiming, or exercising rights under options to purchase particular products from licensees under foreign patents (*id.*).

<sup>13</sup> *United States v. United States Rubber Co.*, *supra*.

would preclude defendant from having the power to comply with provisions of the decree embodying any of the above-mentioned provisions.<sup>14</sup>

Many of the 39 consent decrees in which the use of foreign patent rights was circumscribed contained more than one of the above-mentioned provisions. Probably the provision encountered most frequently is the grant of immunity under foreign patents corresponding to domestic patents made subject to compulsory licensing; certainly the most rarely-encountered requirement is the ordering of foreign corporations to license their foreign patents, though in at least one instance such action was taken.<sup>15</sup>

The first adjudicated case ordering compulsory licensing of foreign patents was *United States v. National Lead Co.*, 332 U.S. 319 (1947). Violation of the Sherman Act in that case was found in the pooling of patents together with certain agreements in restraint of trade.<sup>16</sup> This was a vital point in considering the propriety of requiring compulsory licensing of foreign patents belonging to the two defendants. As stated by the Court:<sup>17</sup>

These patents, through the agreements in which they are enmeshed and the manner in which they have been used, have, in fact, been forged into instruments of domination of an entire industry. The net effect is that a business, originally founded upon patents which have long since expired, is today less accessible to free enterprise than when it was first launched.

These facts are important not only in affirming the finding [of violation of the Sherman Act] . . . but also in passing upon the terms of the decree entered in order to prevent future violations of the Act by them.

The availability of compulsory licensing as a remedy was thus predicated upon prior use of foreign patents as instruments to accomplish unlawful ends. The "major legal issue" in the case, as the Court viewed it, however, was whether or not to grant the government's request to order royalty-free licensing or dedication of patents.<sup>18</sup>

On the facts of the case the Court determined that neither royalty-free licensing nor issuance of a permanent injunction prohibiting the defendants from enforcing their domestic patents was necessary.<sup>19</sup> Significantly, the Court left unchanged the last sentence of Paragraph Seven of the lower court decree, which read as follows:<sup>20</sup>

Defendants are restrained from attempting to enforce any rights under foreign patents owned by them or under which they are the exclusive licensees to prevent the exportation of titanium pigments from the United States to any foreign country.

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<sup>14</sup> This sort of provision is common to all decrees where patent licensing, grants of immunity, etc., are required.

<sup>15</sup> *United States v. The Diamond Match Co.*, United States District Court S.D.N.Y., Civil No. 25-397, April 9, 1946, CCH Trade Cases 1946-1947, Para. 57456. Cf. the later court decree in *United States v. Imperial Chemical Industries, Ltd.*, 100 F. Supp. 504 (S.D.N.Y. 1951).

<sup>16</sup> 332 U.S. at 351.

<sup>17</sup> 332 U.S. at 328.

<sup>18</sup> 332 U.S. at 319.

<sup>19</sup> 332 U.S. at 349.

<sup>20</sup> *United States v. National Lead Co.*, 63 F. Supp. 513, at 534 (1945).

The net result was that the Court permitted reasonable royalties to be charged under all U. S. patents which were subjected to compulsory licensing, while royalty-free licensing of foreign patents was, in effect, ordered. The injunction did not relate solely to existing patents and patent applications; on the contrary, provisions of the decree extended to "all patents which cover any titanium pigments or any process for the manufacture of titanium pigments issued to any of the defendants within five years from the date of this decree; and all such patents which any of the defendants acquires within such five years; and all such patents of which any of the defendants becomes the exclusive licensee within such five years with power to sub-license."<sup>21</sup>

Although *National Lead* is regarded by leading authorities as establishing the basis for compulsory patent-licensing in foreign trade cases,<sup>22</sup> consent decrees negotiated both prior to and since this decision have contained far more stringent terms insofar as compulsory foreign patent licensing is concerned than were ordered in this decision.<sup>23</sup> Prior to *National Lead*, compulsory royalty-free licensing or its equivalent had been required in numerous consent decrees.<sup>24</sup> Among the more recent examples of consent decrees embodying such provisions are the settlements in *United States v. International Business Machines* and *United States v. Western Electric Co.*<sup>25</sup>

Since *National Lead* was decided, dedication of patents has been ordered in one lower court case<sup>26</sup> and denied by another lower court.<sup>27</sup> Remedies granted in both of these District Court decrees included types of specific relief which were not required in *National Lead*, and which may be compared with consent decree provisions before and after these decisions were rendered.

In *United States v. Imperial Chemical Industries Ltd.*, a 1952 case, the court directed a British corporation, Imperial Chemical Industries, Ltd., to grant immunity under foreign patents corresponding to certain U. S. patents subjected to compulsory licensing. Further, the court ordered I.C.I. to reassign certain

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<sup>21</sup> 63 F. Supp. 513, 533 *aff'd* 332 U.S. 319.

<sup>22</sup> See, for example, Wilbur Fugate, *Foreign Commerce and the Antitrust Laws*, *op. cit.*, at 313.

<sup>23</sup> The writer is aware of the doctrinal conflict as to the nature of a consent decree, as represented by such views as Hamilton and Till, "Antitrust in Action," T.N.E.C. Monograph No. 16, pp. 90-92 (1940) and Oppenheim, *Federal Antitrust Legislation—Guideposts to a Revised National Antitrust Policy*, 50 MICH. L. REV. 1139 (1952), and as discussed *e.g.*, at 55 MICH. L. REV. 92, 95 (1956-1957). See also: Victor H. Kramer, *Modification of Consent Decrees: a Proposal to the Antitrust Division*, 56 MICH. L. REV. 1051, May, 1958. No position on this question is taken in the present paper. The purpose here is merely to indicate types of provisions which have appeared in consent decrees and to compare them with adjudicated decrees.

<sup>24</sup> See *e.g.* *United States and Alien Property Custodian v. Bendix Aviation Corp.*, United States District Court N.J., Civil Action 2531, 1946, CCH Trade Cases 1946-1947, Para. 57, 444; *United States v. General Electric Co. et. al.*, United States District Court N.J., 1946, Civil Actions Nos. 1364 and 2590, CCH Trade Cases 1946-1947, Para. 57, 448; *United States v. American Lecithin Co.*, United States District Court N.D. Ohio, Civil Action No. 25115, 1947, CCH Trade Cases 1946-1947, Para. 57542.

<sup>25</sup> See CCH Trade Cases, 1956, Paras. 68, 245 and 68, 246, respectively. In both of these cases certain U.S. patents were required to be licensed on a royalty-free basis, with immunity granted under corresponding foreign patents.

<sup>26</sup> *United States v. General Electric Co.* ("Incandescent Lamp"), 115 F. Supp. 835, (U.S.D.C.-N.J. 1953).

<sup>27</sup> *United States v. Imperial Chemical Industries*, 105 F. Supp. 215, (U.S.D.C.S.D.N.Y., 1952).

British patents to Du Pont which Du Pont had some years earlier (but after the antitrust suit was commenced) assigned to I.C.I. Another British corporation, British Nylon Spinners, Inc., had acquired exclusive rights under these patents in 1940 as a result of an agreement with I.C.I.<sup>28</sup> In framing its decree, the Court recognized the following limitations on its powers:<sup>29</sup>

Here, we deal with the regulation of the exercise of rights granted by a foreign sovereign to a domestic corporate defendant and to a foreign corporate defendant. Our power so to regulate is limited and depends upon jurisdiction *in personam*; the effectiveness of the exercise of that power depends upon the recognition which will be given to our judgment as a matter of comity by the courts of the foreign sovereign which has granted the patents in question.

It was recognized by the court that its decree could be tested before the British courts.<sup>30</sup> And in fact it was so tested. British Nylon Spinners, which had not been a party to the cause before the United States court, brought an action in England to enjoin I.C.I. from complying with the decree, insofar as it affected the rights of B.N.S. under its contracts with I.C.I.<sup>31</sup> In issuing the injunction, the British court expressly noted that the American court had had no *in personam* jurisdiction over B.N.S., and it was therefore determined that no basis existed for control of the subject matter by the American court.<sup>32</sup>

In any event, the effectiveness of orders of American courts issued to foreign defendants to do or to refrain from doing acts in foreign countries must depend upon application by foreign courts of principles of comity. In the *Incandescent Lamp* case, where Philips, a Dutch corporation, was made subject to various provisions of the court's final decree, including royalty-free licensing of Philips' United States patents (but not requiring Philips to grant immunity under its foreign patents *at the time the decree was entered*), the court added the following saving clause for Philips' benefit.<sup>33</sup>

Philips shall not be in contempt of this Judgment for doing anything outside of the United States which is required or for not doing anything outside of the United States which is unlawful under the laws of the government . . . in which Philips or any other subsidiaries may be incorporated . . . or . . . may be doing business.

A discussion of substantive questions of jurisdiction in such cases is beyond the scope of the present paper, which has the limited objective of describing and discussing the extent to which attempts have been made by consent decree to require licensing of and immunity under foreign patent rights. It would appear that a saving clause such as the one incorporated in *Incandescent Lamp* would be of great usefulness in solving many of the conflict of laws problems present in cases of this type, however.

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<sup>28</sup> 105 F. Supp. 215 at 228-230.

<sup>29</sup> 105 F. Supp. 215 at 229.

<sup>30</sup> 105 F. Supp. 215 at 230.

<sup>31</sup> *British Nylon Spinners, Ltd. v. Imperial Chemical Industries, Ltd.*, 2 A11 E.R. 780 (1952).

<sup>32</sup> *British Nylon Spinners, Ltd. v. Imperial Chemical Industries, Ltd.*, 3 A11 E.R. 88, (1954).

<sup>33</sup> 115 F. Supp. 835 at 879.

In cases where foreign patent rights of foreign corporations not subject to *in personam* jurisdiction have been affected by consent decrees, it has been as a consequence of the cancellation of contracts between or among them and U. S. corporations or foreign corporations which were subject to *in personam* jurisdiction of U. S. courts. This occurred in at least 15 antitrust consent decrees, of which the following are examples:

*United States and Alien Property Custodian v. Bendix Aviation Corp.*, CCH Trade Cases, 1946-1947, Para. 57444.

*United States v. Rohm & Haas Co.*, CCH Trade Cases, 1946-1947, Para. 62334.

*United States v. The Liquidometer Corporation*, CCH Trade Cases, 1950-1951, Para. 62867.

*United States v. United Engineering and Foundry Company*, CCH Trade Cases, 1952-1953, Para. 67378.

Extremely broad provisions affecting foreign patent rights of foreign corporations subject to *in personam* jurisdiction were incorporated in the consent decree in *United States v. The Diamond Match Co.*,<sup>84</sup> and in *United States v. United States Rubber Co.*<sup>85</sup> In order to indicate the nature of relief ordered, these two decrees will be discussed in some detail.

*United States v. Diamond Match Co.*—Among the numerous defendants in this case were The Swedish Match Company (a Swedish corporation) and the British Match Corporation, Ltd. (a British corporation). In addition to cancelling numerous agreements between and among the Swedish Match Company, British Match Corporation, and numerous other domestic and foreign corporations, the court ordered the Swedish Match Company to grant unrestricted and royalty-free licenses under five U. S. patents owned by that corporation.<sup>86</sup> The Swedish Match Company was further enjoined from instituting or threatening to institute patent infringement suits based upon such patents or upon "patents or patent applications owned or controlled by said defendant on the date of the entry of this judgment" relating to re-ignitable matches or their manufacture.

As to foreign licensing of patents owned by The Swedish Match Corporation, and relating to the subject matter of the suit, the following provisions were included in the consent decree:

13. Defendant The Swedish Match Company is hereby directed to issue to any applicant making written request therefor, an unrestricted and unconditional grant of immunity under foreign patents corresponding to the United States letters patent and patent applications referred to in Paragraph 12 hereof, to import into, and to sell or to use, and to have imported, sold or used in, any country, any match product made in the United States.

14. Defendant The Swedish Match Company is directed to grant to any applicant therefor a non-exclusive, non-assignable and unrestricted license to make, use and sell, save for a

<sup>84</sup> *United States v. The Diamond Match Company, et. al.*, CCH Trade Cases 1946-1947, Para. 57456.

<sup>85</sup> *United States v. United States Rubber Co., et. al.*, CCH Trade Cases, 1954, Para. 67, 771.

<sup>86</sup> *United States v. The Diamond Match Company, op. cit. supra.* All references to terms of this agreement in the discussion hereafter are cited to the same source.

uniform reasonable royalty, under any patented invention of The Swedish Match Company, its subsidiaries, successors, assigns or nominees, conceived within five years after the entry of this judgment relating to everlasting or re-ignitable matches. Any applicant for such license who fails to agree with The Swedish Match Company upon a reasonable royalty may apply to this Court . . . to determine the reasonable royalty of such license.

*United States v. United States Rubber Co. et al.*—The two principal defendants in this case were the United States Rubber Co., (hereafter called “U. S. Rubber”, a New Jersey corporation, and Dunlop Rubber Company, Limited, a British corporation (hereafter referred to as “Dunlop”). Numerous contractual agreements between and among U. S. Rubber, Dunlop, and various foreign corporations located and doing business throughout the world were terminated by terms of the consent decree.<sup>37</sup> Both U. S. Rubber and Dunlop were enjoined from bringing, threatening, continuing or maintaining any actions for patent infringement based upon acts of infringement occurring because of the importation into the United States of certain defined products prior to the date of the consent judgment. Further, each defendant was enjoined from bringing any action to prevent importation into the United States of the specified products manufactured outside of the United States by any company licensed by defendants or other named companies.

Patent licensing required under this consent decree was of an extremely broad nature. Dunlop and U. S. Rubber were required to cause a corporation controlled by them, International Latex Processes, Limited, (hereafter termed “International”) a corporation existing under the laws of the Island of Guernsey, to issue non-exclusive licenses at a reasonable royalty to any applicant under all patents controlled by International, and to require International to furnish know-how to such licensees. Royalty-free immunity under all patents necessary to “assure unimpeded exports of . . . latex products and thread products lawfully manufactured in the United States . . . into the . . . country of destination” were also required. Foreign patents owned by U. S. Rubber were made subject to the same licensing requirements imposed with respect to patents owned by International.

In both the *Swedish Match* decree and the *U. S. Rubber* decree there were many other provisions apart from the ones mentioned herein relating to patent licensing. The patent licensing provisions have been particularly discussed in order to indicate the extent of patent licensing relating to present and future patents, and to domestic and foreign patents owned by foreign corporations, which has been required in particular consent decrees. These provisions would appear to go far beyond any compulsory licensing which has been required in any court judgment following adjudicated cases.

On the other hand, there are certain instances where more favorable terms have been obtained by defendants signing consent decrees than might have been obtained had the case been allowed to proceed to final decision. An outstanding example of this is the experience of General Electric Company following the

<sup>37</sup> *United States v. United States Rubber Co., op. cit. supra*. All references to U.S. Rubber and Dunlop hereafter are cited to this source.

adverse court decision in *United States v. General Electric Co.*, *supra*. As noted previously, in that case, the Court required General Electric to dedicate certain patents to the public, and in addition to grant licenses at a reasonable royalty under existing patents on patent machinery.<sup>38</sup> General Electric contended that it should be allowed to condition patent licenses on the grant-back by its licensees of licenses under patents relating to the subject matter which were controlled by the licensees. In refusing to permit the grant-back condition, the Court said:<sup>39</sup>

I am inclined to agree with the assertion of the Government that provision for reciprocal licensing would tend to perpetuate the situation of industry dominance by General Electric which the decree is designed to end.

In later cases against General Electric, filed after the above-quoted decision was rendered, General Electric *was* permitted to require grant-backs from any applicants under certain patents made subject to compulsory licensing.<sup>40</sup> While General Electric was required by terms of the decree to grant royalty-free licenses under domestic patents, and immunity under corresponding foreign patents, it was permitted to require as a condition that any licensee grant back to General Electric on a royalty-free basis, both as to domestic and foreign patents.

#### CONCLUSIONS

Provisions of antitrust consent decrees involving foreign licensing of patents may take many forms. These provisions do not appear to have been affected by the decrees entered following the court judgments in *National Lead, I.C.I.*, and *General Electric* (Incandescent Lamp). With certain exceptions, decrees entered since these cases have contained less stringent provisions than decrees entered prior to these cases.

The proportion of consent decrees involving compulsory foreign patent licensing to total antitrust consent decrees, on an annual basis, declined steadily from its peak in 1946 to 1950. Since 1950, consent decrees containing foreign licensing provisions have accounted for about 10% of the total. For the entire period 1946-1956 the percentage of such decrees to total decrees is about 15%.

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<sup>38</sup> *United States v. General Electric*, 115 F. Supp. 835, 846, United States District Court, New Jersey (1954).

<sup>39</sup> *Id.* at 847. *Cf. United States v. Aluminum Co. of America*, 91 F. Supp. 353, (U.S.D.C.-S.D.N.Y. 1950).

<sup>40</sup> *United States v. General Electric Co.*, Case No. 747 in the Antitrust Division of the Department of Justice, decree filed March 26, 1954.



APPENDIX I

ANTITRUST CONSENT DECREES ENTERED AFFECTING  
FOREIGN PATENT RIGHTS, 1946-1956

SOURCE	TITLE
<b>CCH TRADE CASES, 1946-1947:</b>	
Para. 57492	United States v. American Air Filter Co., Inc.
Para. 57444	United States v. Bendix Aviation Corp.
Para. 57603	United States v. Timken-Detroit Axle Co.
Para. 57645	United States v. Electric Storage Battery Co.
Para. 57448	United States v. General Electric Co. et al.
Para. 57458	United States v. Western Precipitation Corp.
Para. 57489	United States v. Libbey-Owens-Ford Glass Co.
Para. 57542	United States v. American Lecithin Company
Para. 57456	United States v. The Diamond Match Co. et al.
<b>CCH TRADE CASES, 1948-1949:</b>	
Para. 62308	United States v. American Optical Association
Para. 62334	United States v. Rohm & Haas Co.
Para. 62394	United States v. Philips Screw Company et al.
Para. 62330	United States v. Allegheny Ludlum Steel Corp.
Para. 62356	United States v. Scophony Corp. of America
Para. 62463	United States v. Scophony Corp. of America
Para. 62284	United States v. American Bosch Corporation
Para. 62300	United States v. General Cable Corp. et al.
Para. 62442	United States v. Owens-Corning Fiberglas Corp.
Para. 62233	United States v. A. B. Dick Company et al.
<b>CCH TRADE CASES, 1950-1951:</b>	
Para. 62709	United States v. Textile Machine Works
Para. 62867	United States v. The Liquidometer Corporation
Para. 62750	United States v. Morton Gregory Corporation
Para. 62888	United States v. Permutit Company
<b>CCH TRADE CASES, 1952-1953:</b>	
Para. 67378	United States v. United Engineering and Foundry Company
Para. 67585	United States v. General Electric Co. et al.
Para. 67501	United States v. Westinghouse Electric & Manufacturing Co.
Para. 67403	United States v. The Davis Co., et al.
Para. 67248	United States v. Liquid Carbonic Corp.
<b>CCH TRADE CASES, 1954:</b>	
Para. 67750	United States v. Blaw-Knox Co.
Para. 67829	United States v. Food Machinery & Chemical Co.
Para. 67771	United States v. United States Rubber Co.
Para. 67714	United States v. General Electric Co.
Para. 67794	United States v. General Electric Co.
<b>CCH TRADE CASES, 1955:</b>	
Para. 68215	United States v. R. Hoe & Co.
Para. 68156	United States v. American Steel Foundries
<b>CCH TRADE CASES, 1956:</b>	
Para. 68245	United States v. International Business Machines Co.
Para. 68426	United States v. International Cigar Machinery Co.
Para. 68290	United States v. Michigan Tool Company
Para. 68246	United States v. Western Electric & A.T.&T.

# Pendent Unfair Competition Jurisdiction In Patent, Trademark, and Copyright Cases

ALAN H. BERNSTEIN

## SUMMARY

AN ACTION BASED ON a claim arising under the patent, trademark, or copyright laws usually must be brought in the federal courts. It often occurs that a substantial amount of testimony and argument relevant to the federal claim will also be relevant to a non-federal claim of unfair competition. By virtue of the doctrine of pendent jurisdiction, a federal court may pass on the closely related non-federal questions as well as the federal questions, thereby effecting a substantial economy of time, money, and effort.

The statutory authority in this area, 28 U. S. C. § 1338(b), creates a new ground of federal jurisdiction over a pendent claim of unfair competition which is "related" to a "substantial" claim under the patent, trademark or copyright laws. Identical facts to support federal and non-federal claims are not required in the majority of the Federal Courts of Appeals. Prior to the enactment of 28 U. S. C. § 1338(b), the basic authority in the area of pendent jurisdiction was *Hurn v. Oursler*, a Supreme Court decision which withheld federal jurisdiction from a claim of unfair competition which could be deemed a cause of action distinct from the federal cause of action.

As to applicable law, there is a division of authorities as to which law, state or federal, applies to pendent claims of unfair competition. Many courts apply federal law to pendent claims of unfair competition to avoid the dilemma of the application of the laws of more than one state to a single course of dealing between the parties. Such application of a plurality of state laws would be encountered by virtue of the doctrine of *Erie R. R. v. Tompkins*.

## INTRODUCTION

THE DOCTRINE OF PENDENT JURISDICTION is one which has long been established and widely used in the federal system. By virtue of such a doctrine, a federal court will pass on issues which are normally within the province of a state court, but for the fact that the non-federal issues bear a close relationship to the federal issues. Since a suit regarding the federal issues must usually be brought in a federal court, the interests of judicial economy and convenience to the parties are

thought to be well served when the federal court can dispose of the closely related (pendent) non-federal issues with very little additional effort. It is stated that if a federal question is substantial, federal jurisdiction exists over a related non-federal question, although the federal court's decision is based on a non-federal issue or the federal question is decided against the party who raised it.<sup>1</sup>

There would appear to be little reason for carving out an exception to the general rule in cases where federal jurisdiction is invoked under the patent, trademark, and copyright laws.<sup>2</sup> Yet, as will become apparent in the main body of this paper, much controversy has raged in regard to the application of the doctrine of pendent jurisdiction to the field of patents, trademarks, and copyrights. As with other cases arising under the United States' Constitution or the federal laws, it is to be expected that problems susceptible to decision under the principles of the common law or state statutes will arise concurrently with problems related to relief sought under the patent, trademark, and copyright laws. Thus, it is not unusual that a non-federal claim of unfair competition arises from the same factual occurrence which produced a case under the patent, trademark, or copyright laws. This fact is recognized in the present pendent jurisdiction statute<sup>3</sup> which recites:

The district courts shall have original jurisdiction of any civil action asserting a claim of unfair competition when joined with a substantial and related claim under the copyright, patent or trademark laws.

In the application of the statute, a clear definition of the concept "unfair competition" would seem to be indispensable. It appears, however, that the definition of the concept "unfair competition" poses a severe test for the human mind. Professor Handler<sup>4</sup> has stated:

There is probably no term in law or economics which is more difficult to define than "unfair competition." The phrase is obviously more of an epithet than a word of art. Its legal usage embodies a conclusion rather than the means of determining the legality of business behavior. Definition by exhibit merely exhibits a multiplicity of usage rather than any identity of meaning.

Nevertheless, it appears that a definition by exhibit is essential to promote an understanding of pendent jurisdiction in this area. The common types of unfair competition are listed as follows:<sup>5</sup> (1) misrepresentation, (2) misappropriation, (3) diversion of trade, (4) interference with trade relations and (5) attacks upon competitors. However, it has been noted<sup>6</sup> that a total of 31 types of unfair methods of competition and unfair or deceptive acts and practices have been condemned by the Federal Trade Commission from time to time in its orders to cease and desist.

The importance of pendent jurisdiction should not be underestimated. It is true that a liberal joinder of claims for relief is permitted by the Federal Rules of

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<sup>1</sup> 2 Moore, Federal Practice 368 (2d ed. 1953).

<sup>2</sup> See *Hurn v. Oursler*, 289 U. S. 238 (1933).

<sup>3</sup> 28 U. S. C. § 1338(b) (1952).

<sup>4</sup> Handler, *Unfair Competition*, 21 IOWA L. REV. 175 (1936).

<sup>5</sup> OPPENHEIM, UNFAIR TRADE PRACTICES 86 (1950).

<sup>6</sup> *F. T. C. v. Bunte Bros.*, 312 U. S. 349, 354 (1941).

Civil Procedure.<sup>7</sup> Nevertheless, joinder under the Federal Rules does not in any way extend or enlarge jurisdictional limits fixed by Congress.<sup>8</sup> Moreover, where diversity of citizenship or the jurisdictional amount is lacking under 28 U. S. C. § 1332 (1952), the pendent jurisdiction statute may provide the only means by which a federal court will hear the unfair competition aspect of the case. The recent amendments<sup>9</sup> to the diversity statute appear to intensify the significance of pendent jurisdiction. It would further appear that the problem of deciding whether federal or state law is applicable to claims of unfair competition may turn on whether federal jurisdiction is grounded on diversity<sup>10</sup> or pendent jurisdiction. Of added significance is the fact that since a pendent non-federal claim is by definition related to the federal claim there is effected a substantial degree of judicial economy and convenience by virtue of the pendent jurisdiction doctrine.

Thus, it is thought that an understanding of the pendent jurisdiction doctrine in relation to the areas of patents, trademarks, and copyrights is today indispensable. This is especially true in view of the dynamic nature of this area of the law which in the past six years has tended, at least temporarily, toward settlement of some of the major points in controversy. Nevertheless, there are substantial points of law in this area wherein a clear split of authority exists. It is hoped that the following presentation of the basis and development of the pendent jurisdiction doctrine will assist in the resolution of some of these knotty problems.

#### EARLY DEVELOPMENT OF THE PENDENT JURISDICTION DOCTRINE

The modern pendent jurisdiction doctrine can be traced back to *Osburn v. U. S. Bank*<sup>11</sup> wherein Chief Justice Marshall stated:

We think, then, that when a question to which the judicial power of the Union is extended by the Constitution, forms an ingredient of the original cause, it is in the power of Congress to give the circuit courts jurisdiction of that cause, although other questions of law or fact may be involved in it.

The principle of pendent jurisdiction appears to have crystallized in *Siler v. Louisville & Nashville R. R. Co.*<sup>12</sup> wherein the plaintiff sought to enjoin an enforcement order of a Kentucky commission which fixed the intrastate rates of the plaintiff railroad company. Plaintiff urged that (1) the order was unauthorized by the Kentucky statute and (2) the Kentucky statute was violative of the United States Constitution. In holding for plaintiff on the first ground, the Supreme Court commented that once federal jurisdiction is established by reason of the federal question involved, a federal court

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<sup>7</sup> Fed. R. Civ. P. 18(a).

<sup>8</sup> *Leow's Drive-In Theatres v. Park-In Theatres*, 174 F.2d 547, 81 U. S. P. Q. 149 (2d Cir. 1949).

<sup>9</sup> P. L. 85-554 (Signed July 25, 1958) raises the jurisdictional amount to \$10,000 and deems a corporation to be a citizen of the state in which it has its principal place of business as well as of the state in which it is incorporated.

<sup>10</sup> *Erie R. R. v. Tompkins*, 304 U. S. 64 (1938).

<sup>11</sup> 9 Wheat. 738 (1824).

<sup>12</sup> 213 U. S. 175, 191 (1909).

... had the right to decide all the questions in the case, even though it decided the federal questions adversely to the party raising them, or even if it omitted to decide them at all, but decided the case on local or state questions only.

The rule of the *Siler* case was applied to support federal jurisdiction over pendent claims of unfair competition in *Onondaga Indian Wigwam Co. v. Ka-Noo-No Indian Mfg. Co.*<sup>13</sup> (patent infringement and unfair competition) and *Vogue Co. v. Vogue Hat Co.*<sup>14</sup> (federal trademark infringement and unfair competition). The Second Circuit, however, thereafter proceeded to adopt a much stricter view of pendent jurisdiction on the authority of another line of Supreme Court cases, specifically related to the area of patents and trademarks. This line of cases had not been expressly overruled by the *Siler* line of cases. In both *Leschen Rope Co. v. Broderick*<sup>15</sup> and *National Watch Co. v. Illinois Watch Co.*<sup>16</sup> a federally registered trademark had been held invalid. The Supreme Court held that there was no federal jurisdiction over a related claim of unfair competition (passing off) regardless of how intimately the non-federal claim was related to the federal claim. In the *Leschen* case, the court stated:

Our jurisdiction depends solely upon the question whether plaintiff has a registered trademark valid under the act of Congress, and for the reasons above given, we think it has not.

The *Leschen* line of cases led to the development of the so-called "Second Circuit Rule" in *Planten v. Gedney*<sup>17</sup> and *Ingrassia v. A. C. W. Mfg. Corp.*<sup>18</sup> In the *Planten* and *Ingrassia* cases it was held that in the absence of some independent ground of federal jurisdiction, a patent infringement suit or a statutory trademark infringement suit, may not be joined with a suit for unfair competition regardless of however intimately the latter claim is related to the former. In the *Planten* case the court commented:

The complaint includes a charge of unfair trading. Since the parties are not citizens of different states, that part of the bill was correctly dismissed without prejudice.

Language supporting the "Second Circuit Rule" may also be found in *United States E. Bolt Co. v. H. G. Kroncke Hardware*,<sup>19</sup> *Geneva Furniture Co. v. Karpen*<sup>20</sup> and *Standard Paint v. Trinidad Asphalt Co.*<sup>21</sup>

In *Lincoln Gas Co. v. Lincoln*<sup>22</sup> (tax ordinance) and *Moore v. N. Y. Cotton Exchange*<sup>23</sup> (anti-trust) the Supreme Court breathed renewed vitality into the *Siler* doctrine but nevertheless did not disturb the *Leschen* line of cases. Thus, the court

<sup>13</sup> 182 Fed. 832 (C.C.N.D.N.Y. 1910).

<sup>14</sup> 12 F.2d 991, 992-995 (6th Cir. 1926).

<sup>15</sup> 201 U. S. 166 (1906).

<sup>16</sup> 179 U. S. 665, 667 (1901).

<sup>17</sup> 224 Fed. 382, 386 (2d Cir. 1915).

<sup>18</sup> 24 F.2d 703 (2d Cir. 1928).

<sup>19</sup> 234 Fed. 868, 872-875 (7th Cir. 1916). (Patent Infringement and Unfair Competition).

<sup>20</sup> 238 U. S. 254 (1915). (Patent Infringement).

<sup>21</sup> 220 U. S. 446 (1911). (Federal Trademark and Unfair Competition).

<sup>22</sup> 250 U. S. 256, 264 (1919).

<sup>23</sup> 270 U. S. 593, 607-610 (1926).

appeared to approve a stricter view of pendent jurisdiction in the area of patents, trademarks, and copyrights. An added area of confusion was introduced in *Stark Bros. Co. v. Stark*<sup>24</sup> wherein federal jurisdiction was held to lie over a claim for unfair competition pendent to a claim for infringement of a federally registered trademark. The court, however, decided that the plaintiff could not recover damages prior to the date that notice of the federal trademark was given to the defendant since federal jurisdiction related only to the federal trademark.

It was against this background of case law that the Supreme Court sought to resolve the issues of *Hurn v. Oursler*.<sup>25</sup>

#### HURN V. OURSLER

In *Hurn v. Oursler*<sup>26</sup> the plaintiff sought relief for (1) statutory copyright infringement in respect to a copyrighted play, (2) unfair competition in respect to the copyrighted play and (3) unfair competition in respect to an uncopyrighted play which was a revision of the copyrighted play. Since the second and third claims were non-federal, the trial court held that it had no jurisdiction thereover, apparently applying the "Second Circuit Rule."<sup>27</sup> The Second Circuit Court of Appeals affirmed<sup>28</sup> the trial court's decision on the authority of the "Second Circuit Rule," citing *Standard Paint v. Trinidad Asphalt Co.*,<sup>29</sup> *Ingrassia v. A. C. W. Mfg. Corp.*<sup>30</sup> and *United States E. Bolt Co. v. Kroncke Hardware Co.*<sup>31</sup> The Supreme Court modified the decree of the lower court in holding that there was federal jurisdiction over the first and second grounds for relief, but not over the third ground for relief. The Supreme Court recognized the apparent conflict between the *Siler*<sup>32</sup> line of cases and the *Leschen*<sup>33</sup> line of cases, but expressly made no effort toward harmonizing the respective cases.<sup>34</sup> The Court, however, did state that a distinction based on the ground that cases involving patents, trademarks and copyrights constitute an exception to the *Siler* rule, would be "altogether unsound." The Court commented:

The *Siler* and like cases announce the rule broadly, without qualification; and we perceive no sufficient reason for the exception suggested. It is stated in these decisions as a rule of general application, and we hold it to be such—as controlling in patent, trademark, and copyright cases as it was in the cases where it is announced.

If the Supreme Court had employed the terminology of the *Siler* case in applying the law to the facts of *Hurn v. Oursler*, twenty years of turmoil might have been

<sup>24</sup> 255 U. S. 50 (1921).

<sup>25</sup> 289 U. S. 233 (1933).

<sup>26</sup> *Ibid.*

<sup>27</sup> See notes 17 and 18 *supra*.

<sup>28</sup> 61 F.2d 1031, (2d Cir. 1932).

<sup>29</sup> See note 21 *supra*.

<sup>30</sup> See note 18 *supra*.

<sup>31</sup> See note 19 *supra*.

<sup>32</sup> See note 12 *supra*.

<sup>33</sup> See note 15 *supra*.

<sup>34</sup> *Hurn v. Oursler*, See note 25 *supra*, at 238.

avoided. In disposing of the issues in *Hurn v. Oursler*, however, Mr. Justice Sutherland stated:

The distinction to be observed is between a case where two distinct grounds in support of a single cause of action are alleged, one only of which presents a federal question, and a case where two separate and distinct causes of action are alleged, one only of which is federal in character. In the former, where the federal question is not plainly wanting in substance, the federal court, even though the federal ground be not established, may nevertheless retain and dispose of the case upon the non-federal ground; in the latter it may not do so upon the non-federal cause of action.

In later commenting upon the *Hurn* case, Callmann<sup>35</sup> stated:

The Supreme Court adverted to such concepts as cause of action, ground, and right, in defining the bounds of federal jurisdiction. Though desirable in some respects because the court intended to establish a general principle, the indefiniteness of the doctrine of *Hurn v. Oursler* has caused difficulties with respect to its application to new factual situations.

The court in *Hurn* held that there was federal jurisdiction over the claim of unfair competition in respect to the copyrighted play since that claim and the claim for statutory copyright infringement "rested on identical facts to show the violation of a single right" and since the primary relief sought (an injunction) was the same in respect to either claim. The claim of unfair competition in respect to the uncopied play was dismissed as "wholly independent of the federal claim." The Supreme Court recognized that there is no hard and fast test by which to determine in all situations what constitutes a "cause of action" and expressly stated that the term may have a variable meaning. The Court, however, suggested that the single right-single legal wrong test be generally applied.<sup>36</sup>

Five years later, the Supreme Court in *Armstrong Paint & Varnish Works v. Nu-Enamel Paint Corp.*,<sup>37</sup> its last review of a factual situation in the area of pendent jurisdiction, gave renewed vigor to the *Hurn v. Oursler* doctrine. The Court there declared:

Once properly obtained, jurisdiction of the one cause of action, the alleged infringement of the trademark, persists to deal with all grounds supporting it, including unfair competition with the marked article.

#### THE LOWER COURTS' REACTION TO HURN V. OURSLER

The lower courts' reaction to *Hurn v. Oursler* is revealed in the split of authority found in the subsequent cases which may be roughly divided as following one of two paths. One line of cases sought to follow the *Siler* line of cases in the belief that *Hurn v. Oursler* was but a *specific application of the Siler doctrine*. Generally this line of cases upheld pendent jurisdiction where the claim of unfair competi-

<sup>35</sup> 2 CALLMANN, UNFAIR COMPETITION AND TRADE-MARKS 1561 (1945).

<sup>36</sup> The suggested test is the antithesis of the broader factual test of a "cause of action."

<sup>37</sup> 305 U. S. 315 (1938).

tion arose from the same *acts* which gave rise to a substantial federal claim.<sup>38</sup> The second line of cases proceeded to adopt a very strict interpretation of the *Hurn* doctrine. Several circuits seized upon certain statements in the *Hurn* opinion to arrive at a doctrine of pendent jurisdiction which required that the non-federal claim be supported by facts identical to those supporting the federal claim.<sup>39</sup> The Seventh Circuit initially adopted the stricter view<sup>40</sup> but subsequently shifted to the more liberal line of cases<sup>41</sup> which sought to follow the *Siler* decision.<sup>42</sup>

The Second Circuit recognized that *Hurn v. Oursler* overruled the old "Second Circuit Rule" but nevertheless proceeded to give a very narrow construction to the *Hurn* rule. An apparent trend to liberality in *L. E. Waterman Co. v. Gordon*<sup>43</sup> was soon reversed in *Foster D. Snell, Inc. v. Potters*<sup>44</sup> which denied federal jurisdiction over the unfair competition claim since there was no inseparable connection with the statutory wrong. Identical facts were required in a later case.<sup>45</sup> Later cases<sup>46</sup> appeared to adhere to the same view.

In the midst of the Second Circuit's generally strict view of pendent jurisdiction, two significant factors asserted themselves. First, several of the Second Circuit holdings did not adhere to a narrow view of pendent jurisdiction. *Treasure Imports, Inc. v. Henry Amdur & Sons, Inc.*<sup>47</sup> cited the *Stark*<sup>48</sup> case in declaring federal jurisdiction to exist over a claim of unfair competition pendent to a claim of statutory trademark infringement. *Pure Oil Co. v. Puritan Oil Co.*<sup>49</sup> went even further by employing terminology of the *Siler*<sup>50</sup> case, for example, "substantial" and "related," in holding that there was federal jurisdiction over a pendent unfair competition claim. Second, the series of dissenting opinions filed by Judge Clark in this period served to lend encouragement to the supporters of the more liberal view to the extent that the strict view of pendent jurisdiction was never permitted to become settled law in the circuit.<sup>51</sup> In *Lewis v. Vendome Bags, Inc.*<sup>52</sup> Judge Clark

<sup>38</sup> For example see *Southern Pacific Co. v. Van Hoosear*, 72 F.2d 903 (9th Cir. 1934); *Illinois Watch Case Co. v. Hingeco Mfg. Co.*, 81 F.2d 41, 28 U.S.P.Q. 118 (1st Cir. 1936) (design patent infringement and unfair competition in selling a modification of the design); *Hanson v. Triangle Publications, Inc.* 163 F.2d 74, 74 U.S.P.Q. 280 (8th Cir. 1947) (trademark infringement and unfair competition in the use of federal trademark).

<sup>39</sup> E.g., see *General Motors Corp. v. Rubsam Corp.*, 65 F.2d 217 (6th Cir. 1933); *French Renovating Co. v. Ray Renovating Co.*, 170 F.2d 945, 80 U.S.P.Q. 61 (6th Cir. 1948) and *Newport Industries, Inc. v. Crosby Naval Stores, Inc.*, 139 F.2d 611, 60 U.S.P.Q. 219 (5th Cir. 1944).

<sup>40</sup> *Atkins v. Gordon*, 86 F.2d 595 (7th Cir. 1936).

<sup>41</sup> See note 38 *supra*. See *E. Edelman & Co. v. Triple-A Specialty Co.*, 88 F.2d 852 (7th Cir. 1937).

<sup>42</sup> See note 12 *supra*.

<sup>43</sup> 72 F.2d 272, 22 U.S.P.Q. 268 (2d Cir. 1934).

<sup>44</sup> 88 F.2d 611, 33 U.S.P.Q. 112 (2d Cir. 1937).

<sup>45</sup> *Engler v. General Electric Co.*, 32 F. Supp. 913 (D.C.S.D.N.Y. 1939).

<sup>46</sup> *Zalkind v. Scheinman*, 139 F.2d 895, 60 U.S.P.Q. 32 (2d Cir. 1943); *Musher Foundation Inc. v. Alba Trading Co.*, 127 F.2d 9, 53 U.S.P.Q. 82 (2d Cir. 1942); *Derman v. Stor-Aid, Inc.*, 141 F.2d 580, 61 U.S.P.Q. 35 (2d Cir. 1944). The cases are collected in 2 MOORE, FEDERAL PRACTICE 368 *et seq.* (2d ed. 1948).

<sup>47</sup> 127 F.2d 3, 52 U.S.P.Q. 598 (2d Cir. 1942).

<sup>48</sup> See note 24 *supra*.

<sup>49</sup> 127 F.2d 6, 52 U.S.P.Q. 600 (2d Cir. 1942).

<sup>50</sup> See note 12 *supra*.

<sup>51</sup> This is evidenced by the multitude of cases in which the issue was raised and reraised. See notes 43-46 *supra*.

<sup>52</sup> 108 F.2d 16, 43 U.S.P.Q. 477 (2d Cir. 1939).



(dissent) urged a broad construction of "cause of action" under the *Hurn v. Oursler* doctrine. In *Musher Foundation, Inc. v. Alba Trading Co.*,<sup>53</sup> Judge Clark (dissent) urged that pendent jurisdiction should exist where there was a substantial overlapping of testimony relevant to both federal and non-federal claims. Judge Clark there commented:

If the roast must be reserved exclusively for the federal bench, it is anomalous to send the gravy across the street to the state court house . . . The recent decisions in this circuit on this problem, while disclosing small variations of fact, seem to me irreconcilable on any readily apparent grounds of logic or practical expediency. I can only express the hope that the bar and the district court judges are not as mystified as to the law of this Circuit as I am.

#### THE ENACTMENT OF A PENDENT JURISDICTION STATUTE

The lower courts' interpretation of the *Hurn v. Oursler* doctrine has been criticized by many authorities. Callmann<sup>54</sup> has stated:

With some exceptions, the courts, particularly in the second circuit, have tended to restrict the (*Hurn*) doctrine to narrow analogies to facts identical with *Hurn v. Oursler* and *Armstrong Paint & Varnish Works v. Nu-Enamel*.

Professor Moore<sup>55</sup> commented:

. . . although the doctrine of the *Hurn* case has been followed rather faithfully by the lower courts, there is still a strong tendency in some of the decisions, notably in the Second Circuit, to take a narrow view of what constitutes a cause of action and hold that there is no jurisdiction over the claim of unfair competition on the theory that it presents an unrelated and separate cause of action.

It is stated that the suggestion of a pendent jurisdiction statute in the area of patent, trademark, and copyright law was made by Professor Moore to Chief Code Reviser W. W. Barron in 1945.<sup>56</sup> The purpose of such a statute was two-fold as follows: (1) promote a uniform law of unfair competition and (2) avoid piecemeal litigation.

The statute eventually enacted in 1948, known as 28 U. S. C. § 1338(b) (1952), reads as follows:

The district courts shall have original jurisdiction of any civil action asserting a claim of unfair competition when joined with a substantial and related claim under the copyright, patent, or trademark laws.

This is the first statute on this subject.<sup>57</sup> As to the new statute, Professor Moore<sup>58</sup> has stated:

1338(b) goes much further than the facts required the Court to go in that case (*Hurn v. Oursler*). Identical facts are not needed. It suffices if there is a real factual or legal relation. The word "related" is the key word.

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<sup>53</sup> See note 46 *supra*.

<sup>54</sup> 2 CALLMANN, UNFAIR COMPETITION AND TRADE-MARKS 1561 (1945).

<sup>55</sup> 2 MOORE, FEDERAL PRACTICE 374-375 (2d ed. 1948).

<sup>56</sup> *Kleinman v. Betty Dain*, 189 F.2d 546, 89 U.S.P.Q. 404 (2d Cir. 1951) (dissenting opinion).

<sup>57</sup> Note, 20 GEO. WASH. L. REV. 630 (1952).

<sup>58</sup> MOORE, COMMENTARY ON THE U. S. JUDICIAL CODE 150 (1949).

It is to be noted that the new statute employs the term "claim" and thereby avoids the ambiguities of "cause of action."<sup>59</sup> "Substantial" is employed to prevent a collusive federal jurisdiction.<sup>60</sup> Since the new statute specifically recites "unfair competition" it had been feared<sup>61</sup> that a related action, such as breach of contract to pay royalties or specific performance to secure a conveyance of a patent, might lie beyond the purview of the new statute. A liberal construction<sup>62</sup> of the term "unfair competition" seems, however, to have allayed any apprehension.

The Reviser's Note to the new statute reads as follows:

Subsection (b) is added and is intended to avoid "piecemeal" litigation to enforce common law and statutory copyright, patent and trade-mark rights by specifically permitting such enforcement in a single civil action in the district court. While this is the rule under the federal decisions, this section would enact it as statutory authority. The problem is discussed at length in *Hurn v. Oursler* . . . and in *Musher Foundation v. Alba Trading Co.* . . . (majority and dissenting opinions).

The first draft<sup>63</sup> of the new statute permitted joinder "whenever there is a single cause of action." The first draft was rejected as too limited and the present form substituted therefor.<sup>64</sup> Judge Clark noted, in the dissent of the *Betty Dain* case<sup>65</sup> that the first draft of the new statute

. . . did carry as a "Reviser's Note" the material, which without change of substance, now appears as the "Reviser's Note" to the present § 1338(b) . . .

Whether the Reviser's Note or its history played any substantial part in the interpretation of the pendent jurisdiction statute does not appear clear. Yet, the *Betty Dain* case marked the last time that the Second Circuit adopted a narrow view of pendent jurisdiction.<sup>66</sup>

#### THE INTERPRETATION OF 28 U. S. C. § 1338(B)

The reactions of the courts to the new statute were initially indecisive, but it soon became established, in at least some of the circuits, that some changes had been wrought. The Second Circuit cases in particular are illustrative of the change. In *Kaplan v. Helenhart Novelty Corp.*,<sup>67</sup> the court held that there was no federal jurisdiction over a claim of common law trademark infringement which was joined with a claim of patent infringement. The court reasoned that the respective rights rested upon different facts necessary to their establishment. The court, however,

<sup>59</sup> Cf. *Collins v. Metro-Goldwyn Pictures Corp.*, 106 F.2d 83, 42 U.S.P.Q. 553 (2d Cir. 1939).

<sup>60</sup> See note 56 *supra*.

<sup>61</sup> Note, 60 HARV. L. REV. 424, 430 (1947).

<sup>62</sup> *Telechron, Inc. v. Parissi*, 197 F.2d 757, 93 U.S.P.Q. 492 (2d Cir. 1952).

<sup>63</sup> Revision of Judicial Code, Preliminary Draft, Oct. 30, 1945 § 1360.

<sup>64</sup> See note 56 *supra*.

<sup>65</sup> *Ibid*.

<sup>66</sup> The very next opinion is *Schreyer v. Casco Products Corp.*, 190 F.2d 921, 90 U.S.P.Q. 271 (2d Cir. 1951).

<sup>67</sup> 182 F.2d 311, 85 U.S.P.Q. 285 (2d Cir. 1950).

did hold federal jurisdiction to exist over a counterclaim of unfair competition based on plaintiff's threatening of the trade with patent infringement suits. *Cutting Room Appliances Corp. v. Empire Cutting Machine Co.*<sup>68</sup> seems to have gone even further toward a broader view of pendent jurisdiction. There, in a patent infringement suit, the defendant's counterclaim was based on allegations that the plaintiff knew it had no valid claim and began the suit only for the purpose of obtaining the right to give notice to defendant's customers and thereby intimidate the defendant. The court held pendent jurisdiction to lie since the statutory relationship is found in the fact that the right of a patent owner to give notice necessarily involves the validity and scope of the patent. The court expressly stated in overruling the *Derman*<sup>69</sup> case that 28 U. S. C. § 1338(b) has changed the previous Second Circuit rule.

The last Second Circuit case to adopt a restrictive view of pendent jurisdiction was *Kleinman v. Betty Dain*<sup>70</sup> where pendent jurisdiction was denied over a claim of breach of contract to pay royalties joined with a patent infringement claim. The court stated three factors in support of its decision as follows: (1) the Supreme Court has not seen fit to review the prior Second Circuit cases, (2) considerations of judicial economy cannot extend federal jurisdiction at the expense of the states and (3) the claim for breach of contract is not "unfair competition" within the meaning of 28 U. S. C. § 1338(b). Judge Clark, in a dissent, minimized the Supreme Court's denials of certiorari and expressed the view that the latter two factors cited by the majority were nullified by a fair construction of 28 U. S. C. § 1338(b).

*Schreyer v. Casco Products Corp.*<sup>71</sup> marks the turning point. There a claim for unfair competition alleging a breach of a confidential relationship (trade secret) was joined with a claim of patent infringement. The court held the patent invalid but affirmed a judgment for the plaintiff on the unfair competition issue. As to the issue of jurisdiction the court held that the unfair competition claim was "related" to the "substantial" patent claim. In distinguishing the *Betty Dain*<sup>72</sup> case, the court commented:

Unlike the situation in *Kleinman v. Betty Dain Creations, Inc.* . . . this dependent cause of action does not sound primarily in contract.

Any doubts as to the status of the *Betty Dain* case were quickly laid to rest in *Telechron, Inc. v. Parissi*,<sup>73</sup> a declaratory judgment action, wherein the plaintiff sought an adjudication of three claims for relief as follows: (1) patent infringement, (2) breach of a confidential relationship, and (3) disclosure of the invention to the plaintiff subject to an understanding, express or implied, that the defendant would be paid therefor. The court noted that claim 2 fell squarely within the *Schreyer*

<sup>68</sup> 186 F.2d 997, 88 U.S.P.Q. 163 (2d Cir. 1951). It is settled that a counterclaim may be pendent to the plaintiff's claim in the same manner as if the subject matter of the counterclaim had been raised by the plaintiff in his complaint.

<sup>69</sup> See note 46 *supra*.

<sup>70</sup> 189 F.2d 546, 89 U.S.P.Q. 404 (2d Cir. 1951).

<sup>71</sup> 190 F.2d 921, 90 U.S.P.Q. 271 (2d Cir. 1951).

<sup>72</sup> See note 56 *supra*.

<sup>73</sup> 197 F.2d 757, 93 U.S.P.Q. 492 (2d Cir. 1952).

decision (implied-in-law contract), while claim 3 fell squarely within the *Betty Dain* decision (consensual undertaking). The court in holding federal jurisdiction to exist over *all three* claims stated:

Whether the obligation is a fictional contract implied in law or a consensual contract not to use confidential information . . . the wrong done is the same, and the claim asserting it would seem as truly a "claim of unfair competition" in the one case as the other. *In our opinion the Betty Dain case was in substance overruled by the Schreyer decision*, since the attempted distinction cannot be logically supported. We follow the latter case and hold that the district court had dependent jurisdiction of both non-patent claims. [emphasis added.]

Thus, the statute has been broadly construed in respect to the term, "unfair competition." The rejection of the *Betty Dain* case and an approval of the *Telechron* case was reiterated in *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*,<sup>74</sup> wherein the court declared:

Thus we are now committed to a broader view of pendent jurisdiction, at least in those cases involving a substantial federal question under the patent, copyright, or trademark laws within 28 U. S. C. § 1338(b).

The reaction of other circuits to the new statute has, like the Second Circuit, generally favored a broader view of pendent jurisdiction.<sup>75</sup> A late decision of the Sixth Circuit<sup>76</sup> has specifically adopted the modern Second Circuit view, thereby impliedly overruling the *French Renovating Co.* decision.<sup>77</sup> The decisions of the Seventh and Eighth Circuits are, however, not in harmony with the other Circuits. *Landstrom v. Thorpe*<sup>78</sup> declared that "related" in 28 U. S. C. § 1338(b) requires substantially identical facts. *Strey v. Devine's, Inc.*<sup>79</sup> applied the reasoning of the *Stark*<sup>80</sup> case to deny a recovery for acts of unfair competition occurring before federal registration of plaintiff's trademark. The court cited the *Landstrom*,<sup>81</sup> *French Renovating Co.*<sup>82</sup> and *Hurn v. Oursler* decisions as supporting their view. The *Strey v. Devine's, Inc.* decision was expressly "disagreed with" in *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*<sup>83</sup> The Seventh Circuit once again, however, adhered to its view in *Powder Power Tool Corp. v. Powder Actuated Tool Co.*,<sup>84</sup> and thus refused to fall in line with the modern Second Circuit view.<sup>85</sup>

<sup>74</sup> 234 F.2d 538, 110 U.S.P.Q. 462 (2d Cir. 1956).

<sup>75</sup> *Judson Dunaway Corp. v. Hygienic Products Co.*, 178 F.2d 461, 84 U.S.P.Q. 31 (1st Cir. 1949); *Carter Products, Inc. v. Colgate-Palmolive Co.*, 130 F. Supp. 557, 104 U.S.P.Q. 314 (D.C. Md. 1955); *Ross-Whitney Corp. v. Smith Kline & French Laboratories*, 207 F.2d 190, 99 U.S.P.Q. 1 (9th Cir. 1953).

<sup>76</sup> *Lyon v. Quality Courts United, Inc.*, 249 F.2d 790, 115 U.S.P.Q. 300 (6th Cir. 1957).

<sup>77</sup> See note 39 *supra*.

<sup>78</sup> 189 F.2d 46, 89 U.S.P.Q. 291 (8th Cir. 1951).

<sup>79</sup> 217 F.2d 187, 103 U.S.P.Q. 289 (7th Cir. 1954).

<sup>80</sup> See note 24 *supra*.

<sup>81</sup> See note 78 *supra*.

<sup>82</sup> See note 39 *supra*. The *French Renovating Co.* decision was impliedly overruled by the *Quality Courts* case, note 76, *supra*.

<sup>83</sup> See note 74 *supra*.

<sup>84</sup> 230 F.2d 490, 108 U.S.P.Q. 155 (7th Cir. 1956).

<sup>85</sup> The law in Canada and England appears to be inclined toward the modern Second Circuit view. To the effect that England permits joinder of related claims see *Nichrotherm Electric Co. v. Percy*, (1957) R. P. C. 206 (statutory copyright infringement and breach of confidential relationship). Canada permits joinder at least in cases of statutory trademark infringement and unfair competition, 26 C. P. R. (Sec. 1) 131 (1957).

There are, however, practical limits to the term "related" as used in 28 U. S. C. § 1338(b). Pendent jurisdiction has been held not to lie in *Hook v. Hook & Ackerman, Inc.*<sup>86</sup> In that case the same stove was involved in both patent and unfair competition claims, but the patent related only to the interior design and construction of the stove; whereas the claim of unfair competition alleged the use of a stove of similar outward appearance. The court stated that the source of unfair competition was completely separable from the patent aspects of the case. In *Dubil v. Rayford Camp & Co.*,<sup>87</sup> a like result was reached where the patent contained only method claims and the claim of unfair competition related to the unpatented article, namely, improper use of plaintiff's California state registered trademark on the unpatented article.

The latter two cases illustrate that the line between federal and state jurisdiction, as drawn by 28 U. S. C. § 1338(b) and the doctrine of pendent jurisdiction, is necessarily a hazy one. The fact remains that the requirement of 28 U. S. C. § 1338(b) that federal and non-federal claims be "related" does not simplify the problem of "line drawing," but does, instead, move the probable area of "line drawing" further into the apparent territory of the state courts.

#### PROBLEMS CREATED BY PENDENT JURISDICTION

Once a federal court has accepted jurisdiction over a pendent claim of unfair competition, the question of applicable law arises. Where federal jurisdiction over the claim of unfair competition exists solely by virtue of diversity of citizenship<sup>88</sup> (and the jurisdictional amount), the doctrine of *Erie R. R. v. Tompkins*<sup>89</sup> would require the federal court in questions of substantive law to apply the law of the state in which it sits including the state's conflict of laws rules.<sup>90</sup> Where federal jurisdiction is, however, based on pendent jurisdiction, a conflict of views has arisen.

During the reign of *Swift v. Tyson*<sup>91</sup> the federal courts were free to develop their own body of federal common law unhampered by state law. In this period the federal courts built up a great body of federal law in the area of unfair competition.<sup>92</sup> All was changed by *Erie R. R. v. Tompkins*. Only the law of one or more of forty-eight sovereignties was applicable. Several writers expressed anxiety over the ramifications of *Erie R. R. v. Tompkins* in the area of unfair competition. Chafee<sup>93</sup> characterized *Erie R. R.* as introducing

... dangers of a checkerboard for unfair trade practices.

<sup>86</sup> 233 F.2d 180, 109 U.S.P.Q. 266 (3d Cir. 1956).

<sup>87</sup> 184 F.2d 899, 87 U.S.P.Q. 143 (9th Cir. 1950).

<sup>88</sup> 28 U. S. C. § 1332 (1952).

<sup>89</sup> 304 U. S. 64 (1938).

<sup>90</sup> *Klaxon Co. v. Stentor Electric Mfg. Co.*, 313 U. S. 487 (1941).

<sup>91</sup> 41 U. S. 1 (1842).

<sup>92</sup> Rogers, *New Concepts of Unfair Competition under the Lanham Act*, 38 TRADEMARK REP. 259, 263 (1948).

<sup>93</sup> Chafee, *Unfair Competition*, 53 HARV. L. REV. 1288, 1289 (1940). The dangers of a checkerboard arise whenever the acts of unfair competition have been committed in more than one state.

Another writer<sup>94</sup> has commented:

The application of different sources of governing law to various issues in the same lawsuit will create endless complications and result in fine-split distinctions that will make those generated by *Swift v. Tyson* look like child's play.

The answer to those who feared "checkerboard practices" was rendered in *Dwin-nel-Wright Co. v. National Fruit Product Co.*<sup>95</sup> wherein state law was applied to a pendent claim of unfair competition as if federal jurisdiction had been based on diversity of citizenship. Judge Wyzanski expressed the belief that a Massachusetts state court would apply only Massachusetts law to a claim of unfair competition regardless of the number of states wherein the acts of unfair competition were committed; and thereby avoid the problems of a checkerboard jurisprudence.<sup>96</sup> *Bulova Watch Co. v. Stolzberg*,<sup>97</sup> a later case from the same district court as the *Dwin-nel-Wright Co.* case, presents the opposite view. The court applied federal common law and refused to follow the *Erie R. R.* doctrine in a case of pendent jurisdiction, because it felt:

... that there is a strong policy in favor of interstate uniformity in the field of unfair competition. There is a dilemma between a checker-board result in the automatic application of *Klaxon Co. v. Stentor Electric Co.*[<sup>98</sup>] . . . to multi-state unfair competition on the one hand, or a return, on the other, to the evils of choice of forum if local law is to govern the interstate as well as local aspects of the tort.

The latter part of the above quotation appears to be the answer to the reasoning of the *Dwin-nel-Wright Co.* case.

A Supreme Court<sup>99</sup> decision in this area merely states the problem. Many other courts, however, have held the *Erie R. R.* doctrine inapplicable to pendent claims<sup>100</sup> and have instead applied federal common law thereto. The Second Circuit appears recently to have adopted the opposite view in *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*<sup>101</sup> There, the court emphasized that the source of the right sued on (common law) and not the ground on which federal jurisdiction is based determines the choice of law.

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Under settled conflict of laws principles, the law of the place of wrong governs in a tort action. Thus, the law of each state wherein each of the specific acts of unfair competition occurred would apply to those specific acts. A similar problem is encountered in connection with the law of libel. Here a "Single Publication Rule" has been proposed to avoid "checkerboard practices."

<sup>94</sup> Zlinkoff, *Erie v. Tompkins: In Relation to the Law of Trade-Marks and Unfair Competition*, 42 COLUM. L. REV. 955, 986 (1942).

<sup>95</sup> 47 F. Supp. 499 (D. C. Mass. 1942); affirmed on other grounds, 140 F.2d 618 (1st Cir. 1944).

<sup>96</sup> In response to Judge Wyzanski's opinion, Zlinkoff (32 T. M. Rep. 131, 132) noted that the court considered the policy of *Erie R. R. v. Tompkins* (avoid discriminatory choice of law because of choice of forum) as outweighing the policy of promoting a uniform law of unfair competition through a single federal law.

<sup>97</sup> 64 F. Supp. 43, 72 U.S.P.Q. 72 (D. C. Mass.), (1947).

<sup>98</sup> See note 90 *supra*.

<sup>99</sup> *Sola Electric Co. v. Jefferson Electric Co.*, 317 U. S. 173 (1942).

<sup>100</sup> E.g., see, *Philco Corp. v. Phillips Mfg. Co.*, 133 F.2d 663, 56 U.S.P.Q. 248 (7th Cir. 1943); *Landstrom v. Thorpe*, note 78, *supra*.

<sup>101</sup> See note 74 *supra*.

The problem of choice of law has been simplified in many cases because the local law of unfair competition either follows federal law<sup>102</sup> or is, when non-existent, presumed to follow federal law.<sup>103</sup> It should not be assumed, however, that the problem of applicable law is thereby rendered academic even where state and federal law are identical. Illustrative of the foregoing point is *Lyon v. Quality Courts United, Inc.*<sup>104</sup> wherein federal jurisdiction of the claim of unfair competition had been invoked under both the pendent jurisdiction and diversity of citizenship statutes. The defendant had argued that since plaintiff was barred from the Ohio state courts (failed to obtain a license), it was barred from the Ohio federal courts under the doctrine of *Wood v. Interstate Realty Co.*, 337 U. S. 535 (1949) (an application of the policy of *Erie R. R. v. Tompkins*). The court in denying the defendant's motion, conceded *pro tanto* the merits of his argument, but noted that since federal jurisdiction also rested on 28 U. S. C. § 1338(b), it was functioning as a national court to enforce a substantive right created by Congress. Thus, limitations imposed by Ohio on its courts would be irrelevant.

The problem of applicable law to claims of unfair competition, whether classified as pendent or otherwise, has been rendered academic in the Ninth Circuit. In that circuit it has been held that Sections 44 and 45<sup>105</sup> of the Lanham Act<sup>106</sup> have created a federal law of unfair competition.<sup>107</sup> The Supreme Court<sup>108</sup> has recognized that there are controversial aspects of the Lanham Act in the *Stauffer v. Exley*<sup>109</sup> line of cases, but thus far has not passed on these questions.

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<sup>102</sup> *Hansen v. Triangle Publications, Inc.*, 163 F.2d 74, 74 U.S.P.Q. 280 (8th Cir. 1947); *Franke v. Wiltchek*, 209 F.2d 493, 99 U.S.P.Q. 431 (2d Cir. 1953).

<sup>103</sup> *International Industries v. Warren Petroleum Corp.*, 248 F.2d 696, 115 U.S.P.Q. 104 (3d Cir. 1957).

<sup>104</sup> See note 76 *supra*. See also, *Harms, Inc. v. Tops Music Enterprises, Inc.*, 117 U.S.P.Q. 73 (D.C.S.D. Cal. 1958).

<sup>105</sup> "Sec. 39. The district . . . courts of the United States shall have original jurisdiction . . . of all actions arising under this Act without regard to the amount in controversy or to diversity or lack of diversity of the citizenship of the parties.

Section 44 . . . (b) Persons who are nationals of . . . any foreign country which is a party to . . . (certain treaties) . . . shall be entitled to the benefits of this Act . . . (g) Trade names or commercial names of persons described in paragraph (b) of this section shall be protected without the obligation of filing or registration whether or not they form parts of marks . . . (h) Any person designated in paragraph (b) of this section is entitled to the benefits . . . of this Act shall be entitled to receive effective protection against unfair competition and the remedies provided herein for infringement of marks shall be available so far as they may be appropriate in repressing acts of unfair competition . . . (i) Citizens or residents of the United States shall have the same benefits as are granted by this section to persons described in paragraph (b) hereof."

<sup>106</sup> 60 STAT. 441, 15 U. S. C. §§ 1051-1127 (1952).

<sup>107</sup> *Stauffer v. Exley*, 87 U.S.P.Q. 41 (9th Cir. 1950); *Pagliero v. Wallace China Co.*, 95 U.S.P.Q. 45 (9th Cir. 1952). But see *Ramirez & Feraud Chili Co. v. Las Palmas Food Co.*, 111 U.S.P.Q. 296 (D.C.S.D. Cal. 1956), *affirmed per curiam*, 245 F.2d 875 (9th Cir. 1957), to the effect that the Lanham Act has created federal jurisdiction only over unfair competition related to federal trademarks, and trade and commercial names. Also in agreement with the *Ramirez* case is *In re Lyndale Farm*, 88 U.S.P.Q. 377 (C.C.P.A. 1951); *Contra to Stauffer v. Exley* are: *The American Automobile Association v. Spiegel*, 98 U.S.P.Q. 1 (2d Cir. 1953); *L'Aiglon Apparel, Inc. v. Lana Lobell, Inc.*, 102 U.S.P.Q. 94 (3rd Cir. 1954); *Royal Lace Paper Works, Inc. v. Pest-Guard Products, Inc.* 112 U.S.P.Q. 154 (5th Cir. 1957); *City Messenger of Hollywood, Inc. v. City Bonded Messenger Service, Inc.*, 116 U.S.P.Q. 75 (7th Cir. 1958). The Eighth and Sixth Circuits declined to pass on *Stauffer v. Exley* in *Iowa Farmers Union v. Farmer's Education Union*, 114 U.S.P.Q. 382 (8th Cir. 1957) and *Lyon v. Quality Courts United, Inc.*, 115 U.S.P.Q. 300 (6th Cir. 1957).

<sup>108</sup> *Steele v. Bulova Watch Co.*, 344 U. S. 280, 283 n. 6 (1952).

<sup>109</sup> See note 107 *supra*.

There is, however, agreement that Sections 39<sup>110</sup> and 43(a)<sup>111</sup> of the Lanham Act create a federal law of unfair competition in respect to false designation of origin of goods or services.<sup>112</sup> Thus, where the foregoing type of unfair practice is involved, there is no problem of choice of law although it should be remembered that the Lanham Act applies only to acts which affect "commerce."<sup>113</sup> However, "commerce" as used in the Lanham Act is of the broadest scope which Congress can lawfully regulate,<sup>114</sup> and thus includes many substantial intrastate activities.

It has been assumed thus far that a plaintiff is usually desirous of having a federal court decide the unfair competition aspect of his case. While a plaintiff is, of course, free to exploit the benefits of the pendent jurisdiction statute, he is not necessarily required to do so. Where diversity of citizenship or the jurisdictional amount is lacking,<sup>115</sup> a plaintiff as a matter of right may under certain circumstances elect to waive the benefits of 28 U. S. C. § 1338(b) and litigate the pendent claim of unfair competition in a state court.<sup>116</sup> Principles of collateral estoppel should, however, be considered.<sup>117</sup>

The state court will generally apply its own law of unfair competition (including its conflict of laws rules), but will resort to federal decisions<sup>118</sup> where its law, because of *Swift v. Tyson*<sup>119</sup> is outmoded or non-existent. It should be recognized that the mere fact that the state court may have to pass on questions related to the federal patent, trademark, or copyright laws will not oust state jurisdiction.<sup>120</sup> A state court is empowered to determine "questions as distinguished from cases" arising under the federal patent laws,<sup>121</sup> to try questions of title to patents and in connection therewith even to determine in a proper case the validity of patents.<sup>122</sup> Moreover, the conclusive effect<sup>123</sup> between the parties (collateral estoppel) as to questions determined by the state court is not limited to state courts, but will even be given effect in the federal courts.<sup>124</sup>

<sup>110</sup> See note 105 *supra*.

<sup>111</sup> "Any person who shall . . . use in connection with any goods or services . . . a false designation of origin . . . and shall cause such goods or services to enter into commerce . . . shall be liable to a civil action . . ."

<sup>112</sup> *L'Aiglon Apparel, Inc. v. Lana Lobell, Inc.*, see note 107 *supra*; *Maternally Yours, Inc. v. Your Maternity Shop, Inc.*, see note 74 *supra* (concurring opinion).

<sup>113</sup> 60 STAT. 441 § 32(1), 15 U. S. C. § 1114 (1952).

<sup>114</sup> 60 STAT. 441 § 45, 15 U. S. C. § 1127 (1952).

<sup>115</sup> Note that 28 U. S. C. § 1332 as amended by P. L. 85-554, see note 9 *supra*, requires \$10,000 to be in controversy.

<sup>116</sup> *Hyde Corp. v. Huffine*, 117 U.S.P.Q. 44 (Texas S. Ct. 1958).

<sup>117</sup> *Vanderveer v. Erie Malleable Iron Co.*, 238 F.2d 510, 111 U.S.P.Q. 292 (3d Cir. 1956). The doctrine of collateral estoppel is derived from the broader doctrine of *res judicata*. This doctrine provides that a court's findings are conclusive on the parties who litigated the issue before it. The court must have had jurisdiction, and the court's findings must have been necessary to its decision. The doctrine of collateral estoppel is widely used where a second suit between the same parties, arising from the same transactions or factual setting as the former suit, is brought in a foreign court (a court of a different state or a different level of government).

<sup>118</sup> *Goebel Brewing Co. v. Esslingers, Inc.*, 97 U.S.P.Q. 491 (Pa. S. Ct. 1953).

<sup>119</sup> See note 91 *supra*.

<sup>120</sup> *Luckett v. Delpark, Inc.*, 270 U. S. 496, 502 (1925) (suit for royalties).

<sup>121</sup> *A fortiori*, there is a like power with respect to the federal trademark and copyright laws.

<sup>122</sup> *Vanderveer v. Erie Malleable Iron Co.*, see note 117 *supra*.

<sup>123</sup> *Harnischfeger Sales Corp. v. Sternberg Dredging Co.*, 189 Miss. 73, 191 So. 94 (1939).

<sup>124</sup> *Vanderveer v. Erie Malleable Iron Co.*, see note 117 *supra*.



## RÉSUMÉ

An action based on a "case arising" under the patent, trademark, or copyright laws usually must be brought in the federal courts. During the course of passing on the merits of the federal claim, it often becomes apparent that the same acts or course of dealing which gave rise to the federal claim may also constitute unfair competition, a non-federal claim based on common law principles. Thus a substantial amount of the testimony relevant to the federal claim will also be relevant to the non-federal claim; and with just a bit of additional effort, the federal court will be able to pronounce judgment on the claim of unfair competition and thereby settle all areas of dispute between the parties. This is the principle of pendent jurisdiction whereby a federal court will pass on issues which are apparently within the province of a state court because the non-federal issues bear a close relationship to the federal issues. If the principle of pendent jurisdiction were non-existent, the parties would be forced to go to an appropriate state court where they would be required to present a great deal of the same evidence and arguments as were previously before the federal court. Thus, a saving of great time and expense to the parties is effected when "piecemeal" litigation is avoided. Moreover, the burden of the state courts is thereby lightened.

The statutory authority in this area, 28 U. S. C. § 1338(b) was enacted in 1948. Under 28 U. S. C. § 1338(b) an independent ground of federal jurisdiction exists over a "pendent" claim of unfair competition which is "related" to a "substantial" claim for relief under the patent, trademark or copyright laws. The presently accepted test of "related" in the majority of the circuits turns on whether federal and non-federal claims arise from the same acts, transactions or course of dealings between the parties. Identical facts to support federal and non-federal claims are not needed.

Prior to the enactment of 28 U. S. C. § 1338(b), the basic authority in this area was *Hurn v. Oursler*, a Supreme Court decision which withheld federal jurisdiction from a claim of unfair competition which could be considered a cause of action distinct from the cause of action arising under the patent, trademark or copyright laws. The *Hurn v. Oursler* decision is often considered a liberal one in that it overruled a then existing view that there was absolutely no pendent jurisdiction over claims of unfair competition. Nevertheless, the lower courts' restrictive interpretation of *Hurn v. Oursler* eventually led to the enactment of 28 U. S. C. § 1338(b).

As to applicable law, there is a division of authority as to which law, state or federal, applies to pendent claims of unfair competition. The problem is heightened by the fact that state law must be applied to claims of unfair competition under *Erie R. R. v. Tompkins* where federal jurisdiction is invoked under the diversity of citizenship statute. A strong desire to avoid the calamity of applying the law of several states (checkerboard practices) to a single course of dealing between the parties, has prompted many courts to apply federal law to claims of unfair competition even though such a policy may make choice of law dependent

on the accident of citizenship (the practice which *Erie R. R. v. Tompkins* sought to curb).

#### CONCLUSION

The present majority view of federal jurisdiction over pendent claims of unfair competition is, indeed, a victory for substance over form. All points of contention between the parties may be settled in a single action thereby effecting a great judicial economy through a saving of the parties' time and money. The doctrine of pendent jurisdiction does not, however, infringe the proper areas of a state court's jurisdiction. First, the doctrine, in regard to claims of unfair competition, is expressly sanctioned in 28 U. S. C. § 1338(b). Moreover, the settled principles of federal jurisdiction as announced in *Osburn v. U. S. Bank* do not limit a federal court's jurisdiction to purely federal issues. Secondly, where the requisites of pendent jurisdiction exist, the unfair competition action, if litigated in the state court, would be but a hollow echo of the prior federal proceedings. This is so because much of the testimony and argument heard in the federal court would be relevant to the unfair competition claim. Under such circumstances, the doctrine of collateral estoppel would seem to be applicable, and thus the federal court's prior findings would be, in general, conclusive in the state court action. Hence, the state court's function would be essentially that of applying the law to any issues not passed on by the federal court. Thus, it would seem that under conditions of pendent jurisdiction, the federal courts are in an excellent position efficiently to dispose of the related non-federal issue of unfair competition by merely applying the law thereto.

As to questions of applicable law, unfortunate inconsistencies exist. The application of federal law to a pendent claim of unfair competition and the application of state law to the very same claim of unfair competition where federal jurisdiction is instead based on diversity of citizenship presents an anomaly. However, the extension of the *Erie R. R. v. Tompkins* doctrine to pendent claims of unfair competition would but further extend the "checkerboard" practices which have been so widely criticized. Nevertheless, under the existing state of the law, a plaintiff may regulate the choice of law (state or federal) through his choice of a defendant possessing an appropriate citizenship, that is, select a defendant of a different citizenship where the application of *Erie R. R. v. Tompkins* is desired.

It would seem that a federal law of unfair competition, enacted by Congress, would be a method of attaining uniformity in the adjudication of unfair competition claims without incurring the dilemma of "checkerboard" practices. The importance of local customs or practices in determining whether a particular act constitutes unfair competition should not be overlooked. Such customs or practices certainly should be expressly provided for in order that the new law may possess a desirable flexibility. Until the time of the enactment of a uniform law of unfair competition, however, the present view of pendent jurisdiction coupled with the application of federal law thereto would seem to furnish the best hope of certainty to the commercial world.

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- Cruden, J. C. "Negotiated Final Overhead Rates—Research and Development Contracts."
- Cooper, J. C. "Flightspace and the Satellites."
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- "Restrictive Trade Practices Act, 1956," *Journal of the Law Society of Scotland*, 3, (Fall 1958), 36.
- Riosenfeld, S. A. "Patent Protection and Atomic Energy Legislation," *California Law Review*, 46, (March 1958), 40.
- Ringer, B. A. "Canadian Royal Commission's Report on Copyright," *Bulletin of the Copyright Society of the U.S.A.*, 5, (April 1956), 217.
- "Robinson-Patman Act—Advertising in a Magazine Published by a Wholly Owned Subsidiary of One Buyer Without Affording a Similar Benefit to Competing Buyers [State Wholesale Grocers v. Great A. & P. Tea Co. 154 F. Supp. 471]," *Vanderbilt Law Review* 11, (March 1958), 624.
- Sargoy, E. A. "Entry into Effect in 1955 of the Universal Copyright Convention: A National Report for the U.S.A.," *Bulletin of the Copyright Society of the U.S.A.*, 5, (April 1958), 177.
- Schmidt, J. F. "Is Your Client an Inventor?" *Illinois Bar Journal*, 46, (May 1958), 732.

*Scientific American*, 199, No. 3 (Sept. 1958).

The entire issue is devoted to innovation in science and contains the following articles:

Bronowski, J., "The Creative Process"—An introduction to an issue wholly devoted to the topic of innovation in science.

Halmos, Paul R., "Innovation in Mathematics"—The mathematician seeks new mathematical facts, new proofs or new syntheses.

Dyson, Freeman J., "Innovation in Physics"—The physicist applies the facts of mathematics to the facts of observed reality.

Wald, George, "Innovation in Biology"—The biologist awaits physical sciences that can cope with the phenomena of life.

Pierce, John R., "Innovation in Technology"—A technological innovation utilizes our knowledge of nature to control nature.

Eccles, John C., "The Physiology of Imagination"—What do we presently know of the physical process that underlies creativity?

Barron, Frank, "The Psychology of Imagination"—An account of an investigation into the characteristics of creative individuals.

Weaver, Warren, "The Encouragement of Science"—How may we provide the conditions in which scientific innovation can flourish?

Silverman, H. T. "Authors' and Performers' Rights," *Law & Contemporary Problems*, 23, (Winter 1958), 125.

"Symposium on Trade Regulation and Practices," *Vanderbilt Law Review*, 11, (March 1958), 271.

Kronstein, H. "'Cartels' Under the New German Cartel Statute."

Marcus, P. "The Impact on Business of Antitrust Decrees."

Markham, J. W. "A Note on Concentration Studies and Antitrust Policy."

Mund, V. A. "Refusal to Sell."

Kemker, H. "The Legality of Trade Association Statistical Reporting Under the Antitrust Laws."

Hart, J. A. "Du Pont-General Motors Case."

Patman, W. "For H. R. 11 and S. 11 to Strengthen the Robinson-Patman Act and Amend the Antitrust Law Prohibiting Price Discrimination."

Fisher, W. H. III, "Sections 2(D) and (E) of the Robinson-Patman Act: Babel Revisited."

Sell, W. E. "The Doctrine of Misappropriation in Unfair Competition."

Elman, L. S. "The Limits of State Jurisdiction in Affording Common Law Protection to Clothing Designs."

Callmann, R., "Worldmarks and the Antitrust Law."

Fulda, C. H. "Competition Versus Regulation: The Agricultural Exemption in the Motor Carrier Act."

Baker, J. "Trading Stamps."

Solow, Robert M. "Technical Change and the Aggregate Production Function," *The Review of Economics and Statistics*, 39, No. 3 (August 1957), 312-320.

Among the conclusions which emerge is that from 1909 to 1949, the gross output per man hour in the United States doubled, with 87½% of the increase attributable to technical change.

Taubman. "Performing Arts and the Anti-Trust Laws," *Cornell Law Quarterly*, 43, (Spring 1958), 423.

"Tax Consequences of the Sale of a Patent," *Buffalo Law Review*, 7, (Spring 1958), 504.

TeSelle, T. "Authorization or Consent to Infringe Patents in Production for the Government," *George Washington Law Review*, 26, (April 1958), 583.

"Trademark Proceedings in Foreign Countries: A Symposium," *Trademark Reporter*, 48, (May 1958), 549.

Landau, M. St. "Contested Proceedings in Europe."

Pearson, C. D. "Trademark Oppositions in the Countries of Latin America."

Waters, E. "Trade Oppositions in the Far East, Asia, Near East and Africa."

"Unfair Competition—Sales of Goods Bearing Trade Mark Brand at Less than Stipulated Price—Sales from Free Trade Area into Fair Trade Area not Subject to State Fair Trade Act [General Electric Co. v. Masters Mail Order Co. 244 F.2d 681] *North Dakota Law Review*, 34, (April 1958), 179.

Wilberforce, R. O. "Restrictive Trade Practices in the European Common Market," 1958 *Journal of Business Law*, (April 1958), 120.



## Annotated Bibliography of Student Papers\*

**Bosben, Donald D.** "Analysis of the License Contract in a Foreign Licensing Agreement." 17 pp.

Some considerations involved in drawing a foreign licensing contract, and some legal aspects of a sample provision.

**Briody, Thomas A.** "Compulsory Royalty-Free Licensing as a Form of Relief in Litigated Antitrust Patent Misuse Cases." 23 pp.

Consideration of certain leading patent antitrust cases, particularly those which were litigated and decreed or discussed compulsory royalty-free licensing as a form of relief. *United States v. National Lead Co.*, 332 U.S. 319 (1947). *Hartford-Empire Co. v. United States*, 323 U.S. 386, 417 (1945). *United States v. Imperial Chemical Industries, Ltd.*, 105 F. Supp. 215, 225 S.D.N.Y. (1952) (decree) implementing 100 F. Supp. 504 (1951). *United States v. General Electric Co.*, 115 F. Supp. 835 (D.N.J. 1953) (decree) implementing 82 F. Supp. 753 (D.N.J. 1949).

**Burgess, Harry C.** "Compulsory Licensing and Inventions Conceived During Contracts with the AEC: Probable Changes in the Atomic Energy Act of 1954." 20 pp.

Industry reaction to AEC Act of 1954, particularly Sections 152 and 153; includes proposals for modifying these two sections.

**Cass, Nathan.** "Defensive Patenting and the Patent Office Backlog." 15 pp.

Primarily an examination of the proposals for eliminating defensive patent applications.

**Childress, George Herman.** "Some Accounting Aspects of the Measure of Damages in Patent Cases." 13 pp.

Consideration of some of the criteria used by the courts in determining the measure of damages in patent cases.

**Daniels, Edward Kent, Jr.** "A Trade Secret—The Alternative to a Patent." 16 pp.

Consideration of the legal theories advanced by the courts as grounds for protecting trade secrets and the practical problems involved in dealing with trade secrets.

**DiLorenzo, Jack T.** "Government Policies with Respect to Acquisition and Administration of Patents." 29 pp.

An inquiry into the patent rights of the Government to inventions of its employees and contractors, including considerations of present Government policy.

**Edwards, Jack W.** "Has the Corporate Inventor Superseded the Garret Inventor?" 16 pp.

Consideration of some recent surveys of the sources of invention and certain aspects of the legal, social, and economic problems involved in corporate and individual invention.

**Fey, Albert E.** "Per Se Violations and the Patent License." 10 pp.

Review of recent decisions involving patent licenses with respect to per se violations of the antitrust laws.

**Glickert, Peter.** "The Twilight of 'Scientific Sampling' in Trademark Litigation." 17 pp.

Brief discussion of the issues involved in trademark infringement, and the use of consumer opinion surveys and evidence of actual consumer behavior in trademark cases.

**Gordon, Hugh L.** "Patent Misuse or Contributory Infringement: Confusion v. Clarity." 10 pp.

Review of certain cases involving contributory infringement which have been affected by 35 U.S.C. 271(C) and decisions such as *Mercoid*.

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\* The following annotations refer to student papers selected from the Foundation's seminar and lecture series on the patent, trademark, copyright and related systems, established jointly with The George Washington University Law School. These papers, though not ready for publication, are believed to contain useful information and are available for examination in The Patent, Trademark, and Copyright Foundation's library. The Foundation invites educational and research institutions to submit informative student papers on the patent, trademark, copyright and related systems to be considered for annotation in this section.

Hamon, William J. "Prior Secret Knowledge by the Government as Anticipation of a Patent." 7 pp.

Consideration of whether knowledge or use, restricted from dissemination by governmental secrecy orders, constitutes prior art.

Klaas, Bruce G. "Defensive Patenting: No Remedy, None Needed, None Wanted." 12 pp.

Investigation of certain phases of "defensive" patenting with arguments in support of the practice and against employing a substitute therefore.

Lesmes, George F. "Certain Aspects of Patent Problems in the Synthetic Rubber Industry." 9 pp.

Consideration of certain problems synthetic rubber industry has encountered, particularly since disposal of plants to private industry.

Levin, Burton E. "Patent Antitrust Remedies and the Norms of the Patent Laws." 10 pp.

Discussion of the legal conflict between the patent right and the relief granted by the courts in antitrust cases involving patents with some consideration of the effectiveness of such relief.

Litman, M. A. "Patents and Non-Profit Research Organizations." 15 pp.

Discussion of the patent problems of different types of non-profit research organizations, with some consideration of their reasons for obtaining patent protection and the means they employ to do so.

Loo, George W. T. "Analysis of the *Timken* Case." 22 pp.

Review of the *Timken* case, *United States v. Timken Roller Bearing Co.*, 83 F. Supp. 284

(N.D. Ohio 1949), *aff'd* 341 U. S. 593, 71 S. C. 971, 95 L. E. 1199 (1951), and the law before and after the case with respect to 1. Extraterritorial Jurisdiction of the Sherman Act, 2. Licensing of Patents and Trademarks, 3. Intraenterprise Conspiracy, 4. Joint Venture, and 5. Rule of Reason.

McKeever, James J. "An Analysis of the Problem of Cost and Return in Research and Development in Government Contracting." 22 pp.

Consideration of the costs and returns in research and development work done by private industry under Government contracts, particularly the present policy followed by Government agencies with respect to patents resulting from such contracts.

Milliken, Rankin A. "Skill of the Art—What Is It?" 15 pp.

Consideration of the possibility of defining "ordinary skill in the art" so as to increase the uniformity and predictability of decisions on patentability.

Peter, Robert C. "An Analysis of Internal Industrial Patent Policies with Respect to Their Effect on 'The Progress of the Useful Arts.'" 24 pp.

Inquiry into the effect of corporate patent policy, particularly as reflected in employment agreements on the quality of invention from industrial sources.

Rabkin, Richard M. "Statistical Study of the Litigation History of United States Patents which Issued in 1940." 18 pp.

Survey of litigated patents issued in 1940 to determine primarily the period of peak litigation activity with respect to assigned and unassigned patents.

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## NOTES

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### Educational Program for Young People

The Foundation has recently inaugurated a program of educational activities devoted to improving the knowledge of young people with respect to the patent and related systems. This educational program was motivated by the Foundation's study of the "Public Attitudes Toward Patents, Trademarks, and Copyrights,"<sup>1</sup> conducted by Professor James N. Mosel. The study revealed a great lack of understanding by the public of what the patent system is, how it functions, and what its problems are.

The program has special timeliness in view of the international climate and the increase in the number of people who must now have contact with the patent system at a younger age. The program would be an educational service for citizenship.

The Foundation's Area Committees have been asked to draw up and assem-

ble model materials on a decentralized basis. National kits may be developed in the future. Specifically, each Committee has been asked to draft a manual for high school and college students suitable for the geographic area in which it is located. This curricular material will be beamed to students both with and without scientific preparation and deal with the purposes, procedures, and problems of the patent system.

It is planned that the Committees will confer with school authorities on how best to use the material locally, perhaps in civics courses, survey courses, or courses in engineering and science. This information on the patent system might, for instance, serve as an example of the mechanics of government in a specific field. We plan to publish Committee reports in a section of the *Journal* devoted to educational activities.

### Ornamental Design Survey

The Patent Committee of the National Association of Manufacturers recently conducted a poll to obtain industry opinions as to whether a copyright type of protection should be provided for ornamental design of useful articles. To this end a questionnaire

was distributed to members of NAM's Patents Committee and through National Industrial Council channels. To help crystallize the questions involved, a summary of the Willis Bill, H.R. 8873 pending in Congress, was included with the questionnaire.

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<sup>1</sup> See pp. 319-339, *supra*.

## Sixth Report

The Sixth Report to Members of the Foundation has recently been distributed. This report provides the membership a closer look at Foundation development and includes pictures of Foundation people, events, and docu-

ments. Copies are available for distribution to individuals or organizations interested in applying for Foundation membership and will be mailed upon request.

## Corporate Annual Reports As Sources of Patent Information

IRVING H. SIEGEL\*

The purpose of this note is to suggest that manufacturing corporations would find it advantageous to give greater explicit attention to patents in their annual reports to stockholders. Economists and others who wish to study the patent system clinically and to provide a firmer factual foundation for opinions and judgments concerning it naturally seek additional sources and channels of primary data. Since the techniques of personal interview and mail questionnaire are costly and the funds available for such direct surveys are necessarily limited, researchers particularly welcome systematic voluntary contributions of basic information by those who possess it.

Companies are key institutions in our productive system, and they are also in the best position to describe the role of patents in their own history, current operations, and outlook. Accordingly, they are the principal sources of data for surveys originated by others; and they have a unique opportunity to disseminate under their

own auspices information that would be useful to students and interesting and educational to the public in general.

Even now corporations occasionally include significant information on their activities, programs, and policies relating to patents. For this reason, the Foundation has already taken steps to build up a file of company reports in its new library. Many companies, of course, have no patent story to tell. But, what is of more interest to students, many others engage in patent-oriented research, were founded on the basis of licensed or purchased patents, or invest funds in patent acquisition; and, for these companies, patents have a real meaning.

Two recent company reports may be cited to illustrate the point just made. In 1957 a leading pharmaceutical company noted that its "patents, goodwill, and trademarks" account includes the unamortized balance (over \$900,000) of the cost of a patent bought in 1956. In the 1957 report of

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\* Dr. Siegel is a member of the Research Staff.

a plywood firm, the president observed that, despite the adverse economic setting, expenses were not cut: "We found it absolutely necessary to spend in order to obtain one patent and process other patents, advertise and introduce our processes and products." He added that the program "has paid off" and that "the future financial success of the corporation depends upon the management's ability to exploit the patent that has been obtained and other patents that are being processed."

But the principal theme of this note is that, in the main, companies have not yet recognized that their patent stories can be interesting and instructive to shareholders and the public at large; and that the companies may even gain prestige from telling these stories. It is obvious that patents are widely considered to be newsworthy. New patents are reported regularly, for example, in such newspapers as the *New York Times* and such trade journals as *Paper Industry*. It is well known that the average American has traditionally found new technology a fascinating subject and that he likes to read today about the materials, processes, and products of the world of tomorrow.

Two recent reports illustrate how companies have taken special advantage of their annual reports as a vehicle for patent information. In the first

report issued under its new name, Chemetron Corporation (formerly National Cylinder Gas Company) in 1957 told "how it started, how it grew, and what it is today." It included references to patents in its story of past development and it also mentioned such items of present and future significance as the acquisition of "exclusive U.S. manufacturing rights to an automatic Swiss rail welder" that will take the "clickety-clack" out of rail travel and reduce maintenance costs; and the possession of "more than 25 patents in gun perforations, radiation logging and electrical logging" (oil and gas well services). Even more striking is the annual report of General Electric Company, which is sent regularly to economists and is offered free for use in teaching and similar purposes. The 1957 report tells of new products for consumer and industry, of the company's military and civilian research efforts, and of a major change in the 1932 patent licensing agreements with Radio Corporation of America. It also offers this impressive resume of the company's patent position:

A significant measure of the values derived from research is the 705 patents issued and 961 applied for in 1957. The total of 30,280 patents issued to General Electric since its incorporation in 1892 is the highest number in industry. Of the company's 11,451 unexpired patents, 7,799 are available for licensing, and the 18,829 expired patents are, of course, available without license. . . .

## Case History

In the June 1958 issue of the *Journal*, readers were asked to send in or encourage their associates to submit case histories of recently patented inventions for consideration for publication in the *Journal*. The following case history received from Mr. Rabinow is the first one of these to be published. We invite our readers to continue to send in case histories.

July 2, 1958

Mr. John C. Green  
Chief, Office of Technical Services  
Department of Commerce  
Washington 25, D.C.

Dear John:

During the Patent Foundation Meeting I told you the story about the way I designed a gadget that would tell a user whether his phone has rung or not in his absence. You wanted me to write the thing up as a case history of a minor invention, so here goes.

My patent attorney and I were driving home from Cleveland one day and were discussing the telephone answering service to which he subscribes. He asked whether I could design for him a device that would tell him, whenever he returns to his office, whether the phone has rung or not in his absence. The way the system he had worked was that he had to call the answering service every time he returned to his office. Most of the time there had been no calls and he just wasted his time and the time of the answering service operator; or when he failed to call, there was an important message waiting. These calls also cost money.

My answer was that this was easily solved. One could certainly take a microphone and an audio amplifier, feed the output into a locking relay that would turn on a light whenever

the audio output reached a predetermined level. The microphone would, of course, be placed very close to the telephone. My attorney thought that this was too much equipment. He said that he could build that sort of gadget without me. He wanted an elegant design. Now I had to work. After a little thought, I remembered a toy which I had seen just after I came to the United States in 1921. The toy consisted of a small paper dog house into which one pushed a celluloid dog. At a loud command or a clapping of hands the dog would bounce out of its house. I remembered the details very vividly. The back of the dog house acted as an acoustic diaphragm. There were two light electrical contacts attached to this paper back. Against these contacts loosely hung a shorting bar which closed an electrical circuit. An electromagnet was energized by this current and the whole thing was cocked by pushing the dog into his house. At the presence of a loud noise, the diaphragm vibrated, the contacts bounced away from the shorting bar, the electromagnet was released and its armature ejected the dog.

This was all I needed to build the telephone gadget. I threw together a simple circuit using this loose contact principle but instead of an electromagnet, I used a neon light to indicate the making and breaking of the con-

tact. A neon light has the interesting property that once triggered by a higher voltage it stays lit at a much lower voltage. This means that by setting the voltage between these two values, the light can be kept off until the voltage is instantly raised, after which time the neon light will stay lit. My attorney made himself a nice looking box for the electrical parts. This he placed under the phone. As soon as the model was completed I had a call from my friend who began to needle me about an obvious deficiency of the invention. He couldn't touch the desk, he couldn't close a drawer, he couldn't even talk loudly in the room without tripping the device. I incorporated a time delay into the circuit and then rearranged the sensitivity in such a way that it now takes a sound of at least two seconds duration before the neon light is triggered.

We applied for a patent on it and patent No. 2,813,154 has been issued to me.

The thing that is most interesting about this device is that it illustrates quite graphically how an invention is made and something about the working of the human mind if you will forgive this expression. The thing that is interesting is that I thought of the dog over 30 years after I had seen it and, to the best of my knowledge I had never thought of the toy in the interim period. One could conceive of a human memory where things were classified by subject such as "sound," "alarm," "electromagnetic," "toy" and so on. This cannot possibly be. When I saw the dog I spoke only Russian and I cannot even remember the Russian words that could describe the toy now. One would have to say then, that the

memory not only has a built-in index file but also an automatic translator that translates this file at all times. This, to me, is nonsense. I certainly would not have looked under "toy" to solve my attorney's problem.

What apparently happens is that the brain, when groping for a solution, looks through its whole past history and recognizes pictures, sequence of events, general configurations, words, smells, sounds, and, in fact, anything of which we can be conscious. As Bill Shockley has pointed out in his article, "On the Statistics of Individual Variations of Productivity in Research Laboratories" in the March 1957 issue of *Proceedings of the IRE*, some people have a facility for bringing together more pertinent facts than others. Apparently I am one of the lucky ones who can remember these details, and pull them out of a storage which was loaded when I had no idea that the information would ever be useful in the future.

I particularly like the story of this minor gadget because it illustrates the many factors involved in an invention and because it happens that I was quite conscious of the whole process as it was occurring. There are other such stories that I could tell which have other interesting aspects, such as the story of the de-blurrier, the magnetic fluid clutch, the watch regulator, the headlight dimmer, and the safety devices used in guided missiles. I could give you some of the stories in this letter and while I don't mind boring you, I don't think it is worth doing unless you really want me to.

Yours truly,  
Jacob Rabinow





# Patents and Other Factors in the Operations and Prospects of Nonintegrated Aluminum Processors\*

MARSHALL C. HOWARD, Research Associate

## SUMMARY

THIS REPORT IS THE RESULT OF INFORMATION obtained through field and telephone interviews, correspondence, a review of trade literature and Congressional hearings and reports, and the use of a questionnaire sent to firms in a small but thoroughly followed-up stratified sample.<sup>1</sup>

The independent firm which has been isolated for study is best designated as the nonintegrated processor. Such firms are not concerned with production of basic aluminum from bauxite, and they may not be concerned with fabrication of finished products. They constitute a middle, heterogeneous stage, where scrap is recovered and processed or basic shapes are formed from ingots by extruding, rolling, drawing, forging, casting, or atomizing operations.

The study shows that:

1. Most formal research programs are devoted to aluminum alloys and its uses and are conducted primarily by the primary producers and the large users.
2. The nonintegrated processor is largely concerned with perfecting his processing know-how.
3. Sufficient alternative methods are available so that patents are not a controlling factor in processing operations.
4. Patents on processing equipment do not act to restrict the purchaser of the equipment, which in many cases may be used to process other metals as well.
5. The principal factors in the entry and successful growth of the nonintegrated processor are good salesmanship, quality products, competence in his field of endeavor, and adequate money capital.

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\*Dr. Howard, Associate Professor of Economics at the University of Massachusetts, prepared this research report on a case study designed and conducted by him under the general direction of Dr. Irving H. Siegel, Principal Consultant for *Project 3a, Role of Patents on the Creation and Growth of Small Industrial Units*.

<sup>1</sup>Among the persons in the industry to whom the author is indebted for their contributions to his understanding, special mention must be made of Mr. Phillip Lemelman of Boston and to Mr. Norman S. Tarlin of Trim Alloys, Inc., also of Boston. Any errors herein are, of course, the full responsibility of the author.

## STRUCTURE OF THE INDUSTRY

*Primary Production*

PRIMARY PRODUCTION INVOLVES processing bauxite, the basic ore, first into alumina, a fine powder, and then, by electrolytic reduction, into pig aluminum. The pig may then be alloyed and formed into ingots suitable for further working.

The production of primary aluminum in the United States is no longer a monopoly of the Aluminum Company of America (Alcoa) as it was in the prewar years. Disposal after the war of government-constructed aluminum plants, together with a turnover or licensing of patents to the new owners, aided the growth of two large newcomers. As a result, in the United States today primary ingot capacity is dominated by three firms: Alcoa, with 41.4% of capacity; Kaiser Aluminum and Chemical Corporation, with 28.0%; and Reynolds Metals Company, with 27.5%.<sup>2</sup>

Three other firms have recently entered or are entering primary production. Anaconda Aluminum Company, a subsidiary of Anaconda Copper Company, started production in 1955 and now controls 3.1% of capacity. The Ormet Corporation, a corporation owned equally by Olin Mathieson Chemical Corporation and Revere Copper and Brass, Inc., began pouring in 1958,<sup>3</sup> and by 1960 will have triple the capacity of Anaconda Aluminum Company. Harvey Aluminum Company, a subsidiary of Harvey Machine Company, Inc., scheduled a plant for completion in 1958, which would give it a position approximately equal to Anaconda Aluminum Company. By 1960, while the "Big Three" expand as well, these three new firms should represent 11.3% of capacity.<sup>4</sup>

The primary production capacity is rapidly expanding. The primary output of pig and ingot in 1940 amounted to 206,000 short tons. World War II saw a peak output of 920,000 tons in 1943. Capacity early in 1958 was 1,841,500 tons and it is expected to exceed 2,600,000 tons in 1960.<sup>5</sup>

Imports of primary aluminum have been sizeable, amounting to 222,000 short tons in 1957.<sup>6</sup> Most of this supplement comes from Canada through the import subsidiary of Aluminium Limited.

*Secondary Recovery*

Secondary smelters, who recover scrap and produce ingot from it, are an additional source of aluminum, accounting for approximately 20% of supply.<sup>7</sup> A

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<sup>2</sup>*Aluminum Industry*, Hearings before Subcommittee No. 3 of the House Select Committee on Small Business, 85th Cong., 1st and 2d Sess., Nov. 1957–May 1958, p. 362. Percentages as of April 1, 1958.

<sup>3</sup>*New York Times*, May 18, 1958.

<sup>4</sup>*Aluminum Industry*, *op. cit.*, p. 362.

<sup>5</sup>*Ibid.*

<sup>6</sup>*Ibid.*

<sup>7</sup>U. S. Dept. of Commerce, Office of Defense Mobilization, *Materials Survey—Aluminum*, Nov. 1956, p. III-6.

smelter has been defined as "any person who remelts pig or scrap to produce properly alloyed, refined, chemically-tested, specification ingot, extrusion billet, or deoxidizing or granular aluminum, and who has the equipment and technical knowledge necessary to perform this function without downgrading or waste . . ."<sup>8</sup> In addition to the smelter there is the "reclaimer," who recovers aluminum from scrap contaminated with extraneous materials, but produces only unrefined metal without control of alloy. His product is sold as reclaimed scrap pig for further processing.

Scrap may be either manufacturing scrap cleared from industrial plants or reclaimed from obsolete products. Scrap can be expected to be an increasing source of absolute supply in the future as obsolete products are recycled into production.

Smelting is a reshaping or processing operation. It is thus included in this study of the independent nonintegrated processor. The secondary smelter may be integrated forward and engage in some further shaping process. On the other hand, the extruder or other nonintegrated processor may introduce smelting operations to recover his own scrap.

### *The Nonintegrated Processor*

This study is concerned principally with the "semi-processors" of aluminum, who work ingots into shape through several available operations or processes. These firms are independent in the sense that they are not integrated backward through primary production. They may be integrated forward through fabrication of finished products, but finished-product output is most likely to be associated with the manufacturing users of aluminum shapes, such as the building and transportation industries. Frequently, semi-processors are referred to as fabricators, but we shall refer to them as nonintegrated processors.

The nonintegrated processors are heterogeneous in character. Extruded shapes are created with hydraulic *extrusion* presses; the heated metal is forced through a die. The tonnage pressure and the die orifice are two important equipment variables. Products range from kitchen trim to store fronts and airplane parts.

*Drawing* is a pulling operation, in contrast to extruding. Tubing can be formed by pulling tube blooms through a die. Aluminum rods can be drawn through a die to form wire.

Aluminum sheet, plate, and foil are produced by *rolling* ingots, a flattening operation. Foil is sheet that has been flattened to a product thinner than .006 inch.

*Forging* is the forming or shaping of aluminum by pressing or hammering. This can be done by hand, as in the case of the renowned village blacksmith. Most forgings today are made with the hydraulic forging press or the steam forging hammer in conjunction with dies.

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<sup>8</sup>*Id.* at III-5.

Aluminum *powder* and pigments are produced by using steel balls or stamping to yield flake particles. These can be used for pastes in paints and inks.

In *casting*, aluminum is poured or forced into a mold cavity formed by sand, cast iron, or plaster.

The nonintegrated processors' operations are not only heterogeneous, but they also show great variation as to the scale of operations. Casting operations may be conducted on a large scale, for example, by General Motors Corporation and the Ford Motor Company; or on a very small scale by a firm with only a handful of employees. Foil is produced by the R. J. Reynolds Tobacco Company for its own use, as well as by smaller companies for market sale. Wire is produced by U. S. Steel Corporation and General Electric Company as well as by some 40 relatively small independent firms.

The share of the total market which currently falls to the nonintegrated processor is relatively small. Primary producers' sales of primary metal to nonintegrated users has been fairly consistent, at only 12% of the U. S. supply of primary metal, in the post war years.<sup>9</sup> But the primary producers consumed only 23% of the total scrap, both new and old, in the United States in 1954,<sup>10</sup> and the proportion of total U. S. supply of primary and secondary aluminum going to nonintegrated users averaged 30% during that period.<sup>11</sup> Eighty per cent of secondary smelter shipments goes to foundries and diecasters, with the rest going into steel production and other uses.<sup>12</sup>

The integrated and nonintegrated facilities are not always in direct competition in the sale of the products resulting from the semi-processing operations. For example, captive plants utilize their own basic shapes in fabricating operations. But where these two groups of processors are in competition in the sale of aluminum mill shapes, the nonintegrated producers have increased their percentage share in several markets.<sup>13</sup> Thus, from 1952 to 1957, the percentage for the nonintegrated producers increased from 4.8% to 10.1% in the case of sheet and plate, from 39.3% to 45.9% in the case of wire and covered cable, from 26.8% to 38.4% in the case of ACSR (aluminum cable steel reinforced) and bare cable, and from 39.6% to 61.0% in the case of extruded shapes and drawn tube. The percentage of the nonintegrated producers fell from 32.1% to 24.5%, however, in the foil market.

It is also true that rapid growth in the number of independents has occurred over the past few years.<sup>14</sup> From World War II to the present, independent extruders

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<sup>9</sup>*Small Business and the Aluminum Industry*, Report of Subcommittee No. 3 on Minerals and Raw Materials to the House Select Committee on Small Business, House Report No. 2954, 84th Cong., 2d Sess. (1956), p. 14.

<sup>10</sup>*Id.* at 68.

<sup>11</sup>*Id.* at 14. Includes sales of primary aluminum to nonintegrated users by Canada. Under the terms of the 1954 Consent Order in *United States v. Aluminum Co. of America, et al.*, Aluminum Import Corporation, a subsidiary of Aluminium Ltd., must supply not less than 110,000 short tons of primary aluminum pig or ingot in each of the years 1954 through 1959 to nonintegrated users in the United States. Equity No. 85-73, U. S. District Court for the Southern District of New York, reported in 1954 Trade Cases (Commerce Clearing House), para. 67745.

<sup>12</sup>*Materials Survey—Aluminum*, *op. cit.*, p. III-5.

<sup>13</sup>*Aluminum Industry*, *op. cit.*, p. 366.

<sup>14</sup>*Small Business and the Aluminum Industry*, *op. cit.*, p. 10.

have increased from 6 to an estimated 100. From World War II to 1955 drawn tubing makers increased from zero to 15, wire and cable producers from 11 to 48, makers of forgings from 2 to 45, and secondary producers (smelters and reclaimers) from 70 or 80 to 130.

### *Fabrication of Final Products*

It has been pointed out that the nonintegrated processors may actually be integrated forward through the fabrication of final products. Basic shapes may be bent, drilled, and bolted together to form such aluminum products as storm windows and doors and summer furniture. Actually, newcomers to extruding operations have often been final-product fabricators who integrated backward and obtained an extrusion press when their volume justified such action.<sup>15</sup>

The industries which are heavy consumers of aluminum in their manufacturing operations are (their consumption is stated in thousands of tons): building (475), transportation (350), consumer durables (270), containers and packaging (165), electrical equipment (150), machinery and equipment (75), light metal processors (50), miscellaneous (40), scientific and technical instruments (35), ordnance and military (20).<sup>16</sup>

### NATURE OF THE SURVEY

As was pointed out in the interim report,<sup>17</sup> a small stratified sample of a particular geographic region was selected for questionnaire survey. Thirty-four questionnaires were sent out. One response was eliminated because the firm warehoused and distributed but did not process aluminum. Three other firms returned the questionnaires unanswered, with the explanation that they were primarily interested in processing other metals (such as copper, brass, and bronze).

The interim report listed the original 34 firms by type of operation or product as could best be determined from directory information. Table 1 below lists the final 33 firms surveyed, according to the nature of their activity. Where a firm reported itself engaged in more than one operation, it is listed according to its classification by the U. S. Department of Commerce. Two extruders reported themselves also as engaged in rolling operations, and one of these also as engaged in smelting. Another extruder also engaged in drawing operations. One drawer of wire also made rolled products. One firm, engaged primarily in rolling, also had a forging operation.

The 29 firms in the first six categories listed in Table 1 represented *all* firms in those categories that the writer could identify as being situated in the geographic region selected for study. This sample of 29 firms was drawn from a national total of a possible 350 firms in these categories. The remaining four firms (3 casters, 1

<sup>15</sup>*Diversification—An Opportunity for the New England Textile Industry* (reported by Arthur D. Little, Inc.), Federal Reserve Bank of Boston, 1955 p. 32.

<sup>16</sup>According to a survey of 25,339 qualifying plants, published in *Modern Metals*, Dec. 1, 1957, and reproduced as an Appendix in *Aluminum Industry*, *op. cit.*, p. 436.

<sup>17</sup>PTC J. Res. & Ed., 2, No. 3 (Sept. 1958), pp. 363-365.

TABLE I  
FIRMS SURVEYED, ACCORDING TO NATURE OF OPERATION

TYPE OF OPERATION	NO. OF FIRMS SENT QUESTIONNAIRE	NO. OF FIRMS REPLYING TO QUESTIONNAIRE	NO. OF FIRMS COMPLETING QUESTIONNAIRE
1. Extruding (shapes).....	8	6	6
2. Rolling (sheet, plate, foil).....	5	5	5
3. Drawing (wire, tubing).....	5	4	2
4. Forging (shapes).....	4	3	2
5. Smelting (secondary).....	4	3	3
6. Atomizing (powder).....	3	1	1
7. Casting (shapes).....	3	2	2
8. Anodizing (coating).....	1	1	1
Totals.....	33	25 (75.8%)	22 (66.6%)

anodizer) were selected with some difficulty in the matter of identification. Theoretically, these three casters came out of the national total of some 3,500 or more aluminum foundries and diecasters.<sup>18</sup> The foundries tend to be small—in 1947, half of them employed fewer than 10 persons each.<sup>19</sup> But the firms which cast may also be large for example, General Motors and Ford Motor Company.<sup>20</sup>

It may be noted that a completed questionnaire was received from at least one of every category. The high (66.6) percentage return of completed questionnaires can be attributed to a close follow-up of those addressees who did not respond at first. Of the 8 firms which never returned questionnaires, only one was not contacted by telephone—it was apparently so small that it had no telephone, although mail was not returned as undeliverable.

Twenty-one firms stated the year in which they first engaged in aluminum processing: 1900 (1), 1903 (1), 1905 (1), 1929 (1), 1933 (1), 1945 (2), 1946 (4), 1947 (1), 1948 (2), 1952 (2), 1953 (1), 1954 (3), 1956 (1).

The heterogeneity of size of firm in this sector of the aluminum industry is reflected in the sample returns by the variation in the size of firms. A rolling mill with 5,000 employees and a forging mill with 4,000 employees were the largest. The next largest firm was a rolling mill with 300 employees. Two small firms reported having only 8 employees.

#### ALUMINUM SUPPLY EXPANSION AND PATENTS

The expansion in aluminum capacity has been accompanied by important changes in aluminum as a material. Improvements have been brought about in the

<sup>18</sup>Materials Survey—Aluminum, *op. cit.*, p. III-5.

<sup>19</sup>Small Business and the Aluminum Industry, *op. cit.*, p. 9.

<sup>20</sup>See Aluminum Industry, *op. cit.*, pp. 96-98, 116-135.

quality and properties of primary aluminum and mill products. New alloys have been developed, and supply is more diverse with respect to sizes, tolerances, and finishes.<sup>21</sup>

These advances in supply have accommodated the increasing demand. A magnesium silicide alloy (6063) which was to become of such importance in the production of aluminum extruded products was introduced in 1945. Magnesium-manganese alloys have been developed since 1950, making aluminum more competitive with steel in many structural applications in the materials handling, transportation, and marine industries. Special alloys have been developed where anodized (protective coating and decorative) finishes are of prime importance, as in automobile trim, appliances, and architecture. Electrical conductor wire of greater conductivity has been developed.

Aluminum's natural advantages in conjunction with such developments make the metal adaptable for use in any number of areas. Increased use in the transportation equipment field can be expected because of its light weight. Insulating qualities make it attractive for use in construction. Rapid heat-dissipation will contribute to increased demand for aluminum for automobile engines and wheels. Automobiles with aluminum engine blocks are expected to be in production within five years.<sup>22</sup> Corrosion-resistance makes the metal suitable for pipe. It is also malleable and readily lends itself to extrusion.

It is significant that only one of the 22 firms which returned completed questionnaires answered "Yes" to the question, "Do you currently hold a patent license from a second party as a necessary requisite to engage in any of the operations cited in question 2?" (The operations are: smelting, extruding, rolling, drawing, forging, casting, anodizing, polishing, bending or drilling, and fabrication of an end product or products.) It seems clear that either patents have expired, or that there are sufficient satisfactory alternative means to accomplish the same ends, or that the relevant patents only *indirectly* concern the nonintegrated processor. The one firm answering "Yes" to the above-mentioned question, in view of the other returned questionnaires, was evidently desirous of utilizing a *particular* method.

Research on equipment, processes, or products is not confined to any one segment of the industry. The primary producers, the nonintegrated processors, the equipment manufacturers, and various types of fabricators may all be so involved, but in varying degrees and with varying objectives.

The significance of patents and research for the nonintegrated processor is discussed below. Four principal areas in which patents may enter the business considerations of the nonintegrated processor may be delineated.

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<sup>21</sup>See R. T. Myer, "Great Metallurgical Advances Made by Aluminum in Decade," *American Metal Market*, Oct. 29, 1958. The following examples are drawn from this source.

<sup>22</sup>*Aluminum Bulletin*, The Aluminum Association, Summer 1958, p. 2.

### *Alloy Composition*

The metal which the nonintegrated processor works is almost always an alloy.<sup>23</sup> The alloy composition may be patented, and here the nonintegrated processor has relied largely on the metallurgical research of primary producers. However, even where an alloy remains covered by a patent, the patent is included in the commodity package which the nonintegrated processor is buying.

Wrought alloys are purchased primarily from the primary producers according to a uniform designation system established by the Aluminum Association in 1954. The secondary smelters, who have historically become the principal source of supply of casting alloys to the 3,500 or more aluminum foundries and diecasters, do not sell according to a standard nomenclature system, but rather according to several numbering systems or by trade names.<sup>24</sup> And the reclaimer, as was noted, only sells his product as reclaimed scrap pig for further processing.

### *Alloy Uses*

Directly related to alloys are the uses which can be made of them. The users, especially the larger ones, are equally interested in research (and possibly resultant patents) which will make for product improvements and more economical and competitive use. Thus automobile companies, which are, so far as the aluminum industry is concerned, in the category of nonintegrated aluminum processors, are now engaged in research on aluminum engines, which, if put into production, would raise the per-auto use of aluminum from 52 pounds to 450 pounds.<sup>25</sup> Similarly, American Can Company, Continental Can Company, and National Can Company are doing "considerable research" toward finding uses for aluminum cans.<sup>26</sup>

It was pointed out to the writer by interviewees that in many of the final uses (that is, in the area of true fabrication) there is considerable innovation. Patents are obtained, but they apparently do not yield monopoly profits, for there is too much change and thus "too much competition." Storm window construction and design were cited as a case in point.

### *Processing of Alloys*

Alloy processing operations may be patented. Alcoa, for example, holds the patent on the direct chill process of casting ingots—a process which may be used by a secondary smelter or by any nonintegrated processor who wants to reclaim his

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<sup>23</sup>"The Aluminum Industry," *Monthly Review* (Federal Reserve Bank of San Francisco), April 1958, reprint, p. 22.

<sup>24</sup>*Materials Survey—Aluminum, op. cit.*, pp. III-5, VI-11, 21.

<sup>25</sup>*Wall Street Journal*, June 5, 1958, p. 1.

<sup>26</sup>*Wall Street Journal*, June 11, 1958, p. 8.



own scrap in smelting operations.<sup>27</sup> But there are alternative methods available,<sup>28</sup> and all four firms replying to the questionnaire who reported engaging in smelting operations reported holding no patent license as a requisite to engaging in such operations.

Anodic oxidation processes (which provide protective films or decorative finishes of various colors) have been patented, but patents on several such procedures have expired and enough alternative processes appear to be available to negate the need for obtaining a license. One firm reported that use of certain such procedures depended on the ability to obtain a license, and it was able to do so. But even where patents have expired, it may be found advantageous by the user to advertise his application of a particular process. One firm replying to the questionnaire and another that the writer visited stated that they had held Alcoa's license on its "Alumilite" process, not as a necessity but for purposes of advertising.

### *Processing Equipment*

Most patents on processing equipment are in the hands of equipment manufacturers and the integrated producers. But, regardless of who holds the patent on the equipment, the nonintegrated processor indirectly purchases the patent rights when he purchases the equipment from the equipment manufacturers.

No restrictions on obtaining the necessary equipment are evident, other than paying the purchase price. This can be illustrated in the case of an extruder by Trim Alloys, Inc., of Boston, Mass.<sup>29</sup> The firm's first extrusion press (1,000 tons) was designed and built by the firm's own personnel in 1952. In 1954 the firm bought a 1,500-ton press, which had been built around 1937. Its third press (750 tons) was obtained at an auction; one of five which had been built for the Atomic Energy Commission, it was converted by the firm to aluminum extrusion.

Complaints received by Congressmen in the period of aluminum shortage of 1955 also support the thesis that, so far as extrusion equipment is concerned, it is primarily a matter of ordering the equipment. The complaints were simply that firms hesitated to order equipment if they were to be unable to obtain the aluminum to process.<sup>30</sup>

The equipment manufacturers, even though the machinery in question is basic in nature and not covered by a patent, may, however, hold patents on supplementary devices. Thus, for example, an equipment manufacturer recently patented and is now producing an air-actuated knockout device which frees the extrusion from the die in such manner as to increase processing speed and permitting greater output.<sup>31</sup>

An extruder may have a thousand or so dies on hand, which he uses with an extrusion press. Some of these may be proprietary dies, provided by customers

<sup>27</sup>Patent expires Nov. 3, 1959. *United States v. Aluminum Co. of America, et al.*, 91 F. Supp. 333, 356 (1950).

<sup>28</sup>See *Materials Survey—Aluminum, op. cit.*, p. VI-27.

<sup>29</sup>"How an Extruder Solved His Equipment Problems," *Modern Metals*, July 1957.

<sup>30</sup>See *Small Business and the Aluminum Industry, op. cit.*, pp. 20-24.

<sup>31</sup>K. Darby, "Extrusion Handling Systems Save Money, Time," *Modern Metals*, July 1958, p. 66.

who thus determine their own specifications. Slight differences in the die orifices produce different shapes. It is hardly likely, however, that any such initial shape will be patented, but some further work on such a shape may create a unique product which may be patentable. Thus the one company which answered "Yes" to the question, "Does your company hold the patent on any process or product with respect to aluminum?" was an extruder holding a series of patents on certain fabricated products.

Other equipment used by nonintegrated processors is adaptable to metals other than aluminum. Thus, if there were any patent restrictions with respect to equipment, they would not be unique to aluminum. A wire manufacturer pointed out to the writer that wire-drawing equipment can be utilized to employ either aluminum or other metals. Of the two wire manufacturing firms which returned their questionnaires unanswered, one excused itself on the grounds that it used only a "small amount of aluminum," and the other simply stated that it was not an "aluminum" company, even though officially listed as an aluminum supplier by the U. S. Department of Commerce. A producer of forgings asked to be excused from the survey on the grounds that its production of aluminum forgings "is so small"; it may be assumed that the equipment was being used primarily with other metals. An official of a rolling mill reported to the writer that his firm used the same rolling equipment for other metals.

#### THE IMPORTANCE OF PROCESSING "KNOW-HOW"

Barring a "flash of genius," research is presumed to be a prerequisite to obtaining a patent. As was noted above, only one firm, an extruder, reported holding patents, and they were on the shapes of a line of products associated with another industry. Two firms, both extruders, reported having been involved in patent interference proceedings. Only one of these identified the object of the proceeding: design of a final product associated with another industry. The one case which entered litigation occurred prior to World War II.

In spite of this general absence of patent holdings by the nonintegrated processors or patent litigation involving them, 10 firms claimed that they engaged in research and development. Closer examination, however, indicates two things. First, whatever research is conducted is usually done on a fairly small scale. Two of the 10 firms noted that research was 5% of the company's dollar sales, and one quoted a figure of 3%, but the others estimated 1% or less or made no estimate at all. One firm indicated the nature of its research as consisting in retention of a consulting metallurgist. In any case, the scale of research and development operations by the nonintegrated processors appears indeed to be small in contrast with that of the integrated producers. Alcoa, Reynolds, and Kaiser provide most of the funds and personnel for research; field engineering staffs and technical manuals are made available to the nonintegrated firms.<sup>32</sup> Alcoa is planning a \$30 million general

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<sup>32</sup>*Aluminum Industry, op. cit.*, pp. 7, 41, 70-71.

research and development center near Pittsburgh.<sup>33</sup> Only two firms returning the questionnaire showed indications of having *total assets* greater than that figure, with most of the respondents showing assets of but a small fraction of that amount.

Second, "research and development" for the small firm is more likely to be synonymous with developing processing know-how or new products. This is indicated by comments provided on the nature of research and development being conducted:

- . . . primarily in the direction of know-how—to improve on design and quality.
- . . . some development work during the year as problems arise.
- The development work we do can hardly be called research.
- To the extent of working with our customers in finding the proper metal and alloy for any specific application.
- To improve our operation, develop new features on old items, and develop new ones.
- Plating of various aluminum alloys with a variety of metals.

In a recent journal article it has been stated that ". . . it becomes apparent that extrusion practice varies. Nearly every phase, from billet sawing through aging, is seen carried out in different ways from plant to plant. The extrusion and subsequent treating of alloy 6063 is *more an art than a science*. [italics added]"<sup>34</sup> Comments in the questionnaires with respect to the importance of know-how would indicate that this is true in the several processing operations:

- . . . it is extremely important to have laboratory controls and furnace heating controls.
- [forging] Know-how is gained by experience. [forging]
- Know-how is of considerable importance in technique of handling. [rolling]
- Engineering know-how, knowledge of equipment, and experience are essential. [rolling]
- Quality is result of know-how. [rolling]
- In critical applications involving borderline aluminum alloy fabrication or use, technical experience is helpful in minimizing expensive development and trial work. Avoids earlier errors often repeated. [rolling]
- Know-how is important in the choice of equipment, in rolling techniques, and annealing and heat treating practices. [rolling]
- Know-how is obtained only by trial and error. No professors or metallurgists can ever duplicate this. There is no publication, even from the "major" producers, that is of much help. [extruding]
- Knowledge of design strengths of materials and fabrication know-how [is] necessary. [extruding]
- Know-how is of extreme importance. . . . Primarily, a knowledge of aluminum and its various alloy mixtures is a requisite in that data of this type permits the proper application. [extruding]
- There are "tricks of the trade" which are developed from experience to improve quality, production, and efficiency. [drawing]

It is natural to wonder whether this current emphasis on processing know-how, which might seem to make of the operations involved "more an art than a science," is only a passing phase. Can operations eventually become so standardized that know-how no longer has to be a prime consideration to any firm contemplating entry into the field? Only the future, of course, will provide an answer.

<sup>33</sup>Wall Street Journal, Nov. 18, 1958, p. 1.

<sup>34</sup>James K. McLaughlin, "Raising the Physicals of 6063 Alloy Extrusion Billet," *Modern Metals*, July 1958, p. 56.

## GROWTH FACTORS

Processing know-how is only one factor relevant to the entry and growth of a small firm in aluminum processing. Table 2 presents other factors mentioned in the returned questionnaires. Some interpretation and categorizing were required by the writer. That factor mentioned first in order of importance by any given respondent is given a weight of 4 (no firm gave more than 4 factors); the factor mentioned second, a weight of 3; the third factor, a weight of 2; and the fourth factor, a weight of 1. Seventeen firms provided answers to this question.

TABLE 2  
RELATIVE IMPORTANCE OF FACTORS PERTINENT TO ENTRY AND GROWTH

	POINTS	NO. OF TIMES MENTIONED
1. Selling and market knowledge.....	35	11
2. Processing know-how.....	31	10
3. Adequate financial capital.....	30	9
4. Hard work and good management.....	11	3
5. Knowledge of alloys.....	8	3
6. Competition from integrated producers.....	8	3
7. Source of supply.....	3	1
8. Labor unions.....	2	1

It can be seen that selling ability and market knowledge (which includes new ideas on products) and the adequacy of financial capital are about equally important with processing know-how. It is interesting to note that there is a sizeable "discontinuity" between these three factors and other possible factors. Especially to be noted is the lack of complaint against the integrated producers, either as competitors<sup>35</sup> or as a source of supply—especially in view of the fact that source of supply was a principal complaint of this sector of the aluminum industry in 1955, a relatively prosperous year.<sup>36</sup> *Patents were not even mentioned as a factor pertinent to entry or growth. Nor were trademarks mentioned in this connection.* Five firms, 2 extruders and 3 rolling mills, did state that they had registered a trademark with the U. S. Patent Office.

Eight firms replied "Yes" to the question, "Do you plan eventually to become any further integrated?" Only 4 of these were able to be specific about what direction such vertical growth might take. One rolling mill desired to integrate backward to ingot or pig aluminum production. The other three firms would endeavor to make their own particular operations more complete—for example, add anodizing to enhance the product quality and smelting to recover home scrap.

On the other hand, for the long run Richard S. Reynolds, Jr., of Reynolds Metals Company, looks forward, as consumption expands rapidly, to mass production in

<sup>35</sup>The District Court Mandate in *United States v. Aluminum Co. of America, et al.*, Equity 85-73, April 23, 1946, p. 18 in essence stated the principle with special reference to aluminum sheet and aluminum alloy sheet that Alcoa must price to allow a fabricator "a reasonable profit." Cited and discussed in A. D. H. Kaplan, J. B. Dirlam, and R. F. Lanzillotti, *Pricing in Big Business: A Case Approach*, The Brookings Institution, 1958, pp. 142-149.

<sup>36</sup>See *Small Business and the Aluminum Industry*, *op. cit.*, *passim*.

single-purpose plants.<sup>37</sup> A mill would turn out a standardized mass-tonnage product, such as rolled sheet, for use by a can company to produce aluminum cans.<sup>38</sup>

If such envisioned mass production materializes, the same position as is held at the present looms in the future for the relatively small nonintegrated processor. This position is one of filling the market interstices, filling the smaller customer specification orders, and providing more short-run flexibility with respect to products. The longer-run research and development will probably continue to be a function of the large integrated firms, of which there may be more as smaller firms attempt to integrate backward into primary production. No shortages of bauxite or patent restrictions loom as obstacles to such a development, but it must be noted that backward integration involves large-scale operations and that the recent new entrants were nonintegrated processors who were already very large and were dealing with other metals as well as aluminum.

## APPENDIX

### ALUMINUM STUDY QUESTIONS ON PATENTS AND TRADEMARKS

Date.....

Name and address of Company:.....

Legal status of Company (corporation, partnership, etc):.....

Number of employees..... Dollar assets \$.....

Name of person completing questionnaire:.....

Title or official position:.....

#### STRICTLY CONFIDENTIAL

1. In what year did your company first engage in aluminum processing or fabricating?.....
2. a. Which of the following operations does your company engage in? Please check.
  - .....smelting
  - .....extruding
  - .....rolling
  - .....drawing
  - .....forging
  - .....casting
  - .....anodizing
  - .....polishing
  - .....bending or drilling
  - .....fabrication of an end product or products (please list)
  - .....other (please indicate)
- b. Do you plan eventually to become any further integrated than you are? Yes..... No.....

<sup>37</sup>R. S. Reynolds, Jr., "Aluminum's Mass Production Era," *Modern Metals*, Jan. 1958.

<sup>38</sup>Beer is now available in aluminum cans. *Aluminum Bulletin*, The Aluminum Association, Summer 1958, p. 2. Esso Standard Oil Co. is now using aluminum oil cans; but filling station operators, because of a cost differential with comparable tin cans, must return the cans in the form of scrap. *Wall Street Journal*, June 11, 1958, p. 8. Aluminum cans are being produced to pack sardines. The cost differential—\$55 per thousand cans, compared with about \$46 a thousand for tinplate—is expected to be compensated by savings in shipping costs. *Wall Street Journal*, Oct. 15, 1958.

- c. If yes, what do you believe to be the most desirable degree of integration at the processing and fabricating level of the industry?
3. a. Do you currently hold a patent license from a second party as a necessary requisite to engage in any of the operations cited in question 2? Yes..... No.....
- b. If yes, what process or product is involved?  
*Process or Product      Patent No.      Patent licensed from*
- c. If yes, what are the terms of the patent licensing arrangement?
- d. Does the inability to obtain a patent license, or to obtain one on reasonable terms, prevent you from engaging in any of the operations appearing in question 2? Yes..... No.....  
 If yes, please specify.
4. a. Do you currently hold a license from a second party, not as a requisite to engage in a certain operation or to make a certain product, but rather in order to be able to advertise that you have used such a process or make such a product? Yes..... No.....
- b. If yes, is there a trademark involved which you wish to include in your advertising?  
 Yes..... No.....  
*Process or Product      Trademark      Licensed from*
- c. If yes, is there a fee for such a patent license? Yes..... No.....
5. a. Does your company hold the patent on any process or product with respect to aluminum? Yes..... No.....
- b. If yes, what patents?  
*Patent No.      Nature of process or product*
- c. If yes, does your company license any of these patents to others? Yes..... No.....  
 If yes, which ones?
6. a. Does your company engage in research and development? Yes..... No.....
- b. If yes, what is the nature of, or what is the direction of, this research and development? And how long has it been conducted?
- c. If yes, what percentage of your company's dollar of sales is currently devoted to such research and development? .....%
- d. If no, what are your principal reasons for choosing not to engage in research and development?
7. a. Has your company registered a trademark with the Patent Office? Yes..... No.....
- b. If yes, what is the trademark(s)?
8. a. Has your company ever been involved in a patent interference proceeding? Yes..... No.....
- b. If yes, what process or product was involved?
- c. If yes, a firm at what level of the industry was involved in the proceeding?
9. a. Has your company ever recently been involved in patent litigation? Yes..... No.....
- b. If yes, what was the outcome? (Please furnish legal citations if any).
10. Exactly how important is "know-how" to entry into and success in aluminum processing and/or fabrication? Please state where and how it is important, if it is.
11. What, in your opinion, are the most important factors (in their order of importance) to the entry and growth of a small firm in aluminum processing and/or fabrication? Have these factors changed in any significant way over the past years?  
 (Please continue your answer on reverse side if necessary).

# Attitudes of Assignees Toward Patented Inventions\*

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## SUMMARY

THIS INTERIM REPORT of the Patent Utilization Study analyzes assignee replies to the following italicized questions:

*If the sampled patent is or was used in production, is or was the "know-how" an essential element in that production?* Analyses of assignee replies to this question indicate that about one-half of the patents require "know-how" for practical utilization of the invention. There is marked association in the replies between need for "know-how" in use of the patent and reasons given for its current non-use. The associations suggest that patents for pioneering inventions more often require "know-how" than patents for other inventions.

*Did you devote your attention to the development and perfection of the "know-how" because of the patent protection on the sampled invention?* The replies suggest that patent protection as a necessary or adjunct condition to development of "know-how" is relatively least significant for patents issued in 1948, somewhat more significant for patents issued in 1938, and most significant for those issued in 1952. There is marked and consistent association between frequency of affirmative replies to importance of patent protection for development of "know-how" and class of patent. This association is highest for mechanical patents and lowest for electrical.

*Would you have manufactured, used, or sold the sampled invention if you did not have patent protection?* The analysis of replies indicates that 70% of the assignees would have developed the invention even if there had been no protection. This percentage is significantly higher for patents in current use (85) and for those used in the past (82).

*Describe any other benefits which you have derived or expect to derive from your right(s) in the sampled invention.* One-third of the replies to this question are negative and two-thirds affirmative. This high propor-

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\*This is a research interim report on *Project 1a, Patent Utilization*, Mr. Creighton U. Mattoon and Miss Maryan Furey assisted on this project.

\*\*The Co-Principal Investigators of this project have insisted that Executive-Director L. James Harris join them as co-author in view of his invaluable contributions beyond his duties as Executive Director at every stage of the project.

tion of patents with "other benefits" might be due largely to the fact that almost half the returns included no response to this question.

*If it has been licensed, what were the reasons for licensing it?* Twenty-six per cent (158) of the 600 patents with completed questionnaires are licensed. Seventy-six per cent (123) responded to this question. The most frequent reason for licensing is "cross licensing or package deal," (39%); followed by "royalties," (19%); and "broaden the market," (11%). Only 5% gave as a reason for licensing "connected with government contract." Reasons for licensing are given for a higher proportion of used than for unused patents, 31% for the former and 12% for the latter.

Since the questions analyzed involve attitudes, much of the analysis that follows is to assess meaningfulness of the replies. The Foundation hopes that this report will make a contribution to the methodology in appraising opinion information on patents statistically.

#### INTRODUCTION

**I**N THIS INTERIM REPORT we analyze assignee replies to three types of questions. The first of these are questions regarding importance of "know-how" in the use of patented inventions and the extent to which patent protection was an incentive to development of "know-how." The second relates to the importance of patent protection in development and commercial exploitation of patented inventions. The third covers the question of beneficial value of the patent, other than its effect on sales or reducing production costs.<sup>1</sup> Assignee reasons for licensing, where the patent is licensed, are included in this category because they reflect certain benefits.

#### IMPORTANCE OF KNOW-HOW

Question 16 in the assignee questionnaire reads: "If the sampled patent is or was used in production, is or was the 'know-how' an essential element in that production? (Check) (a) yes, (b) no, (c) other (specify)."<sup>2</sup>

The question is designed to ascertain the frequency with which in the opinion of assignees "know-how" is an essential element in production and use of the sampled patent. It also provides a validation check in the consistency pattern of assignees' differentiation of used and unused patents. The replies have been analyzed in conjunction with utilization status of sampled patents.

Because question 16 is in some measure an attitudinal question, we have related the replies to those given by assignees to question 12, which deals with reasons for current non-use of the patent. Replies to the two questions may show associations that might give us an insight into the consistency of opinions expressed by assignees and help to differentiate replies to question 12.

<sup>1</sup>For an analysis of the effect of use of patented inventions on increasing sales and reducing production costs, see PTC J. Res. & Ed., 2, No. 3 (Sept. 1958), pp. 340-362.

<sup>2</sup>*Ibid.*, 1, No. 1 (June 1957), p. 110.



Moreover, we have related replies of assignees with respect to "know-how" to year of issue and to classification (i.e., mechanical, electrical, chemical) of patents to determine fixed patterns or trends.

Assignees were advised that by "know-how" we meant:

Factual knowledge not suitable for precise, separate description but which, when used in an accumulated form, after being acquired as the result of trial and error, gives to the one acquiring it an ability to produce something which otherwise he would not have known how to produce with the same accuracy or precision found necessary for commercial success.<sup>3</sup>

### *Proportion of Patents in which Know-how Is Deemed Important*

It is commonly believed that with the increased complexity of technology know-how has become of great importance in efficient and effective utilization of patents, particularly in development of chemical patents, which have been increasing most rapidly in recent years.<sup>4</sup>

Some economists regard know-how as an intrinsic part of the patented invention which the inventor must disclose. They erroneously interpret the statutory requirement for complete disclosure of the invention to include disclosure of know-how.<sup>5</sup> However, know-how, as defined by the court in *Mycalex v. Pemco*, is quite distinct from the patent and outside the present statutory requirements for disclosure.

It is of interest, therefore, to ascertain how often know-how is considered an important element by assignees in the use of the patented invention and whether this importance has increased for the more recently issued patents. Table 1 shows the replies of 600 assignees to question 16 (there may be more than one sampled patent per assignee). The table includes all patents with an assignee questionnaire returned on or before 7/1/58.<sup>6</sup>

Column 3 of Table 1 shows that of the total number of patents, whether used or not, in almost a quarter (24%) know-how is essential. For an almost equal number, know-how is not essential (23%).<sup>7</sup>

<sup>3</sup>*Ibid.*, p. 188. *Mycalex Corp. v. Pemco*, 64 F. Supp. 425 (1946) D.C. Maryland.

<sup>4</sup>In 1938 the proportion of chemical patents was 13.0; in 1952, 21.5. See *Ibid.*, 2, No. 1 (March 1958), p. 49.

<sup>5</sup>The following comment by Corwin Edwards is typical: "The slipshod method of identifying inventions which has been described above makes it possible to obtain a process patent without revealing all that must be known in order to make effective use of the patented invention. Where this is done, the public does not receive information that supposedly justifies the grant of monopoly rights to the inventor.

"Instead the patentee obtains the bargaining power attached to a legal monopoly and also continues to enjoy whatever bargaining strength he can derive from possession of a trade secret. So commonplace has inadequate disclosure become that the important secret knowledge which is necessary to use a patent is colloquially called the know-how and is generally regarded as property distinct from the patent to which it applies." *Maintaining Competition: Requisites of a Government Policy*, pp. 222-23.

<sup>6</sup>These 600 constitute nearly 50% of all the assigned patents in our sample. Of these 600 patents with assignee questionnaires, 596 are owned by firms and 4 by individuals. The 596 represent 52.6% of all the patents in our sample assigned to firms, and if we limit the total to the patents assigned to firms with known addresses this percentage will increase to 55.6. It is probable that firms without known addresses are dissolved.

<sup>7</sup>About 2% (11) of the assignees, instead of checking "yes" or "no" in answer to question 16, made some explanatory entry under "other," item (c). In 9 of these entries, the answer is more or less

TABLE 1

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL TO THE USE OF THE SAMPLED PATENT FOR THE THREE YEARS AND FOR EACH OF THE YEARS IN WHICH THE PATENTS WERE ISSUED, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

WAS OR IS KNOW-HOW ESSENTIAL?	THREE YEARS			YEAR OF ISSUE								
				1938			1948			1952		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	600	600	291	183	183	89	159	159	73	258	258	129
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0
Yes.....	144	24.0	49.5	39	21.3	43.8	32	20.1	43.9	73	28.3	56.6
No.....	136	22.7	46.7	45	24.6	50.6	38	23.9	52.0	53	20.5	41.1
Other.....	11	1.8	3.8	5	2.7	5.6	3	1.9	4.1	3	1.2	2.3
Sub-total.....	291	48.5		89	48.6		73	45.9		129	50.0	
Not applicable.....	281	46.8		81	44.3		83	52.2		117	45.3	
Not asked.....	11	1.8		4	2.2		1	.6		6	2.3	
Not answered.....	17	2.8		9	4.9		2	1.3		6	2.3	
Sub-total.....	309	51.5		94	51.4		86	54.1		129	50.0	

Table 1 indicates that less than half the assignees, 48% of those who returned a questionnaire, responded specifically to question 16. In about 50% no specific entry was made. In most of these the patent was not used, therefore no reply was necessary. We have designated such patents as "not applicable." These represent 281 patents. In 17 cases, 3% of the total, no entry was made under question 16, even though the assignee had indicated that the patent was being used or had been used.<sup>8</sup>

If we eliminate all patents without specific reply to question 16, we obtain the percentages shown in column 4 of Table 1. If, in addition, we redistribute the 11 cases according to our interpretation of the respondent's meaning "yes" or "no," know-how would be deemed essential for about 53% and not essential for 47%.

Table 1 also shows the distribution of assignee replies for patents issued in different years. The percentage of patents for which specific replies were given to question 16 is not widely different for patents issued in different years. The variation ranges from a low of 46% for patents issued in 1948 to a high of 50% for those issued in 1952. Considering patents for which there was a specific reply, the per-

affirmative that know-how is or was needed. In two other replies, the observation was that the assignee did not have the facts, "don't know." In one of these two, it was indicated that the patent had been sold by the assignee a number of years ago. If we were to adjust the percentages shown in Table 1 (by adding qualified "yeses" to those which were specifically checked "yes"), know-how would be deemed essential for 25% of the patents and not essential for 23%.

<sup>8</sup>In 11 cases, 2% of the total, this question was not asked since the question was not included in the initial pretest questionnaires.

centage in which assignees said know-how was essential is almost the same for patents issued in 1938 and 1948. For patents issued in 1952, however, the percentage in which know-how is considered to be essential is appreciably higher, 59%. A chi-square test applied to the three different distributions, to test the hypothesis that all three could be regarded as random samples from a common population, shows no significant difference.<sup>9</sup>

Despite the chi-square results which indicate that variations in the three distributions could have occurred through chance, the percentage of patents reported to require know-how is appreciably higher in 1952 (59%) than the combined percentage for patents issued in 1938 and 1948 (47%). These include the qualified "yeses." The difference between these two percentages is statistically significant at the 5% level. This suggests that a significantly higher proportion of patents issued in 1952 require know-how. Since the percentages for 1938 and 1948 are almost identical, one cannot say there is any time trend in this respect without additional evidence.

#### *Need for Know-how Related to Utilization Status*

Considering the wording of question 16, it is apparent that the replies are contingent on utilization status of the patented invention. Therefore, relating replies to the use should provide us with a consistency check. In addition, it would be of interest to determine the importance of know-how for patents used in the past as compared with those in current use. Table 2 shows the relationship between assignee replies of whether know-how was or is essential to the use of the patent with utilization status of the patent.

With respect to consistency of the replies, Table 2 is satisfactory in view of the concentration of replies concerning used patents and their virtual absence in the case of unused patents. Of the 183 assigned patents, in 3 cases the question was not asked. In the 180 where the question on know-how was asked, 173 (96%) answered. Seven (4%) failed to answer. The probable reason was that they did not have the facts. Therefore, of the 173 patents in current use with a specific reply, 97 (56%) were patents for which the assignee believed know-how was essential; the balance, 44%, deemed it not essential.<sup>10</sup>

For patents used in the past, the question was asked in 108 of the 113 cases. Of these, almost 95% gave replies. For 6 patents there was no reply. Therefore, in all there are 101 cases with replies; 50 of these indicate that know-how was essential, and 51 that it was not.<sup>11</sup>

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<sup>9</sup>A chi-square test applied to the distribution including all the patents yields a value of 12.32 with 8 degrees of freedom, which is equivalent to a "p" value larger than .05 but smaller than .1. The chi-square derived from those patents for which there is a specific answer to question 16 yields a value of 5.43 with 4 degrees of freedom. This too is equivalent to a "p" larger than .05, but smaller than .1.

<sup>10</sup>The five patents in current use in which the assignee replied by answering under "other" are also affirmative.

<sup>11</sup>Of the five answering under "other," four indicated know-how was essential, and one that he did not know.

Of the patents about to be used, there is only one affirmative reply. For a second patent the

TABLE 2

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL TO THE USE OF THE SAMPLED PATENT RELATED TO THE UTILIZATION STATUS OF THE PATENT, BASED ON ASSIGNEE RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

WAS OR IS KNOW-HOW ESSENTIAL?	UTILIZATION STATUS OF SAMPLED PATENT										
	IN CURRENT USE			PAST USE			FUTURE USE		NEVER USED		No INFOR- MATION
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	No.	Per Cent	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total: Number.....	183	183	173	113	113	102	47	47	252	252	5
Per cent.....		100.0	100.0		100.0	100.0		100.0		100.0	
Yes.....	92	50.3	53.2	46	40.7	45.1	1	2.1	4	1.6	1
No.....	76	41.5	43.9	51	45.2	50.0	---	---	9	3.6	---
Other.....	5	2.7	2.9	5	4.4	4.9	1	2.1	---	---	---
Sub-total.....	173	94.5		102	90.3		2	4.2	13	5.2	1
Not applicable.....	---	---		---	---		45	95.8	236	93.6	---
Not asked.....	3	1.6		5	4.4		---	---	3	1.2	---
Not answered.....	7	3.9		6	5.3		---	---	---	---	4
Sub-total.....	10	5.5		11	9.7		45	95.8	239	94.8	4

With respect to used patents, a question may be raised that patents requiring know-how are more prevalent among those in current use, as compared with patents used in the past. It was noted that among the former 56% required know-how while among the latter less than 50% did. It is possible that this may represent a real difference between patents in current use as compared with those used in the past. Our data, however, are not conclusive in this respect. The apparent difference is not statistically significant.<sup>12</sup> The difference may result from the fact that a higher proportion of patents was in current use in 1952. We have already observed that the proportion of patents in which know-how was deemed to be essential is highest for patents issued in 1952.

assignee indicated he did not know if know-how is essential. The balance were all "not applicable"—no entry was made.

Of the 252 "never used" patents where no immediate prospect for use was indicated, 13 (5%) made specific answer to question 16. It is possible that these patents had been used experimentally or to a limited extent, so that the assignee had knowledge of the importance of know-how.

Finally, in one of the 5 patents in which the utilization status was not known, the assignee indicated that know-how is essential. One may conjecture that from the nature of the patent, the assignee might have known that know-how would be essential, though he did not know if the patent were in use. The patent might have been sold or licensed a long time ago.

<sup>12</sup>A chi-square test between differences in replies to patents in current use and those used in the past with respect to need for know-how yielded 3.93 for all patents, and 2.00 for patents with specific replies to question 16. The first of these has 3 degrees of freedom and the second, 2. Neither of these is large enough to be statistically significant.

*Association Between Need for Know-how and Reasons for Current Non-use*

The association between replies to question 16, whether know-how is essential, with replies to question 12, the reasons for current non-use, is shown by Table 3. (Appendix, p. 496.) Of course, by definition, Table 3 excludes patents in current use.<sup>13</sup>

Table 3 shows marked variation in the percentage of patents in the use of which know-how was deemed essential among patents with specific reasons for current non-use. The distribution pattern shown in Table 3 is statistically significant as such. It is important for our purpose to be able to account for the apparent associations.<sup>14</sup> A major factor accounting for this apparent association is the relation between utilization status and reasons for current non-use. This influence will be largely removed, however, when we exclude patents for which there were no specific replies to question 16. When we further simplify the upper portion of Table 3 by redistributing specific replies under "other" we get the relationships shown in Table 4.

TABLE 4

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL TO THE USE OF THE SAMPLED PATENT WITH SPECIFIC REPLIES RELATED TO REASONS FOR THE CURRENT NON-USE, BASED ON ASSIGNEE RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

REASON FOR CURRENT NON-USE OF THE SAMPLED PATENT	WAS OR IS KNOW-HOW ESSENTIAL?					
	YES		NO		TOTAL	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total: Number	59	49.2	61	50.8	120	100.0
(a) Lack of market demand.....	14	56.0	11	44.0	25	100.0
(b) and (e) Obsolescence*.....	18	41.0	25	58.2	43	100.0
(c) Competitively at a disadvantage.....	7	36.8	12	63.2	19	100.0
Single reason (n.e.c.).....	10	62.5	6	37.5	16	100.0
Multiple reasons.....	10	58.8	7	41.2	17	100.0

\*The specific wording for (b) was "rapid obsolescence." There was no separate category corresponding to (e) in the assignee questionnaire, but in the inventor questionnaire there was an item (e) which reads "development of the art has taken a different course." Replies like this entered under "other" by assignees in question 12 have been combined with (b).

Table 4 still shows appreciable differences in the proportion of patents in the use of which know-how is essential among patents differentiated according to reasons for current non-use. For patents in which reasons for current non-use were given as (c) "competitively at a disadvantage," and for those where the reason was (b) or (e) "obsolescence," a relatively lower proportion were said to have needed know-how in comparison with the other groups. Perhaps many of the patents, in which reason for current non-use is (c) "competitively at a disadvantage," are patents with

<sup>13</sup>With respect to reasons for current non-use, patents in current use where the assignee made no entry were classed "not applicable."

<sup>14</sup>The chi-square obtained is 50.93 with 8 degrees of freedom. The tabular value of chi-square with 8 degrees of freedom equivalent to a "p" of .01 is 20.090. Therefore, the differences found in Table 3 could not be attributed to chance.

alternate processes and products. This relationship suggests that for these types of patents, as well as those that have been made obsolete by more efficient processes and products, on the average know-how is required less often. For other groups, exclusive of (c), (b), and (e), where the proportion of revolutionary processes and products may be more often the cause of their current non-use, know-how is essential in a higher proportion of patents. However, the apparent relationships shown may be accidental, since the differences are not statistically significant.<sup>15</sup> The difference, however, when we consolidate the five categories of Table 4 into two contrasting groups, is large enough to be regarded as significant at the 5% level. That is, chances are a little better than 95 to 5 that a difference as large as that shown by these two consolidated groups could not be the result of random variations.<sup>16, 17</sup>

### *Need for Know-how in Using Patents Differentiated by Class*

Replies to question 16, that know-how was essential in the use of the patent, are related to the patents differentiated in terms of broad classes used by the Patent Office. This relationship is shown by Table 5.

The table shows marked differences for the different classes particularly in the proportion of patents with specific answers and those without. Further analysis, however, shows that these differences result almost entirely from the proportions of patents utilized, which varies markedly for patents in different classes.<sup>18</sup> The variations are small for patents with specific answers. There is some suggestion that the proportion requiring know-how in their use is lowest (51%) for mechanical patents. For electrical patents this percentage is about 55, and for chemical, 59.<sup>19</sup>

<sup>15</sup>The chi-square obtained from Table 4 is 5.77 with 4 degrees of freedom. The value of "p" for this is between 0.3 and 0.2.

<sup>16</sup>When we consolidate the groups into two, the percentage of patents in the use of which know-how is said to be essential to one group is 40.3 and in the other 58.6. This shows an observed difference of 18.3. The standard error of the difference for these two percentages is 9.1. Therefore, the difference may be regarded significant at 5% level since the observed difference is about two times the standard error.

<sup>17</sup>In Table 4 we have included the small number of patents for which the assignees replied specifically to question 16, even though these assignees had indicated that the sampled patent had not been used. In some respects it would be more appropriate to confine this exploration of a possible interrelationship between reasons for current non-use and need for know-how in the use of the patent to patents which were said to have been used. This would be the case if we were to restrict the comparison to patents used in the past for which assignees gave a specific reply to question 16. The resulting pattern, however, does not differ appreciably from the pattern shown in Table 4. This adjustment does not much alter the tests of significance obtained from Table 4.

<sup>18</sup>PTC J. Res. & Ed., 2, Conference Supplement (1958), Table 14, p. 229.

<sup>19</sup>This gradation in the relationship appears to conform with expert opinion in this matter, but we cannot place much confidence in these findings since the differences shown by Table 5, when confined to categories with specific answers to question 16, are not statistically significant. They could easily be accounted for as chance variations. The chi-square obtained from these figures is 1.13 with 2 degrees of freedom. This is not large enough to be statistically significant. Even comparing the percentage of affirmative answers to mechanical patents with that for chemical shows no significant difference. The observed difference is 8 and the standard error of the difference almost as large.

An analysis of possible interrelationships between the need of know-how and the class of patent was also pursued separately for patents issued in each year. This analysis confirmed and strengthened our negative conclusion, that there is no demonstrated evidence that patents in different

TABLE 5

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL TO THE USE OF THE SAMPLED PATENT FOR PATENTS DIFFERENTIATED BY CLASS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

WAS OR IS KNOW-HOW ESSENTIAL?	CLASS OF PATENTS								
	MECHANICAL			ELECTRICAL			CHEMICAL		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	338	338	187	117	117	51	145	145	51
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0
Yes.....	95	28.1	50.8	28	23.9	54.9	30	20.7	58.8
No.....	92	27.2	49.2	23	19.7	45.1	21	14.5	41.2
Sub-total.....	187	55.3		51	43.6		51	35.2	
Not applicable.....	133	39.4		57	48.7		88	60.7	
Not asked.....	6	1.8		7	6.0		1	.7	
Not known.....	1	.3					1	.7	
Not answered.....	11	3.2		2	1.7		4	2.8	
Sub-total.....	151	44.7		66	56.4		94	61.8	

In the interpretation of relationships suggested by Table 5, we have indicated that these may result from the fact that there is marked association between class of patent and utilization status. Thus of the 338 mechanical patents 122 are in current use and 57 used in the past. These two groups of used patents constitute 53% of the total. The comparable percentages for electrical and chemical patents are 40 and 33, respectively.

In Table 6 (Appendix, p. 497) we show the relationship between need for know-how in the use of patents in specified classes separately for patents in current use and those used in the past.

classes are differentiated according to the percentage requiring know-how in the use. The analysis shows that for patents issued in each year there was a marked variation of the percentage of patents with specific replies in different classes. These variations are introduced, however, by the association of the utilization status of patents in these classes.

For patents with specific answers to question 16, issued in different years, there is no consistent pattern like that suggested by Table 5 between need for know-how and the classification of the patent. Among patents issued in 1938, the highest percentage of replies as to need for know-how was in electrical patents, 60%. The corresponding percentages for mechanical and chemical patents were 46 and 47, respectively. Among the patents issued in 1948, the highest percentage said to require know-how was for chemical patents, 53%. The corresponding percentages for mechanical and electrical were 46 and 44. Finally, among patents issued in 1952 the pattern of relationship is similar to that shown by Table 5, except that the differences are more pronounced. Of these, for mechanical patents 55% were said to require know-how, for electrical patents 61%, and for chemical 74%. But these relationships as those in Table 5 could result from chance. They are not statistically significant. A chi-square test gives 2.22 with 2 degrees of freedom.

Table 6 shows some variation in the proportion of patents with specific replies as against those without, but the relationships are not statistically significant and could easily be attributed to chance.<sup>20</sup>

### *Patent Protection as a Stimulus to the Development of Know-how*

Question 17 also has bearing on know-how. It reads: "Did you devote your attention to the development of know-how because of the patent protection? (Comment)"

The question was made non-structured to encourage free response. This gave us the opportunity to sense the range and intensity of opinion. The replies indicate a wide spectrum of opinion which for our present analysis we have condensed into a few modal types. Some replies were emphatically affirmative, others were hedged somewhat, but we have grouped these together as "yes." There were 62 such replies, about 10% of the patents with returned questionnaires, and almost 21% of those with a specific reply to question 17.

Other assignees indicated that patent protection was secondary or incidental to their developing the know-how; we have grouped these under the caption "patent incidental." There were 56 replies of this nature, 9% of the patents with a returned questionnaire and nearly 19% of those with specific answers.

There were a large number who indicated in one way or another that patent protection was of no moment, presumably in their development of know-how since that is the question. We have grouped these under "no." There were 181 patents with this type of response. These constitute about 30% of the patents with returned questionnaires and almost 61% of patents with a specific answer to question 17.

There were a few assignees who answered question 17 by saying know-how was not needed.<sup>21</sup> Question 17 was included partly to probe the opinions and attitudes of assignees with respect to patent protection, specifically in relation to know-how. This question was intended to elicit additional information with respect to know-

<sup>20</sup>With respect to patents with specific answers to question 16 on need for know-how, there are almost no variations in the percentages for patents differentiated by class. Thus, for patents in current use the percentage for which know-how was said to be necessary ranges between 56 and 57 for the three classes. For patents used in the past, the percentage in which know-how was said to be necessary was approximately 46 for mechanical and electrical patents, but considerably higher for chemical patents, 67. However, these differences were not statistically significant. This remains true even when we combine the mechanical and electrical patents, giving a percentage of nearly 46 and compare it with 67 for chemical patents. Both the chi-square test, comparing the three categories, and the standard error of the difference of the two sets of percentages indicate that the variations observed could have resulted by chance.

<sup>21</sup>We have grouped these with the large category of patents for which we consider the reply to question 17—"not applicable"—inappropriate. Of course, were this statement made with respect to a patent which had a reply of "yes" to question 16, this would have been shown in the table since it would have indicated an inconsistent answer.

One or two of the assignees said they did not know. We have classed these as "not known." To this group we have added one or two replies which we could not interpret meaningfully. In all there were 4 patents so classified. The questionnaires for 14 patents did not include this question. For 24 cases the assignees failed to reply to question 17. These are categorized "not answered." We have grouped together these residual categories with no information, to weigh their effect on the general distribution.



how obtained in response to question 16. However, the replies of some assignees show that many of them did not sense that relationship. The absence of a close relationship may be seen from Table 7 which correlates replies of assignees to question 17 with replies to 16 on whether know-how was essential in use of the sampled patent.

Column 2 of Table 7 (Appendix, p. 498) shows the distribution of all the patents in terms of types of replies to question 17 which has been discussed. Of the total number, specific replies to question 17 were given with respect to 299 patents. Of these, column 4 indicates that nearly 61% said patent protection had no bearing. Nearly another 19% said that it had only secondary importance in development of know-how, and less than 21% answered that know-how was developed because of patent protection.

The rest of the table shows the cross-classification of replies to question 17 related to replies to 16. If question 17 is answered specifically it has meaning only for patents which require know-how in the use of the patent. While it is true that 92% of those who in response to question 16 said know-how was essential answered specifically to question 17, yet this group constitutes less than half of those who made a specific reply to question 17.

It would appear that a number of assignees were giving an answer based on whether they believed in patent protection, perhaps unconsciously ignoring the specific intent of the question.<sup>22</sup>

The apparent inconsistencies of replies to questions 16 and 17 perhaps reflect more or less fixed attitudes of many respondents to the question of importance of patent protection in general. In other words, our question may have impinged on a preformed, charged attitude, and many respondents, forgetting the specific question, reacted to the phrase "patent protection." If this were the situation, then perhaps we should find marked correlation between assignee replies to questions 17 and 23. Question 23 reads: "Would you have manufactured, used, or sold the sampled invention if you did not have the patent protection? Check (a) Yes, (b) No, (c) Other (Specify)."<sup>23</sup> This relationship is shown in Table 8. (Appendix, p. 499.)

Table 8 shows some agreement between replies to question 17 and those to question 23, but this agreement is not at all close. Therefore, our assumption that many assignees replied to 17 on the basis of a preformed notion may not be substantiated.<sup>24</sup>

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<sup>22</sup>Otherwise it is difficult to explain the 5 affirmative replies to question 17 when the assignee had indicated that know-how was not essential in using the sampled patent. This applies, though with less force, to the 7 replies that patent protection was secondary in the development of know-how for patents in the use of which know-how was not essential. Even those who in reply to question 17 said patent protection was of no importance, were not answering the question properly if they had previously indicated that know-how was not essential.

It is also difficult to interpret the large number of assignee replies to question 17 which failed to respond to 16. As a matter of fact, almost all of the patents with respect to which assignees gave specific response to 17, though they had not done so to 16, were patents that were never used. In terms of the wording of question 16 and the tie-in of question 17 with 16, a reply to question 17 is inappropriate where the patent was not used.

<sup>23</sup>PTC J. Res. & Ed., 1, No. 1 (June 1957), p. 111.

<sup>24</sup>The table shows (column 15) that of the 62 patents for which in response to question 17 the assignee said he developed the requisite know-how because of the patent protection, only in half

We have already observed that even in response to question 16 a number of assignees answered know-how was essential with respect to unused patents, although the question was so worded that specific reply was called for only for patents that were used (see Table 2). Regarding question 17, a much larger number answered than was the case in question 16, with respect to unused patents. Table 8 indicates that a larger number answered with respect to question 23 as compared with 17. Since many of these replies were for patents that had not been used, they could not have been with specific reference to the sampled patent.

It is of interest, therefore, to examine replies to questions 17 and 23 to determine if they are more consistent for patents in current use and in past use as compared with the total (including unused patents).<sup>25</sup> Comparison on such a basis gives no evidence that replies to questions 17 and 23 for patents in current use and past use show any closer association than that shown by Table 8.<sup>26</sup>

Since replies to question 17 can be meaningful only if we restrict our analyses to patents in which know-how is essential, in Tables 9 and 10 we have again shown the association between replies to 17 and 23 for patents requiring know-how in their use. Table 9 is for patents in current use and 10 for patents used in the past. We

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(31 cases) the assignee in response to 23 said that he would not have developed the invention if he did not have the patent protection. In the 56 patents (column 15) for which, in response to question 17, the assignee felt that patent protection had some effect in developing the know-how, only for 6 the same assignees replied affirmatively to question 23. Of the 181 patents (column 15) for which the reply to question 17 is negative, in 19 of these the reply to question 23 is affirmative. The responses appear contradictory. These relationships are indicated in columns 2 and 15. Referring to column 5, the 26 replies, out of the total of 62 (column 15) in which the assignee reply to question 17 is affirmative, the reply to question 23 is in the negative. Similarly, in 42 patents out of the total of 56 in which the assignee reply to question 17 said patent protection had some bearing on developing the know-how, the reply to question 23 is negative. Of the 181 (column 15) who said that patent protection had no bearing on development of know-how, 131 gave consistent replies to question 23, in that they would have developed the invention even if they did not have patent protection.

In columns 2 and 3, of the 133 patents for which the assignees indicated that they would not have developed the invention without patent protection, only for 56 (42%) did the assignees give a specific answer to question 17. Of these, in 55% (column 4) the answer given to question 17 indicates patent protection is important, consistent with that given to 23. In 11% the reply to question 17 is that patent protection is secondary. For about 34% the reply to 17 is that the know-how would have been developed irrespective of patent protection, contrary to what was said with respect to these same patents about needing patent protection in developing the invention.

Of the 315 patents in which the assignees in reply to question 23 say they would have developed the patent regardless of patent protection, in 63% a specific reply was given to question 17. Of these, in 66% the reply to 17 also indicates that patent protection had no bearing on the development of know-how. For 13% the reply to 17 is that patent protection was a necessary condition in developing the know-how. In the remaining 21% the reply to 17 is that patent protection had some bearing in developing know-how.

<sup>25</sup>This comparison was made after consolidating the replies to questions 17 and 23 into 3 broad categories: (a) affirmative—that is, replies which said patent protection was a factor; (b) negative—replies which indicated patent protection was of no moment; and (c) all others—with no specific replies to one or both questions.

<sup>26</sup>In fact, coefficients of contingency computed for these distributions show the lowest coefficient for patents in current use, .28 as the measure of correlation between replies to questions 17 and 23. The corresponding coefficient was .39 for patents used in the past and .32 for all patents, irrespective of utilization status.

With respect to patents in current use the largest contribution to the contingency coefficient was by the category "other." If we use only patents with specific replies to both questions 17 and 23, we find no significant association with respect to patents in current use. For patents used in the past the degree of association improves slightly, about 41%; while the association for all groups combined, irrespective of utilization status, is somewhat lowered when confined to patents with specific answers to both 17 and 23.

have also carried out this type of analysis in terms of all patents for which know-how is deemed essential irrespective of utilization status.<sup>27</sup>

TABLE 9

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES TO QUESTION 17 CORRELATED WITH REPLIES TO QUESTION 23 FOR PATENTS IN CURRENT USE FOR WHICH KNOW-HOW WAS SAID TO HAVE BEEN ESSENTIAL.

## PRELIMINARY

WAS KNOW-HOW DEVELOPED BECAUSE OF PATENT PROTECTION?	WOULD YOU HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION?									
	No		No WITH QUAL- IFICATIONS		Yes		Yes WITH QUAL- IFICATIONS		NOT AN- SWERED	TOTAL
	No.	Per Cent with Specific Answer	No.	Per Cent with Specific Answer	No.	Per Cent with Specific Answer	No.	Per Cent with Specific Answer	No.	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total: Number.....	13	12	5	5	71	65	5	5	4	98
Per cent.....		100.0		100.0		100.0		100.0		
Yes.....	9	75.0	4	80.0	11	16.9	4	80.0	---	28
Patent incidental.....	2	16.7	---	---	20	30.8	1	20.0	1	24
No.....	1	8.3	1	20.0	34	52.3	---	---	1	37
Sub-total.....	12		5		65		5		2	89
Not known.....	---	---	---	---	1	---	---	---	1	2
Not answered.....	1		---	---	5	---	---	---	1	7

Table 9 indicates somewhat closer correlation, but still almost half of those patents for which assignees had indicated that patent protection was of some importance in developing know-how, in reply to question 23 said that the invention would have been developed without patent protection.<sup>28</sup>

The basis of this correlation consists of affirmative replies largely since the agreement is much closer in such replies (see column 3).

Table 10 shows a parallel distribution of replies for patents used in the past. For this we have consolidated those who replied "no" with or without some qualification to question 23 and those who said "yes" with or without qualifications.

Table 10 shows the closest association observed thus far between replies to questions 17 and 23.<sup>29</sup> The extent of consistency shown by Table 10 is considerably higher than that shown by Table 9 for patents in current use.

<sup>27</sup>The 141 patents shown in column 5 of Table 7, with respect to which assignees indicated know-how is or was essential.

<sup>28</sup>If we combine the groups with specific replies into a four-fold table, it will indicate that of the 87 cases about 17% responded affirmatively to both questions. Thirty-nine per cent responded negatively to both, i.e., considered patent protection irrelevant. Forty-one per cent replied affirmatively to 17 but negatively to question 23. And about 2% replied negatively to question 17, yet affirmatively to 23. The degree of association of these replies in terms of a contingency coefficient is .30.

<sup>29</sup>Of the 9 cases which said know-how was needed to develop the patent, 8 replied affirmatively to question 17 and one responded negatively.

Of the 38 that responded negatively to question 23, about 17% responded affirmatively to question 17; almost another 20% said that patent protection was of some import. Less than two thirds said patent protection was of no importance, being consistent with replies to question 23.

TABLE 10

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES TO QUESTION 17 CORRELATED WITH REPLIES TO QUESTION 23 FOR PATENTS USED IN THE PAST FOR WHICH KNOW-HOW WAS SAID TO HAVE BEEN ESSENTIAL. PRELIMINARY

WAS KNOW-HOW DEVELOPED BECAUSE OF PATENT PROTECTION?	WOULD YOU HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION?					
	No		Yes		NOT KNOWN	TOTAL
	No.	Per Cent	No.	Per Cent	No.	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total: Number.....	9	9	38	36	2	49
Per cent.....		100.0		100.0		
Yes.....	8	89.0	6	16.7	1	15
Patent incidental.....	—	—	7	19.5	1	8
No.....	1	11.0	23	63.8	—	24
Sub-total.....	9		36		2	47
Not answered.....	—		2		—	2

If we consolidate the 45 cases with specific replies to both questions, 8 or nearly 18% replied affirmatively to both. Twenty-three cases, 51%, replied negatively to both. In other words, almost 70% of the replies were consistent. The corresponding percentage for patents in current use was 54, a difference which is not statistically significant.<sup>80</sup>

From these analyses we must tentatively conclude the following:

1. That an appreciable number of assignees who specifically replied to question 17 did not formulate their replies in terms of the sampled patent as such.
2. That many assignees sensed no close link between questions 16 and 17, as we thought they would.
3. That according to these replies, protection frequently may be important enough to warrant the development of know-how in the more efficient use of the patent, and may be of little or no importance in the development of the invention as such, or vice versa. Perhaps in answering question 17, some assignees were thinking of one group of patents and a different group in answering question 23. They may have been voicing a general attitude in replying to 23. It is also possible that an appreciable number of respondents were confused by the wording of ques-

<sup>80</sup>The standard error of the difference between these two percentages is 9% while the observed difference is about 14.9%.

One case answered negatively to 17, affirmatively to 23; and 13 cases, 19%, responded affirmatively to 17 and negatively to 23. The contingency coefficient derived from this four-fold grouping of the replies to 17 and 23 is .60, indicating a higher agreement than we have observed, though still not sufficiently high to show close consistency between replies to question 17 and 23. We therefore cannot consider the replies to questions 17 and 23 closely correlated, even for this highly selected group of patents.

The same conclusion results from the analyses of the 141 patents for which in reply to question 16 assignees indicated know-how was or is essential. These 141 cases (see column 5 of Table 7) represent both currently used patents and patents used in the past for which know-how was essential, as well as a few unused patents for which the reply to question 16 was affirmative. The coefficient of contingency resulting from the association of replies to questions 17 and 23 is .41.

tion 23. In this connection it is perhaps significant that affirmative replies to question 23 are generally consistent with affirmative replies to question 17, but not with respect to negative replies.

*Variation of Replies to Question 17 for Patents Issued in Different Years*

Although our analysis of replies to 17 suggests that many assignees must have replied other than in terms of the sampled patent, it is of value to see if the type of replies are differentiated for patents issued in different years. Table 11 shows this relationship.

TABLE 11

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THE KNOW-HOW WAS DEVELOPED BECAUSE OF THE PATENT PROTECTION FOR PATENTS ISSUED IN DIFFERENT YEARS, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

WAS KNOW-HOW DEVELOPED BECAUSE OF PATENT PROTECTION?	YEAR OF ISSUE								
	1938			1948			1952		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	183	183	88	159	159	76	258	258	135
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0
Yes.....	23	12.6	26.1	6	3.8	7.9	33	12.8	24.4
Patent incidental.....	7	3.8	8.0	16	10.0	21.1	33	12.8	24.4
No.....	58	31.7	65.9	54	34.0	71.0	69	26.7	51.1
Sub-total.....	88	48.1		76	47.8		135	52.3	
Not applicable.....	78	42.6		75	47.2		106	41.1	
Not asked.....	5	2.7		2	1.3		7	2.7	
Not known.....	1	.6		1	.6		2	.8	
Not answered.....	11	6.0		5	3.1		8	3.1	
Sub-total.....	95	51.9		83	52.2		123	47.7	

The table shows marked differences. It would seem that patent protection was deemed essential more frequently in developing necessary know-how in 1952, less frequently in 1938, and least in 1948.<sup>31</sup> These differences are large enough to be significant at the 1% level.<sup>32</sup>

In Table 11, in many instances, as we have seen, the replies of assignees could not have been in terms of sampled patents; the decided association shown must be attributed either to the type of patents characteristic of these years or to different

<sup>31</sup>Were we to limit this analysis to only those patents for which know-how was said to be essential this same relationship would have been observed. The percentage of negative replies instead of being 66, 71, and 51 would have been 48, 55, and 39 for 1938, '48, and '52, respectively.

<sup>32</sup>For patents with specific answers the chi-square is 20.05 with 4 degrees of freedom.

types of companies that predominated among patent holders in these years. We are inclined to favor the former supposition. It may be noted that the conclusion derived from Table 11 is not altered if we were to restrict the analysis to those patents for which know-how is or was essential. From these findings it seems reasonable to assume that patent protection was less important for developing know-how for inventions in the war years. This was probably due to war contracts, post-war shortages, and other unusual pressures characteristic of a war and post-war period.

*Variation in Replies to Question 17 for Patents with Different Utilization Status*

If replies to question 17 concern the sampled patent with respect to development of know-how, affirmative replies should have been confined to (1) used patents, and (2) those in which know-how was an essential element. Table 12 shows that specific replies are not confined to used patents (and Table 7 showed that these replies were not limited to patents requiring know-how).

TABLE 12

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THE KNOW-HOW WAS DEVELOPED BECAUSE OF THE PATENT PROTECTION ACCORDING TO THE UTILIZATION STATUS OF THESE PATENTS, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

WAS KNOW-HOW DEVELOPED BECAUSE OF PATENT PROTECTION?	UTILIZATION STATUS											
	IN CURRENT USE			PAST USE			FUTURE USE		NEVER USED			No INFOR- MATION
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	No.	Per Cent	Per Cent with Specific Answer	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	183	183	122	113	113	77	47	47	252	252	88	5
Per cent.....		100.0	100.0		100.0	100.0		100.0		100.0	100.0	
Yes.....	32	17.5	26.3	17	15.1	22.1	3	6.4	10	4.0	11.4	---
Patent incidental	27	14.8	22.1	13	11.5	16.9	3	6.4	12	4.8	13.6	1
No.....	63	34.4	51.6	47	41.6	61.0	4	8.5	66	26.2	75.0	1
Sub-total.....	122	66.7		77	68.2		10	21.3	88	35.0		2
Not applicable.....	42	21.9		24	21.2		35	74.5	158	62.6		---
Not asked.....	3	1.6		5	4.4		---		6	2.4		---
Not known.....	2	1.1		---	---		1	2.1	---	---		1
Not answered.....	14	7.7		7	6.2		1	2.1	---	---		2
Sub-total.....	61	33.3		36	31.8		37	78.7	164	65.0		3

Though Table 12 shows that most specific answers are concentrated among used patents, an appreciable proportion of specific answers are for unused patents. In all, there are 299 specific replies; 199, or about two-thirds of this total are among

used patents and one-third in non-used patents, mostly the group which we have classified "never used." Negative replies to question 17 are proportionately lowest for patents about to be used (40%), followed by those in current use (52%), and highest of all for "never used" patents (75%).<sup>33</sup> It appears from this association that frequently a "no" response must have been intended to mean not applicable; that is, since the invention was not used the respondent believes that the patent protection is of no value. Interpreted in this way, there is no necessity for a test of consistency of negative replies between questions 17 and 23. This interpretation, however, cannot be extended to used patents in the use of which know-how was deemed essential.<sup>34</sup>

An analysis of the interrelation between replies to 17 for patents classified according to reasons for current non-use is not presented, because many of the associations found can be explained in terms of the interrelationship between reasons for non-use and utilization status.

#### *Variation in Replies to Question 17 for Patents Differentiated by Class*

The variation of specific replies as to the effect of patent protection on development of know-how suggests distinct relationships with the class of patent. This pattern is shown in Table 13.

It is apparent that "yes" replies are much more prevalent among mechanical patents and least prevalent among electrical patents. Chemical patents are in an intermediate position.<sup>35</sup> With respect to replies that patent protection was inci-

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<sup>33</sup>This concentration of "no" replies in "never used" patents is statistically significant when compared with used patents, including patents about to be used. The combined percentage for used patents is less than 55%. That is an observed difference of 21.4%. The standard error of the difference is 6.2% or less than one-third of the observed difference. The concentration of "no" replies under "never used" is significantly higher when compared only with patents in current use and also when compared with patents about to be used. The observed differences for these are 23.4% and 35.0% and the standard errors are 6.8% and 15.1%, respectively.

Even the comparison of the per cent of "no" replies for "never used" patents with those used in the past shows a difference large enough to approach statistical significance. The percentage difference in this case is 14.0, while the standard error of the estimate is 7.25.

<sup>34</sup>Even in patents in which know-how was said to be essential, of the 108 patents with negative reply to question 23, the reply to 17 was affirmative in 23 cases (21%) and patent incidental in 3 cases.

Examination of Table 12 shows somewhat higher affirmative replies as to the value of patent protection for patents in current use compared with those used in the past. The difference is not statistically significant, however, and could be attributed to chance. The chi-square value for patents with specific answers that are in current use and those used in the past is 1.78 with 2 degrees of freedom, which is not statistically significant. The proportion of affirmative replies for patents in current use in comparison to patents used in the past, is relatively higher for patents for which know-how is or was deemed essential as compared with figures shown by Table 12.

The percentages for patents in current use limited to those for which know-how is said to be essential are 32, 27, and 41 for "yes," "patent incidental," and "no," respectively. The corresponding percentages for patents used in the past are 29, 19, and 52. These differences between currently used patents and those used in the past are not significant.

<sup>35</sup>The relatively higher proportion of affirmative replies with respect to mechanical patents also holds true for patents for which know-how is or was deemed essential. If we combine the "yes" with "patent incidental," the combined percentage is 63 for mechanical, 43 for electrical, and 42 for chemical. These differences are statistically significant between mechanical patents and electrical and chemical.

TABLE 13

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THE KNOW-HOW WAS DEVELOPED BECAUSE OF THE PATENT PROTECTION ACCORDING TO THE CLASS OF THE PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58. (LIMITED TO PATENTS WITH SPECIFIC ANSWERS)

## PRELIMINARY

WAS KNOW-HOW DEVELOPED BECAUSE OF PATENT PROTECTION?	CLASS OF PATENT					
	MECHANICAL		ELECTRICAL		CHEMICAL	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total: Number.....	174	174	60	60	65	65
Per cent.....		100.0		100.0		100.0
Yes.....	48	27.6	3	5.0	11	16.9
Patent incidental.....	32	18.4	12	20.0	12	18.5
Sub-total.....	80	46.0	15	25.0	23	35.4
No.....	94	54.0	45	75.0	42	64.6

dental, percentages are almost the same for the three classes. "No" replies are lowest for mechanical patents and highest for electrical. If we limit this analysis to patents for which know-how was deemed essential, the proportion responding "no" to question 17 would still be lowest for mechanical (37%) and about the same for electrical (57%) and chemical (58%).

The associations shown by Table 13 are statistically significant. The extent of this association is markedly increased if we limit the analysis to patents for which know-how is or was deemed essential. The associations shown by Table 13 are not materially affected when year of issue or utilization status are considered.<sup>36</sup>

*Variation of Assignee Replies to Question  
23 in Relation to Year of Issue of Patent*

Our earlier analysis of replies to question 23 has indicated that it is not too closely associated with replies to the question whether patent protection was important in developing know-how. In Table 14 we show the distribution of these replies according to year of issue of the sampled patent.<sup>37</sup>

Column 2 of Table 14 shows that if these replies reflect the attitude of assignees with respect to importance of patent protection, then, nearly two-thirds of all

<sup>36</sup>The chi-square derived from Table 13 is 15.07 with 4 degrees of freedom, which means a significance level of better than .005%. This marked association increases when we hold the utilization status or the year of issue of the sampled patent constant. The chi-square value from a parallel table limited to patents for which know-how is deemed essential is 33.56, again with 4 degrees of freedom.

<sup>37</sup>There is no reason to expect any close association between affirmative or negative replies to question 16 and replies to 23.



TABLE 14

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THEY WOULD HAVE DEVELOPED THE SAMPLED INVENTION WITHOUT PATENT PROTECTION FOR THE THREE YEARS AND FOR EACH OF THE YEARS IN WHICH PATENTS WERE ISSUED, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

WOULD YOU HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION?	THREE YEARS COMBINED			YEAR OF ISSUE OF SAMPLED PATENT								
				1938			1948			1952		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	600	600	448	183	183	127	159	159	127	258	258	194
Per cent .....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0
No.....	121	20.2	27.0	33	18.0	26.0	35	22.0	27.6	53	20.5	27.3
No with reservation.....	12	2.0	2.7	5	2.7	3.9	1	.6	.8	6	2.3	3.1
Sub-total.....	133	22.2	29.7	38	20.7	29.9	36	22.6	28.3	59	22.8	30.4
Yes.....	284	47.3	63.4	80	43.7	63.0	81	50.9	63.8	123	47.7	63.4
Yes with reservation.....	31	5.2	6.9	9	4.9	7.1	10	6.3	7.9	12	4.7	6.2
Sub-total.....	315	52.5	70.3	89	48.6	70.1	91	57.2	71.7	135	52.4	69.6
Specific answers.....	448	74.7		127	69.4		127	79.9		194	75.2	
Not applicable.....	100	16.7		39	21.3		21	13.2		40	15.5	
Not asked.....	14	2.3		5	2.7		2	1.3		7	2.7	
Not known.....	13	2.2		6	3.3		3	1.9		4	1.6	
Not answered.....	25	4.2		6	3.3		6	3.8		13	5.0	
Sub-total.....	152	25.3		56	30.6		32	20.1		64	24.8	

those answering indicate that they would develop an invention even if there were no patent protection. Another small percentage hedged their answer somewhat but also indicated that they would do so. Thus, 70% of those giving a specific answer indicate, on the whole, that they would develop the patented invention even if there were no patent protection. Most of the balance, about 27%, answered "no." A small proportion, 3%, answered "no" with some reservation.

Of the total of 600 patents for which we have completed questionnaires about 75% answered question 23 specifically.<sup>38</sup> Thus we might generalize that on the basis of these replies 70% thought the invention would have been developed without patent protection and 30% held the contrary view.

Turning to the other columns of Table 14, percentages are strikingly uniform, indicating that the attitude does not differ for patents issued in specific years. It may mean on the other hand, because of the confusion,<sup>39</sup> that replies are largely random, and no pattern is to be expected.

<sup>38</sup>A small proportion of the questionnaires did not include question 23. Nevertheless, they are included in the total, since the adjustment is of little moment.

<sup>39</sup>The reader, in interpreting the import of these statistics, should keep in mind at least these

*Variations of Assignee Replies to Question 23 in  
Relation to Utilization Status*

More insight might be had in understanding the implications of replies to question 23 from the associations found between them and utilization status than we have had so far by analyzing replies to 23 in relation to those of question 17. The relationship between replies to question 23 and utilization status is seen in Table 15. (Appendix, p. 500.)

The table, while it does show an appreciable number of specific answers among never used patents, shows that the greatest concentration is with respect to used patents. Thus, for patents in current use 93% had a specific reply to question 23. The corresponding percentage was 90 for patents used in the past. For patents about to be used and those categorized as "never used" the per cent with specific reply was 57 and 58. This difference between used and unused is statistically significant.<sup>40</sup> On the other hand, the difference in the proportion of currently used patents for which specific answers were given in comparison with patents used in the past is not significant and could be attributed to chance.<sup>41</sup>

It would, perhaps, be more significant—were these replies to have a real content—if the proportion of patents in which the assignee said he would not have developed the invention without patent protection were much lower for used patents than for the other categories. The opposite is the case. Of the patents in current use 15% say they would not have developed the patent, and of those with past use, 18%. The combined average is 16% for all used patents. The corresponding percentage for patents about to be used is 34 and for those never used, 49. This seems to suggest that the more hypothetical the answer of the assignee, the more apt he is to say he would not have developed the invention without patent protection.<sup>42</sup>

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reservations: (a) Our earlier analysis of replies to question 23 has indicated that perhaps some assignees became confused by the wording of this question and checked "yes" when they meant to check "no," or vice versa; (b) Many of the assignees who answered this question did not observe the specificity of the question which was in terms of the sampled patent. Many who answered affirmatively or negatively had sampled patents that had never been used as will be seen from Table 15; (c) That opinion, no matter who expresses it, is not fact. Certain types of opinions, though, are of great importance since they could be the basis for action. Other things being equal, the more hypothetical the situation on which opinion is expressed, the wider the possible gap between opinion and prospective action—since in such instances the individual who voices an opinion may reverse himself when faced with an actual situation; (d) The completed questionnaires which we have analyzed represent about half of the assigned patents in our probability sample. We do not know the effect that this might have on the relative frequencies of affirmative and negative responses which the table shows.

<sup>40</sup>The chi-square derived by comparing the distribution of returns with or without specific replies for used patents in comparison with those to be used in the future and those "never used" is 86.41 with 2 degrees of freedom. The difference could not be attributed to chance.

<sup>41</sup>The chi-square is less than 1, with 1 degree of freedom.

<sup>42</sup>This suggests the possibility that certain assignees fail to develop some of their patented inventions because they may feel the protection is insufficient. The difference in the percentage of those who would not have developed the invention without protection between patents in current use and those used in the past is not significant. However, when we compare used patents with those about to be used, the difference is statistically significant. The chi-square for the comparison of affirmative and negative replies for patents in current use and those used in the past is less than 1, and therefore not significant. The chi-square between the replies for used patents and those to be used in the future in terms of affirmative or negative answers to question 23 is statistically highly significant. Its value is 37.94 with 1 degree of freedom, therefore it could not be attributed to chance. This comparison is also striking when the proportion of affirmative replies, that the

In the final analysis while many replies to question 23 are not exactly on target, nevertheless they may reflect the general attitude of assignees as to the importance of patent protection. Replies relating to used patents probably reflect the judgment of respondents with respect to the sampled patent. If this assumption is valid then replies to question 23 for used patents is a far more dependable index of the significance which assignees attach to patent protection. More work along these lines, with closer follow-up of the intent of respondents, is required before confidence can be placed in the inference suggested by the present analysis.<sup>43</sup>

*Variations of Replies to Question 23 in Relation  
to Reasons Given for Current Non-use*

The relationship, if it has any inherent significance, between replies to question 12, reasons for current non-use, and question 23, whether the invention would have been developed without patent protection, is shown by Table 16. (Appendix, p. 501.)

Table 16 shows appreciable variation of patents for which specific replies were given to question 23 according to the grouping of patents by reasons for current non-use. The category labeled "not applicable" has the lowest residue, 7% (questionnaires without specific answers). This group represents patents in current use. Second lowest (21%) are patents classified (b) and (e) "obsolescence" as the reason for non-use. This group has a very high proportion of patents used in the past. Next to the "unanswered" group, the highest proportion (39%) of non-response to question 23 is with respect to (c) "competitively at a disadvantage." In this group the "never used" patents predominate. It would seem, therefore, that significant correlations found between replies to questions 12 and 23 for the most part could be explained in terms of associations already discussed of replies to 23 and the utilization status (Table 14).<sup>44</sup>

*Variations in Replies to Question 23 in Relation to Classification*

With respect to patents in the use of which know-how was deemed essential and the development of know-how depended on patent protection, it was found that the class of patent was an important differential element. Table 17 indicates the relationship between class of patent and assignee replies as to whether the invention would have been developed if there were no patent protection.

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assignee would not have developed the invention without patent protection, for used patents are compared with that of "never used" patents, 16% and 49%, respectively. The standard error of the difference of these two percentages is 4.6 while the observed difference is 7 times the standard error, and therefore decidedly significant.

On the other hand, the apparent difference in this percentage for patents with future use and those never used, 59 and 49, respectively, is not statistically significant and could be the result of random variation.

<sup>43</sup>Perhaps an analysis of the consistency of replies of identical assignees with two or more patents may prove instructive in appraising the meaningfulness of these replies.

<sup>44</sup>For the association between reasons for current non-use of the sampled patent and utilization status, see PTC J. Res. & Ed., 2, No. 1 (March 1958), pp. 15-17, 40, Tables 7, 8, and Va.

TABLE 17

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THEY WOULD HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION ACCORDING TO THE CLASSIFICATION OF THE SAMPLED PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

WOULD YOU HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION?	CLASSIFICATION OF SAMPLED PATENT								
	MECHANICAL			ELECTRICAL			CHEMICAL		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	338	338	273	117	117	80	145	145	95
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0
No.....	69	20.4	25.3	14	12.0	17.5	38	26.2	40.0
No with reservations.....	6	1.8	2.2	2	1.7	2.5	4	2.8	4.2
Sub-total.....	75	22.2	27.5	16	13.7	20.0	42	29.0	44.2
Yes.....	181	53.6	66.3	52	44.4	65.0	51	35.2	53.7
Yes with reservations.....	17	5.0	6.2	12	10.3	15.0	2	1.4	2.1
Sub-total.....	198	58.6	72.5	64	54.7	80.0	53	36.6	55.8
With specific answers.....	273	80.8		80	68.4		95	65.6	
Not applicable.....	42	12.4		24	20.5		34	23.4	
Not asked.....	6	1.8		7	6.0		1	.7	
Not known.....	4	1.2		4	3.4		5	3.4	
Not answered.....	13	3.8		2	1.7		10	6.9	
Sub-total.....	65	19.2		37	31.6		50	34.4	

The proportion of patents with specific answers is appreciably higher for mechanical patents, nearly 81% as against 68 for electrical and 66 for chemical. This pattern is probably the result of a higher proportion of the mechanical patents being used as compared with electrical and chemical patents.<sup>45</sup>

Considering patents with specific replies there are marked differences in affirmative replies. Thus, 20% of the assignees of electrical patents, who gave a specific answer to question 23, said that they would not have developed the invention without patent protection (Column 7). The comparable percentages for mechanical and chemical patents are 28 and 44. This difference is statistically significant.<sup>46</sup>

<sup>45</sup>Of the mechanical patents 57.1% are in current use or used in the past. The corresponding percentages for electrical and chemical patents are 44.4 and 35.7, respectively. The difference is significant. The chi-square with 2 degrees of freedom is 15.83; this is equivalent to a "p" much less than .01.

<sup>46</sup>The chi-square test yields a value of 13.86 with 2 degrees of freedom which indicates a "p" value considerably less than .01. A comparison of the percentage of affirmative replies for mechanical patents with that of electrical shows that this difference is not statistically significant. The observed difference is 7.5 while the standard error of the difference is 5.6. The comparison of the percentage of affirmative replies for mechanical patents is significantly lower than that for chemical patents. The observed difference is 16.7 while the standard error of the difference is 5.4, less than one-third of the observed difference. The odds are less than 26 to 10,000 that a difference as large as this could have resulted through chance. The difference between chemical and electrical is also statistically significant.

This pattern of the highest proportion of affirmative replies for chemical patents and lowest for electrical is observed in each of the three years. This suggests that chemical firms attach most importance to patent protection and electrical firms least.

#### BENEFITS DERIVED OR TO BE DERIVED FROM THE SAMPLED PATENT

At this point we shall analyze assignee replies to question 20 which reads: "Describe any other benefits which you have derived or expect to derive from your right(s) in the sampled invention."<sup>47</sup> The wording of this question in terms of "any other benefits" is to take account of those in addition to the benefits set forth in response to questions 18 and 19. Question 18 seeks information on the increase in sales attributable to the use of the sampled patent. Question 19 seeks information on the effect of the use of the sampled patent in reducing production costs. Question 20 is intended to elicit information with respect to benefits, realized or to be realized separate and distinct from increased sales and reduced production costs. Another distinction between question 20 and 18 and 19 is that the latter two questions are restricted to patents which have come into use, currently or in the past. Question 20 is not so restricted. It seeks information of realized or expected benefits from all patents, and is included because it is assumed that patents may be economically valuable even if they fail to meet our definition of "use." Replies to question 20 with respect to patents that have not been used have been analyzed in previous reports.<sup>48</sup> The present analysis is not restricted to unused patents as was the previous analysis.<sup>49</sup>

<sup>47</sup>PTC J. Res. & Ed., 1, No. 1 (June 1957), p. 111.

<sup>48</sup>*Ibid.*, 2, No. 3 (Sept. 1958), pp. 359-360; *ibid.*, 2, Conference Supplement (1958), pp. 189-222.

<sup>49</sup>Replies to question 20 were widely diverse, as would be expected in an unstructured question of this type. Even though the purpose of the question was to elicit benefits other than those in terms of increased sales or reduced production costs, some of the respondents have not so restricted their replies. The following is a sample of the replies to this question. They were selected at random, as we may see; some of these are benefits in terms of sales and production costs:

1. New design future.
2. Experience gained in development of this machine used in developing other machines.
3. Improved usage and operational methods.
4. An aid to handling and transmitting bids.
5. Prestige (in the small number of randomly selected cases used for this illustration, one other mentioned prestige).
6. Made possible the sale of magnifier, which is an attachment to an attachment (this is perhaps not a benefit distinct from increased sales).
7. Three men now do more work than was previously required of 15 men—(this again indicated basically reduced production costs).
8. In view of the fact that our present competitors have not offered this feature we have a sales advantage (see observation on 6 above).
9. Increased safety valuable sales argument.
10. Just protection.
11. Improved quality and appearance.
12. A better article resulted from its employment.
13. Royalties from business.

The above illustrations give some idea of the widely diverse replies. First, an attempt was made to group these in terms of specific reasons, but the number of homogeneous groups became too numerous for meaningful analysis. They have, therefore, been grouped into a few broad categories.

*Actual and Anticipated Benefits*

Table 18 shows in terms of general categories the replies to question 20. The table includes all returned questionnaires. It also shows the replies by year of issue of the sampled patent.<sup>50</sup>

TABLE 18

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE BENEFITS THEY HAVE DERIVED OR EXPECT TO DERIVE FROM THE SAMPLED PATENT OTHER THAN BENEFITS IN TERMS OF INCREASED SALES AND/OR REDUCED PRODUCTION COSTS\* RELATED TO THE YEAR OF ISSUE OF THE SAMPLED PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

BENEFITS OTHER THAN INCREASED SALES AND/OR REDUCED PRODUCTION COSTS*	THREE YEARS COMBINED			YEAR OF ISSUE OF SAMPLED PATENT								
				1938			1948			1952		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	600	600	319	183	183	97	159	159	81	258	258	141
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0
Actual or possible exploitation.....	115	19.2	36.1	32	17.5	33.0	23	14.5	28.4	60	23.2	42.6
Actual or possible royalties.....	48	8.0	15.0	8	4.4	8.2	12	7.5	14.8	28	10.8	19.9
Development of the art.....	41	6.8	12.9	9	4.9	9.3	14	8.8	17.3	18	7.0	12.8
Alternate process.....	9	1.5	2.8	2	1.1	2.1	3	1.9	3.7	4	1.6	2.8
Sub-total.....	213	35.5	66.8	51	27.9	52.6	52	32.7	64.2	110	42.6	78.0
None.....	106	17.7	33.2	46	25.1	47.4	29	18.2	35.8	31	12.0	22.0
Specific answers	319	53.2		97	53.0		81	50.9		141	54.6	
Not known.....	14	2.3		3	1.6		7	4.4		4	1.6	
Not answered.....	267	44.5		83	45.3		71	44.7		113	43.8	
Sub-total.....	281	46.8		86	47.0		78	49.1		117	45.4	

\*Even though the wording of question 20 was to exclude benefits resulting in increased sales or decreased production costs, some assignees have responded to 20 in terms of these. These replies are included in the present analysis without an attempt to segregate these from other and more appropriate replies.

Columns 2, 3, and 4 show the distribution of replies in terms of our broad grouping. Of the 600 returns, 319 or 53% gave some specific reply. The balance, about 2% said they did not know and about 44% failed to make an entry.

Considering the group that gave a specific reply, about two-thirds mention some beneficial effect, while a third say there is none. Probably, many of those who failed to give a specific response, had they answered would have said "no benefit." Similarly, the proportion in the "no benefit" category would have been higher had

<sup>50</sup>In the analysis which follows, benefits such as 6, 7, or 8 of illustrative random replies have not been excluded, even though some of them were hardly appropriate to question 20 which was designed to be limited to benefits other than those of increased sales and/or reduced production costs.

respondents adhered to the question and indicated only benefits which were distinct and separate from those resulting in increased sales and/or reduced production costs.

In terms of year of issue the percentage of patents with respect to which specific answer was given to question 20 is essentially constant, ranging from a low of 51% for patents issued in 1948 to a high of about 55% for those issued in 1952.

The percentage of replies indicating "no benefit," declines progressively with year of issue. It constitutes 47% of those answering question 20 for patents issued in 1938. This percentage declines to 36 for those issued in 1948 and to 22 for those issued in 1952. The decrease is statistically significant.<sup>51</sup>

### *Replies to Question 20 Related to Utilization Status*

It is of interest to relate replies as to benefits from the sampled patents, given to question 20, to their utilization status. This is shown by Table 19. (Appendix, p. 502). The proportion of patents with specific answers to question 20 is highest for patents in current use and lowest for the never used patents. The percentages are nearly 61 and 48 respectively. These differences are not statistically significant.<sup>52</sup>

A comparison of the percentages with specific answer for patents in current use and those never used indicates that this difference is probably significant since the observed difference is nearly three times the standard error of the difference. However, percentage differences for the others are not statistically significant.

Of the patents with specific answers to question 20 the proportion for which answer was "no benefits" also varies markedly for patents with different utilization status. The lowest percentage of negative answers is found for patents about to be used, 8. The next lowest is for patents in current use, almost 20; followed by patents used in the past, 34% and finally the "never used" patents, 51%. The differences thus observed are logical and also statistically significant.<sup>53</sup>

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<sup>51</sup>Variations in the frequency of different types of benefits are not statistically significant. Therefore, there is no need to consider these in detail.

The chi-square obtained is 16.94 with 2 degrees of freedom which is highly significant and suggests a progressive decline of patents in which the reply to question 20 was "none." Some of this difference is based on the faith of those with relatively recent patents that some benefits from the sampled patent will be derived prior to expiration. We could not be certain, however, that there has not been a diminution of the number of worthless patents since 1938.

<sup>52</sup>The chi-square resulting is 7.37 with 3 degrees of freedom. This is of borderline significance, somewhat lower than chi-square with a "p" of .05 which is 7.815.

<sup>53</sup>The chi-square resulting is 32.85 with 3 degrees of freedom, and is not likely to be attributable to chance.

The difference between patents used in the future and those in current use is not statistically significant, but the difference in the percentage answering "none" for patents to be used in the future and those used in the past is statistically significant. This is also true with respect to the comparison of either currently used patents or those used in the past with "never used" patents. The standard error of the difference for percentage of "none" replies of patents used in the past and those used in the future is 10.04 while the observed difference is 25.8. Similarly, the standard error for the percentages of patents used in the past and those never used is 7.78 while the observed difference is 17.0.

*Replies to Question 20 Related to the Classification*

Table 20 shows the variation in replies to question 20 according to classification of the sampled patent.

TABLE 20

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE BENEFITS THEY HAVE DERIVED OR EXPECT TO DERIVE FROM THE SAMPLED PATENT OTHER THAN BENEFITS IN TERMS OF INCREASED SALES OR REDUCED PRODUCTION COSTS\* RELATED TO THE CLASS OF THE SAMPLED PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

BENEFITS OTHER THAN INCREASED SALES AND/OR REDUCED PRODUCTION COSTS*	CLASS OF THE SAMPLED PATENT								
	MECHANICAL			ELECTRICAL			CHEMICAL		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	338	338	189	117	117	49	145	145	81
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0
Actual or possible exploitation.....	71	21.0	37.6	18	15.4	36.7	26	17.9	32.1
Actual or possible royalties.....	19	5.6	10.1	7	6.0	14.3	22	15.2	27.2
Development of the art.....	23	6.8	12.2	6	5.1	12.2	12	8.3	14.8
Alternate process.....	7	2.1	3.7	1	.9	2.0	1	.7	1.2
Sub-total.....	120	35.5	63.5	32	27.4	65.3	61	42.1	75.3
None.....	69	20.4	36.5	17	14.5	34.7	20	13.8	24.7
Specific answers.....	189	55.9		49	41.9		81	55.9	
Not known.....	5	1.5		7	6.0		2	1.4	
Not answered.....	144	42.6		61	52.1		62	42.8	
Sub-total.....	149	44.1		68	58.1		64	44.1	

\*Even though the wording of question 20 was to exclude benefits in terms of those resulting in increased sales or decreased production costs, some assignees have responded to 20 in terms of these. These replies are included in the present analysis without an attempt to segregate these from other and more appropriate replies.

With respect to mechanical and chemical patents, 56% answered question 20 specifically. The corresponding percentage is significantly lower for electrical patents (42%).<sup>54</sup>

The proportion of patents in which the reply was "none" is highest for mechanical patents, 36.5%, and lowest for chemical, 24.7%. These differences could be attributed to chance fluctuations.<sup>55</sup>

<sup>54</sup>The standard error of difference between the percentage of patents with specific replies among electrical patents compared with the combined percentage for mechanical and chemical is 5.14 while the observed difference is 14, almost 3 times the standard error, and therefore significant.

<sup>55</sup>The chi-square resulting from this comparison is 3.61 with 2 degrees of freedom. This is not statistically significant. Similarly, comparing the lowest percentage answering, 24.7, for chemical patents with the combined percentage for mechanical and electrical, 36.1, also shows no significant difference. The standard error of the difference is 6.1%, and the observed difference is 11.4%. The ratio of the standard error to the observed error approaches 2 thus the difference approaches the borderline of statistical significance at the 5% level.



There are marked differences in relative frequency of the different types of replies as to the nature of benefits derived. These can be attributed to chance.<sup>56</sup>

#### REASONS FOR LICENSING

The assignee questionnaire has two questions bearing on licensing, questions 21 and 22. The first of these reads as follows: "Have licenses been issued by you to others for the sampled patent? (a) Yes, (b) No. If no, would you be willing to license it? (1) Yes, (2) No, (3) Other (specify). If yes, did the license contain provisions relating to: (check) (a) Quantity, (b) Territory, (c) Price, (d) Other (specify)."<sup>57</sup>

The first part of this question, (i.e., whether the sampled patent was licensed, and, with respect to those not licensed was the assignee willing to license), was analyzed and presented in a previous interim report.<sup>58</sup>

Our present interest is with respect to reasons for licensing, therefore, we shall confine ourselves largely to the 158 licensed patents. The analysis is based on replies to question 22 which reads: "If it has been licensed, what were the reasons for licensing it? (comment)"<sup>59</sup>

#### *Assignee Reasons for Licensing Related to Year of Issue*

Table 21 presents the distribution of assignee replies to question 22, with respect to reasons for licensing. Since the question was an unstructured one, we had a wide variety of replies. We have grouped these in more or less homogeneous categories as set forth in the stub of Table 21.

Of the total returns, 124 or about 20% made a specific entry under question 22.<sup>60</sup> The bulk of the remainder, 70%, represent patents that were not licensed; therefore, no answer was required. Thus, these were "not applicable." In two instances, the assignee replied to question 22 even though in reply to question 21 he indicated that the patent was not licensed. There was no answer or the answer was "don't know" in 36 cases of licensed patents. Of the group that answered the question specifically, the largest segment, 39%, consists of those who gave as the reason for licensing "cross licensing or a package deal." Second in rank is "royalties," nearly

<sup>56</sup>The chi-square derived from this distribution is 11.44 with 6 degrees of freedom. The "p" corresponding to this value is smaller than .1 and larger than .05, which is not significant at the 5% level.

<sup>57</sup>PTC J. Res. & Ed., 1, No. 1 (June 1957), p. 111.

<sup>58</sup>*Ibid.*, 2, No. 1 (March 1958), pp. 20-23, and 43.

It was there shown that of the 528 assignee returns 141 or 27% indicated the patent was licensed. Of the total, 19 supplied no information with respect to licensing. Excluding these 19 raises the percentage to 28 reported licensed (of those supplying information on licensing). At the time of this report, of the 600 returns 158 indicate the patent is licensed, or over 26% of the total. Twenty-two cases provide no information with respect to licensing. If these are excluded, the percentage of licensed patents (of those with information on licensing) is over 27, essentially the same as was reported previously.

<sup>59</sup>*Ibid.*, 1, No. 1 (June 1957), p. 111.

<sup>60</sup>Of the 158 with a response of "yes" to question 21, 38 or 24% failed to respond to question 22.

TABLE 21

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE REASONS FOR LICENSING THE SAMPLED PATENT FOR THE THREE YEARS AND FOR EACH OF THE YEARS IN WHICH THE PATENTS WERE ISSUED, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

REASONS FOR LICENSING THE SAMPLED PATENT	THREE YEARS COMBINED			YEAR OF ISSUE OF SAMPLED PATENT								
				1938			1948			1952		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number.....	600	600	123	183	183	36	159	159	34	258	258	53
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0
Cross licensing or package deal.....	4 <sup>P</sup>	8.0	39.0	12	6.6	33.3	16	10.1	47.1	20	7.8	37.8
Royalties.....	23	3.8	18.7	6	3.3	16.7	6	3.8	17.6	11	4.3	20.8
Licensee request.....	8	1.3	6.5	2	1.1	5.6	1	.6	2.9	5	1.9	9.4
Broaden the market.....	14	2.3	11.4	7	3.8	19.4	3	1.9	8.8	4	1.6	7.5
Compulsory licensing or interference.....	7	1.2	5.7	4	2.2	11.1	2	1.3	5.9	1	.4	1.9
Out of our line.....	6	1.0	4.9	2	1.1	5.6	1	.6	2.9	3	1.2	5.7
Connected with government contract.....	6	1.0	4.9	---	---	---	4	2.5	11.8	2	.8	3.8
In business to license.....	4	.7	3.2	---	---	---	---	---	---	4	1.6	7.5
Other.....	7	1.2	5.7	3	1.6	8.3	1	.6	2.9	3	1.2	5.7
Sub-total.....	123	20.5		36	19.7		34	21.4		53	20.5	
Not applicable.....	419	69.8		127	69.4		109	68.6		183	70.9	
Not known.....	1	.2		1	.5		---	---		---	---	
Not answered.....	57	9.5		19	10.4		16	10.1		22	8.5	
Sub-total.....	477	79.5		147	80.3		125	78.6		205	79.5	

19%. The third reason in rank of frequency is "to broaden the market," about 11%. Nearly 6% gave the reason "compulsory licensing or interference." Despite widespread government contracting, only 5% gave this as the reason for licensing.<sup>61</sup>

In all three years, the most frequently mentioned reason is "cross licensing or package deal," ranging from a low of 33% for patents issued in 1938 to a high of 47% for those issued in 1948. The percentage giving "royalties" as a reason for licensing is also high, though not second in rank for each year. It ranges from a low of nearly 17% for 1938 to a high of nearly 21% for 1952.

<sup>61</sup>Turning to the variation in the general pattern for patents issued in different years, the percentage responding to question 22 is about the same for each of the three years, ranging from 19.7 to 21.4. This is well within the range of sampling variability.

With respect to the relative proportion of patents with specific reasons for licensing there are marked variations. Because of the relatively small number of patents involved, it is not possible to demonstrate that these variations are statistically significant. For instance, the relatively high proportion of patents connected with a government contract licensed in 1948 is probably more than chance.

*Reasons for Licensing Related to Utilization Status*

Table 22 (Appendix, p. 503) gives the distribution of reasons for licensing status differentiated by utilization status.

The percentage of patents with specific replies varies appreciably with utilization status. It is highest for patents in current use and lowest for those that have never been used, 31% and 12%, respectively. The association observed is large enough to be statistically significant.<sup>62</sup> The percentage giving reasons for licensing of patents in current use is not significantly higher than the corresponding percentage for patents used in the past. Both groups, however, have a significantly higher proportion responding than those for "never used" patents. One important underlying factor for this difference is that a higher proportion of used patents are licensed than is true of "never used" patents. This is reflected in the percentage "not applicable," which represents all the unlicensed patents.<sup>63</sup> The percentage of unlicensed patents shown by Table 22 is lowest for used (in current use or used in the past) patents (66%), higher for never used patents (75%), and somewhat higher for patents about to be used (77%).

Turning to the specific replies there are appreciable differences. Comparison of the distribution of replies for the 296 used patents with the 304 remaining patents shows a statistically significant difference. The largest contributions to the chi-square are made by the following response groups: (1) "cross licensing and package deal"—indicating a higher proportion give this reason for unused patents as compared with used patents; (2) "broaden the market"—all of these by definition would have to be among the used patents, and they are; and (3) "licensee request"—more of these are found among the used patents.

*Variations of Reasons for Licensing Related to Reasons for Current Non-use*

Table 23 (Appendix, p. 504) shows the interrelationship between assignee reasons for licensing and reasons for current non-use of the sampled patent.

The table suggests marked variations with respect to percentage of patents with specific replies among patents with different reasons for current non-use. This percentage is highest for the non-applicable group, which are essentially synonymous with patents in current use. It is nearly 22% for patents in which the reason for current non-use is (a) "lack of market demand," 20% for patents with miscellaneous single reasons, to a minimum of 4% for patents with no response regarding reasons for current non-use. These differences are statistically significant.<sup>64</sup> This association, however, may be attributed to the association between reasons for cur-

<sup>62</sup>The chi-square resulting is 20.5 with 4 degrees of freedom, which indicates a "p" appreciably lower than .01.

<sup>63</sup>Of the 600 patents considered, 422 are known to be unlicensed. Of these, 419 are included in the category "not applicable" in Table 22.

<sup>64</sup>The chi-square obtained to test the hypothesis of uniformity is 22.86 with 5 degrees of freedom, which is equivalent to a "p" less than .01. Therefore the difference could not be attributed to chance. The hypothesis of uniformity could not be sustained.

rent non-use with utilization on one hand, and the association already shown (Table 22) between utilization status and giving reasons for licensing the patent.

The relative frequency of the different reasons given, also appear to differ considerably. This too may be attributable to cross-relationships between the three factors, that is, reasons for licensing the sampled patents with utilization status, and utilization status with reasons for current non-use.

### *Reasons for Licensing Related to the Class of the Patent*

Table 24 shows the relationship between licensing and reasons for licensing for patents in specified classes.

TABLE 24

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE REASONS FOR LICENSING THE SAMPLED PATENT RELATED TO THE BROAD CLASSIFICATION OF THE PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

## PRELIMINARY

REASONS FOR LICENSING THE SAMPLED PATENT	CLASS OF SAMPLED PATENTS								
	MECHANICAL			ELECTRICAL			CHEMICAL		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	338	338	59	117	117	34	145	145	30
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0
Cross licensing or package deal.....	11	3.3	18.6	27	23.1	79.4	10	6.9	33.3
Royalties.....	15	4.4	25.4	3	2.6	8.8	5	3.4	16.7
Licensee request.....	6	1.8	10.2	2	1.7	5.9	1	.7	3.3
Broaden the market.....	9	2.7	15.3	1	.9	2.9	4	2.8	13.3
Compulsory licensing or inter- ference.....	5	1.5	8.5	---	---	---	2	1.4	6.7
Out of our line.....	4	1.2	6.8	1	.9	2.9	1	.7	3.3
Connected with government contract.....	2	.6	3.4	---	---	---	4	2.8	13.3
In business to license.....	1	.3	1.7	---	---	---	2	1.4	6.7
Other.....	6	1.8	10.2	---	---	---	1	.7	3.3
Sub-total.....	59	17.5		34	29.1		30	20.7	
Not applicable.....	256	75.7		55	47.0		108	74.5	
Not known.....	1	.3		---	---				
Not answered.....	22	6.5		28	23.9		7	4.8	
Sub-total.....	279	82.5		83	70.9		115	79.3	

The table shows a markedly higher proportion of specific replies among electrical patents in comparison with chemical and mechanical. This appears to result from

the fact that a much higher proportion of electrical patents is licensed in comparison to those in the other two classes.<sup>65</sup>

There are also marked variations in the relative frequency with which patents are licensed, depending on class. In spite of the small frequencies, which makes it hazardous to reach statistically significant conclusions, the following can be validated: (1) a significantly higher proportion of electrical patents are licensed through "cross licensing or package deal" than is true for chemical or mechanical patents; (2) a higher proportion of mechanical patents are licensed for "royalties" than is true for electrical patents. Other relationships, though not statistically significant, suggest the following: a higher concentration of "broaden the market" as the reason among mechanical patents in comparison to electrical, and also "licensee request." For chemical patents there is a greater relative concentration of patents with reason for licensing given as "connected with government contract." These relationships indicate markedly different reasons given for licensing by different industries. They suggest that the area of industry in which government involvement was most extensive in the three years studied was perhaps the chemical industry.

#### CONCLUSIONS

*Is or was know-how essential?* Analyses of the assignee replies to whether know-how was or is essential in the use of sampled patents indicate that about one-half of the patents require know-how for practical utilization of the invention. There is evidence that a somewhat larger proportion of patents issued in 1952 require know-how in comparison with patents issued in 1938 and 1948. There is no firm evidence that a higher percentage of patents in current use require know-how, compared with those used in the past. Nor is there evidence that know-how is required more often for patents in one class, such as chemical, than for those classed as mechanical or electrical.

There is marked association in the replies between the need for know-how in use of the patent and reasons given for its current non-use. For patents in which reasons for current non-use are given as (c) "competitively at a disadvantage," and (b) and (e) "obsolescence," only about 40% are said to require know-how in use of the patent. For patents in which the reason for current non-use was given as (a) "lack of market demand," or some other single or multiple reason, the percentage in which know-how was said to be essential was 60. The difference between these two percentages is statistically significant. This may suggest that patents for pioneering inventions more often require know-how than patents for other inventions.

*Was patent protection important in developing know-how?* The assignee replies as to whether patent protection was an important consideration in develop-

<sup>65</sup>If we combine mechanical and chemical patents about 18% of these had specific replies as to reasons for licensing, an observed difference of nearly 11% which is close to 3 times the standard error of the difference which is 4.1, therefore significant. Forty-eight per cent of the electrical patents were licensed, the corresponding percentage for mechanical patents is 21 and for chemical patents 22. Thus a significantly higher proportion of electrical patents are licensed in comparison with mechanical and chemical patents.

ing know-how, suggest that many assignees responded in more general terms than intended by the question. The replies were formulated in terms of a more or less defined group of patents rather than with specific reference to the circumstances of the sampled patent. Nevertheless, there are associations between the replies and the sampled patent.

The associations suggest that patent protection as a necessary or adjunct condition to development of know-how is relatively least significant for patents issued in 1948, and somewhat more significant for patents issued in 1938, and most significant for those issued in 1952.

It appears that an appreciable number who replied negatively probably meant that the question had no bearing since the proportion of patents with negative replies is much higher for those patents not requiring know-how.

There is a marked and consistent association between the frequency of affirmative replies to the importance of patent protection for the development of know-how and class of patent. This association is highest for mechanical patents and lowest for electrical.

The foregoing relations are on the whole accentuated if the analyses are restricted to patents for which know-how was deemed essential.

*Would you have developed the invention without patent protection?* The analysis of replies of assignees as to whether the patent protection was important in developing the invention indicates that 70% of the assignees would have developed the invention even if there had been no protection. This proportion remains reasonably constant with respect to patents issued in different years.

Many assignees replied to this question though the sampled patent had not been used. There was, however, a much heavier concentration of replies for used patents: 93% for those in current use and 90% for those used in the past. The corresponding percentage for the remaining patents was about 57. The proportion of assignee replies that the invention would not have been developed without patent protection was lowest for patents in current use, 15%, and not significantly higher for those used in the past, 18%. The corresponding percentages for patents about to be used and "never used" were 59 and 49, respectively.

A much higher percentage of assignees with chemical patents assert the importance of patent protection in the development of the patent than that for mechanical and electrical patents. Affirmative replies to this question are approximately 44% for chemical, 28% for mechanical, and 20% for electrical patents. These relative proportions are the same for patents used in different years. Some of the correlation found may be attributed to association between class and utilization status.

*Benefits other than increased sales or reduced production costs derived or expected from the patent.* Question 20 was designed to elicit information on benefits derived or expected from the sampled patent other than increased sales or reduced production costs. One-third of the specific replies to this question are negative and

two-thirds affirmative. Probably this high proportion of patents with "other benefits" might be due largely to the fact that almost half the returns included no response. The percentage of patents with replies in which the answer was "none" declines progressively from 47 for patents issued in 1938 to 22 for those issued in 1952.

*Reasons for licensing.* Twenty-six per cent (158) of the 600 patents with completed questionnaires are licensed. Seventy-six per cent (124) responded to this question.

The most frequent reason given for licensing is "cross licensing or package deal," (39%); followed by "royalties," (19%); and "broaden the market," (11%). Only 5% gave as a reason for licensing "connected with government contract."

Certain of the reasons for licensing vary in their relative frequency among patents issued in different years. Because of the small number of cases involved, it is not possible to say whether these variations are statistically significant. Thus, 33% gave "cross licensing or package deal" as the reason for patents issued in 1938. The corresponding percentage for patents issued in 1948 was 47.

Reasons for licensing are given for a higher proportion of used in comparison to unused patents, 31% for the former and 12% for the latter. Only part of this statistically significant difference is attributable to the fact that a higher proportion of used patents was licensed. There is marked and significant variation in reasons for licensing among used and unused patents. The proportion of patents with "cross licensing or package deal" is greater among unused patents; "licensee request" is more frequently given as the reason for licensing among used patents. As one would expect, to "broaden the market" occurs only with used patents.

Licensed patents are far more common among electrical as compared with mechanical and chemical patents, 48%, 21%, and 22% respectively. Reasons for licensing also differ markedly among patents differentiated by class. For electrical patents, nearly four-fifths give as the reason for licensing "cross licensing or package deal." This is significantly higher than corresponding percentages among mechanical and chemical patents. "Royalties" is significantly higher for mechanical patents than for electrical. These relationships suggest that the reasons given for licensing vary markedly among the different industries.

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**TABLE 3**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL TO THE USE OF THE SAMPLED PATENT RELATED TO REASONS FOR THE CURRENT NON-USE OF THE PATENT, BASED ON ASSIGNEE RETURNS RECEIVED ON OR BEFORE 7/1/58.**  
**PRELIMINARY**

REASONS FOR CURRENT NON-USE OF THE SAMPLED PATENT																
Was or Is Know-how Essential?	(a) Lack of Market Demand			(b) and (c) Obsolescence*			(c) Competitively at a Disadvantage			Other Single Reasons			Other Multiple Reasons			
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
Total: Number	102	102	25	74	74	43	137	137	19	40	40	16	46	46	17	
Per cent		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0	
Yes	14	13.7	56.0	15	20.3	34.9	6	4.4	31.6	8	20.0	50.0	10	21.8	58.8	
No	11	10.8	44.0	25	33.8	58.1	12	8.8	63.2	6	15.0	37.5	7	15.2	41.2	
Other				3	4.1	7.0	1	.7	5.2	2	5.0	12.5				
Sub-total	25	24.5		43	58.2		19	13.9		16	40.0		17	37.0		
Not applicable	76	74.5		27	36.5		118	86.1		22	55.0		27	58.7		
Not asked	1	1.0		1	4.0											
Not answered				3	1.3					2	5.0		2	4.3		
Sub-total	77	75.5		31	41.8		118	86.1		24	60.0		29	63.0		

\*The specific wording for (b) was "rapid obsolescence." There was no separate category corresponding to (c) in the assignee questionnaire, but in the inventor questionnaire there was an item (c) which reads "development of the art has taken a different course." Replies like this entered under "other" by assignees in question 12 have been combined with (b).



TABLE 6  
NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER KNOW-HOW WAS OR IS ESSENTIAL FOR PATENTS IN CURRENT USE AND THOSE USED IN THE PAST DIFFERENTIATED BY CLASS, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.  
PRELIMINARY

Was or Is Know-how Essential?	PATENTS IN CURRENT USE										PATENTS USED IN THE PAST													
	MECHANICAL				ELECTRICAL				CHEMICAL				MECHANICAL				ELECTRICAL				CHEMICAL			
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)						
Total: Number.....	128	128	122	24	24	21	31	31	30	65	65	57	28	28	26	20	20	18						
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0						
Yes.....	68	53.1	55.7	12	50.0	57.2	17	54.8	56.7	26	40.0	45.6	12	42.9	46.2	12	60.0	66.7						
No.....	54	42.2	44.3	9	37.5	42.8	13	42.0	43.3	31	47.7	54.4	14	50.0	53.8	6	30.0	33.3						
Sub-total.....	122	95.3		21	87.5		30	96.8		57	87.7		26	92.9		18	90.0							
Not asked.....	1	.8		2	8.3		---			3	4.6		2	7.1		---								
Not known.....										1	1.5													
Not answered.....	5	3.9		1	4.2		1	3.2		4	6.2		---			2	10.0							
Sub-total.....	6	4.7		3	12.5		1	3.2		8	12.3		2	7.1		2	10.0							





**TABLE 15**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO WHETHER THEY WOULD HAVE DEVELOPED THE SAMPLED INVENTION WITHOUT PATENT PROTECTION ACCORDING TO THE UTILIZATION STATUS OF THE SAMPLED PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.**  
**PRELIMINARY**

UTILIZATION STATUS OF THE SAMPLED PATENT																
WOULD YOU HAVE DEVELOPED THE INVENTION WITHOUT PATENT PROTECTION?	IN CURRENT USE			USED IN THE PAST			USED PATENTS			FUTURE USE			NEVER USED			No. INFORMATION
	No.	Per Cent	Specific Answer	No.	Per Cent	Specific Answer	No.	Per Cent	Specific Answer	No.	Per Cent	Specific Answer	No.	Per Cent	Specific Answer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Total: Number.....	183	183	170	113	113	102	296	296	272	47	47	27	252	252	145	5
Per cent.....		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0	
No.....	22	12.0	12.9	14	12.4	13.7	36	12.2	13.2	15	31.9	55.6	69	27.4	47.6	1
No with reservations.....	4	2.2	2.4	4	3.5	3.9	8	2.7	2.9	1	2.1	3.7	2	.8	1.4	1
Sub-total.....	26	14.2	15.3	18	15.9	17.6	44	14.9	16.1	16	34.0	59.3	71	28.2	49.0	2
Yes.....	137	74.9	80.6	78	69.0	76.5	215	72.6	79.1	11	23.4	40.7	56	22.2	38.6	2
Yes with reservations.....	7	3.8	4.1	6	5.3	5.9	13	4.4	4.8	---	---	---	18	7.1	12.4	---
Sub-total.....	144	78.7	84.7	84	74.3	82.4	228	77.0	83.9	11	23.4	40.7	74	29.3	51.0	2
Specific answers.....	170	92.9		102	90.2		272	91.9		27	57.4		145	57.5		---
Not applicable.....	---	---	---	---	---	---	---	---	---	5	10.6		95	37.7		---
Not asked.....	3	1.6		5	4.4		8	2.7		---	---		6	2.4		---
Not known.....	3	1.6		3	2.7		6	2.0		1	2.1		6	2.4		---
Not answered.....	7	3.8		3	2.7		10	3.4		14	29.8		---	---		1
Sub-total.....	13	7.1		11	9.8		24	8.1		20	42.6		107	42.5		1



TABLE 19

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE BENEFITS THEY HAVE DERIVED OR EXPECT TO DERIVE FROM THE SAMPLED PATENT OTHER THAN BENEFITS IN TERMS OF INCREASED SALES OR REDUCED PRODUCTION COSTS\* RELATED TO THE UTILIZATION STATUS OF THE SAMPLED PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.

PRELIMINARY

BENEFITS OTHER THAN INCREASED SALES AND/OR REDUCED PRODUCTION COSTS*	UTILIZATION STATUS OF THE SAMPLED PATENT												
	IN CURRENT USE			PAST USE			FUTURE USE			NEVER USED			No INFOR- MATION
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Total: Number	183	183	111	113	113	62	47	47	25	252	252	120	5
Per cent		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0	
Actual or possible exploitation	61	33.3	55.0	21	18.6	33.9	9	19.2	36.0	24	9.5	20.0	
Actual or possible royalties	16	8.7	14.4	7	6.2	11.3	8	17.0	32.0	17	6.7	14.2	
Development of the art	10	5.5	9.0	6	5.3	9.7	6	12.8	24.0	18	7.1	15.0	1
Alternate process	2	1.1	1.8	7	6.2	11.3							
Sub-total	89	48.6	80.2	41	36.3	66.2	23	49.0	92.0	59	23.4	49.2	1
None	22	12.0	19.8	21	18.6	33.8	2	4.2	8.0	61	24.2	50.8	
Specific answers	111	60.6		62	54.9		25	53.2		120	47.6		1
Not known	3	1.6		4	3.5		1	2.1		6	2.4		
Not answered	69	37.7		47	41.6		21	44.7		126	50.0		4
Sub-total	72	39.4		51	45.1		22	46.8		132	52.4		4

\*Even though the wording of question 20 was to exclude benefits in terms of those resulting in increased sales or decreased production costs, some assignees have responded to 20 in terms of these. These replies are included in the present analysis without an attempt to segregate these from other and more appropriate replies.

TABLE 22  
NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE REASONS FOR LICENSING THE SAMPLED PATENT RELATED TO THE UTILIZATION STATUS OF THE PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.  
PRELIMINARY

REASONS FOR LICENSING THE SAMPLED PATENT	UTILIZATION STATUS OF THE SAMPLED PATENT												UNKNOWN AND UN- ANSWERED
	IN CURRENT USE			PAST USE			FUTURE USE			NEVER USED			
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Total: Number	183	183	57	113	113	25	47	47	8	252	252	31	5
Per cent		100.0	100.0		100.0	100.0		100.0	100.0		100.0	100.0	
Cross licensing or package deal	11	6.0	19.3	11	9.7	44.0	3	6.4	37.5	22	8.7	71.0	1
Royalties	14	7.7	24.6	4	3.5	16.0	1	2.1	12.5	4	1.6	12.9	---
Licensee request	3	1.6	5.3	5	4.4	20.0	---	---	---	---	---	---	---
Broaden the market	13	7.1	22.8	1	.9	4.0	---	---	---	---	---	---	---
Compulsory licensing or interference	3	1.6	5.3	1	.9	4.0	2	4.3	25.0	1	.4	3.2	---
Out of our line	2	1.1	3.5	2	1.8	8.0	---	---	---	2	.8	6.5	---
Connected with government contract	2	1.1	3.5	---	---	---	2	4.3	25.0	1	.4	3.2	1
In business to license	3	1.6	5.3	1	.9	4.0	---	---	---	---	---	---	---
Other	6	3.3	10.5	---	---	---	---	---	---	1	.4	3.2	---
Sub-total	57	31.1		25	22.1		8	17.0		31	12.3		2
Not applicable	115	62.8		79	69.9		36	76.6		188	74.6		1
Not known	---	---		---	---		---	---		---	---		1
Not answered	11	6.0		9	8.0		3	6.4		33	13.1		1
Sub-total	126	68.9		88	77.9		39	83.0		221	87.7		3

**TABLE 23**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNEE REPLIES AS TO THE REASONS FOR LICENSING THE SAMPLED PATENT RELATED TO ASSIGNEE REPLIES REGARDING REASONS FOR THE CURRENT NON-USE OF THE PATENT, BASED ON RETURNS RECEIVED ON OR BEFORE 7/1/58.**  
**PRELIMINARY**

REASONS FOR LICENSING THE SAMPLED PATENT	REASONS FOR CURRENT NON-USE OF THE SAMPLED PATENT																			
	(a) LACK OF MARKET DEMAND			(b) & (c) OBSCURENESS*			(c) COMPETITIVELY AT A DISADVANTAGE			ALL OTHER SINGLE REASONS			ALL OTHER MULTIPLE REASONS			NOT APPLICABLE			UNANSWERED	
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Total: Number	102	102	22	75	75	14	137	137	17	40	40	8	45	45	6	178	178	55	23	23
Per cent		100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0		100.0	100.0		100.0
Gross licensing or package deal	11	10.8	50.0	11	14.7	78.6	12	8.8	70.6	1	2.5	12.5	2	4.4	33.3	10	5.6	18.2	1	4.3
Royalties	3	2.9	13.7	1	1.3	7.1	2	1.5	11.8	2	5.0	25.0	1	2.2	16.7	14	7.9	25.5		
Licensee request	1	1.0	4.5	1	1.3	7.1	1	.7	5.9	1	2.5	12.5		2.2	16.7	3	1.7	5.5		
Broaden the market	1	1.0	4.5										1	2.2	16.7	12	6.7	21.8		
Compulsory licensing or interference	1	1.0	4.5	1	1.3	7.1	1	.7	5.9	2	5.0	25.0	1	2.2	16.7	3	1.7	5.5		
Out of our line	2	1.9	9.1													2	1.1	3.6		
Connected with gov- ernment contract	3	2.9	13.6							1	2.5	12.5				2	1.1	3.6		
In business to license										1	2.5	12.5				3	1.7	5.5		
Other							1	.7	5.9							6	3.4	10.9		
Sub-total	22	21.5		14	18.7		17	12.4		8	20.0		6	13.3		55	30.9		1	4.3
Not applicable	70	68.7		56	74.7		97	70.8		30	75.0		38	84.4		112	62.9		16	69.6
Not known																			1	4.3
Not answered	10	9.8		5	6.7		23	16.8		2	5.0		1	2.2		11	6.2		5	21.7
Sub-total	80	78.5		61	81.3		120	87.6		32	80.0		39	86.7		123	69.1		22	95.7

\*The specific wording for (b) was "rapid obsolescence." There was no separate category corresponding to (c) in the assignee questionnaire, but in the inventor questionnaire there was an item (e) which reads "development of the art has taken a different course." Replies like this entered under "other" by assignees in question 12 have been combined with (b).



# Federal Taxation of the Inventor

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## FORENOTE

THE FOLLOWING, THE SECOND INTERIM REPORT ON PROJECT 7A, "Taxation and Patents," was prepared by Mr. Creed. The project was originally started in May 1957. As an exploratory study, its initial aims were to identify problems concerning the relation of taxation to patents, and by a limited number of interviews and questionnaires to gather data on the extent and nature of these problems. Some of the substantive areas studied and contemplated for study are:

- a) Relation of taxation to research and development budgets, how budgets are obligated and spent, and in general how the organization for both basic and applied research is influenced by tax considerations.
- b) Effects of present rules allowing capital gains treatment when a patent is sold outright or licensed exclusively.
- c) To what extent, if any, inventors and other owners of patent rights are motivated by tax considerations.
- d) Contrast foreign tax treatment of income from patents with American practice.
- e) To determine whether new light can be thrown on these problems when they are subjected to study by specialists from different disciplines working together.

The first interim report was published in the December 1957 issue of the *Journal*.<sup>1</sup> An extended discussion of the subject also took place at the Foundation's second Annual Public Conference in June 1958. This discussion is reported in the published proceedings, the Conference Supplement to the *Journal*.<sup>2</sup>

As a result of the exploratory study we are presently engaged in a larger study the first phase of which is focused on the federal income tax treatment of the individual inventor. Since the income tax rules were changed somewhat by the Internal Revenue Code of 1954, we thought a clear explanation by Mr. Creed of present tax law and how it differs from the situation prior to 1954 would provide background information for our reports and might be useful to inventors as well as to others with an interest in patents.

A questionnaire was recently prepared and mailed to 200 inventors. These inventors had already responded to a questionnaire of the Foundation as part of a scientifically selected sample of inventors for another Foundation project, "Patent Utilization." By utilizing this sub-sample of the larger sample of inventors who were queried for the "Patent Utilization" project, we hope to gain a quicker response and more useful information than would otherwise be possible from

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<sup>11</sup>, No. 2, pp. 244-264.

<sup>22</sup>, Conference Supplement pp. 21-51.

this number of respondents. Replies to this questionnaire are now being received and results of this investigation will be reported in an early issue of this *Journal*. At a later date we shall also report on other phases of the larger study—particularly on some of the tax problems faced by corporations in administering their patent assets. We hope the readers of the *Journal* will find this forthcoming material of value and that our results will help bridge a gap that has existed between technical tax analysis and prior research on patent problems.

**B**ROADLY STATED, INCOME DERIVED from the transfer of a patent or rights to a patent is susceptible to capital gains treatment only if the transfer constitutes the "sale or exchange" of a "capital asset." Prior to the Internal Revenue Code of 1954, the qualification of a patent as a capital asset generally hinged on a determination of the professional or amateur status of the inventor. While a patent in the hands of the amateur inventor was deemed to be a capital asset,<sup>1</sup> the benefit of this classification was generally denied the professional inventor on the ground that the patent was "held . . . primarily for sale to customers in the ordinary course of his trade or business."<sup>2</sup> Only by refuting the contention that the patent was held primarily for sale could the professional inventor realize capital gains.<sup>3</sup> Because these questions, whether the inventor was amateur or professional and whether the patent was held primarily for sale, involved difficult factual determinations, the taxation of patent transfers was attended by considerable uncertainty.

Still further confusion resulted in 1950 from the issuance of Mimeograph No. 6490,<sup>4</sup> whereby the Commissioner ruled that the assignment of a patent in consideration of payments measured by the assignee's production, sale, or use of the patented article was *not* to be regarded as a "sale" of the patent. The arrangement was said rather to provide for the payment of royalties taxable as ordinary income. While the ruling was at variance with the vast majority of judicial pronouncements on the question,<sup>5</sup> its issuance nonetheless added still another complication to an unsettled area of the tax law.

In enacting Section 1235 of the Internal Revenue Code of 1954, Congress was motivated by a desire to bring a much needed clarity and predictability to the taxation of patent transfers and "to provide an incentive to inventors to contribute to the welfare of the Nation."<sup>6</sup> The new legislation obliterated the distinction between amateur and professional inventors by establishing the eligibility of both groups for capital gains benefits. These benefits were also made available to certain individuals who invested in the invention prior to its actual reduction to practice.

The section provides for the qualification of a transfer as the sale or exchange of a capital asset irrespective of whether payments in consideration thereof are made

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<sup>1</sup>Kronner v. United States, 110 F. Supp. 730 (Ct.cl. 1953).

<sup>2</sup>Int. Rev. Code of 1939, §117 (a) excluded.

<sup>3</sup>Harvey v. Comm'r, 171 F.2d 952 (9th Cir. 1949).

<sup>4</sup>1950-1 Cum. Bull. 9; Rev. Rul. 55-58, 1955-1 Cum. Bull. 97.

<sup>5</sup>Comm'r v. Hopkinson, 126 F. 2d 406 (2d Cir. 1942); Edward R. Meyers, 6 T.C. 258 (1946).

<sup>6</sup>Senate Committee on Finance, Report to Accompany H.R. 8300, S. Rep. No. 1622, 83rd Cong., 2d Sess., p. 439 (1954).

"periodically over a period generally coterminus with the transferee's use of the patent or . . . contingent on the productivity, use, or disposition of the property transferred." The Senate Finance Committee Report indicates that this provision was adopted in order "to obviate the uncertainty caused by . . . [M]imeograph [6490]" and in recognition of the fact that "due to inherent uncertainties, a royalty type of arrangement is the reasonable way for an inventor to sell a patent."<sup>7</sup>

Section 1235 applies to payments received or accrued after January 1, 1954, regardless of the taxable year in which the transfer occurred.<sup>8</sup> In 1956 Congress enacted Section 117 (q) of the 1939 Code, which embodies substantially the provisions of Section 1235 and is retroactively applicable to the period June 1, 1950, to January 1, 1954.

While Section 1235 represents an important concession to inventors, it should be realized that it has not pre-empted the taxation of patent transfers.<sup>9</sup> Many situations fall beyond the purview of the section. It is without application, for example, to transfers made to related parties,<sup>10</sup> or limited to a geographical area.<sup>11</sup> Those transactions without the scope of the section continue to be governed by prior law,<sup>12</sup> and are thus subject to the uncertainty and complication that inhere in that law. It is significant, however, that the Commissioner has by a ruling of recent date<sup>13</sup> revoked Mimeograph 6490, which until that time had remained applicable to transfers not qualifying under Section 1235.<sup>14</sup> Thus, a royalty arrangement no longer poses a threat to the realization of capital gains even as to transactions without the scope of Section 1235.

It is the aim of this report to define the operation of Section 1235 and other provisions of the income tax law which relate to the inventor and to identify specific problems present in that operation. The report is undertaken in an effort to evaluate in a general way the impact of the income tax law on patent creation and exploitation by inventors.

#### OPERATION OF SECTION 1235

Section 1235 provides in full:

Sec. 1235 [1954 Code]. (a) *General*.—A transfer (other than by gift, inheritance, or devise) of property consisting of all substantial right to a patent, or an undivided interest therein which includes a part of all such rights, by any holder shall be considered the sale or exchange of a capital asset held for more than 6 months, regardless of whether or not payments in consideration of such transfer are—

(1) payable periodically over a period generally coterminous with the transferee's use of the patent, or

(2) contingent on the productivity, use, or disposition of the property transferred.

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<sup>7</sup>*Id.* at 113.

<sup>8</sup>Int. Rev. Code of 1954, §1235(c).

<sup>9</sup>S. Rep. No. 1622, *supra* note 6 at 441.

<sup>10</sup>Int. Rev. Code of 1954, §1235(b) (2) (B).

<sup>11</sup>Treas. Reg. §1.1235-2(c) (1957).

<sup>12</sup>Treas. Reg. §1.1235-1(b) (1957).

<sup>13</sup>Rev. Rul. 58-353, 1958 Int. Rev. Bull., No. 29 at 15.

<sup>14</sup>See Rev. Rul. 55-58, 1955-1 Cum. Bull. 97.

- (b) *"Holder" Defined.*—For purposes of this section, the term "holder" means—
- (1) any individual whose efforts created such property, or
  - (2) any other individual who has acquired his interest in such property in exchange for consideration in money or money's worth paid to such creator prior to actual reduction to practice of the invention covered by the patent, if such individual is neither—
    - (A) the employer of such creator, nor
    - (B) related to such creator (within the meaning of subsection (d)).
- (c) *Effective Date.*—This section shall be applicable with regard to any amounts received, or payments made, pursuant to a transfer described in subsection (a) in any taxable year to which this subtitle applies, regardless of the taxable year in which such transfer occurred.
- (d) *Related Persons.*—Subsection (a) shall not apply to any transfer, directly or indirectly, between persons specified within any one of the paragraphs of section 267(b); except that, in applying section 267(b) and (c) for purposes of this section—
- (1) the phrase "25 percent or more" shall be substituted for the phrase "more than 50 percent" each place it appears in section 267(b), and
  - (2) paragraph (4) of section 267(c) shall be treated as providing that the family of an individual shall include only his spouse, ancestors, and lineal descendants.
- (e) *Cross Reference.*—For special rule relating to nonresident aliens, see section 871(a).<sup>15</sup>

The section in extending its relief of long-term capital gains not only ensures the like treatment of professional and amateur inventor and the qualification of royalty arrangements as a "sale or exchange," but also eliminates the prior requisite that the patent be held for six months. In brief, there is requirement that the transfer consist "of all substantial rights to a patent or an undivided interest therein," that it be made by a "holder" and to a person not "related" to the transferor.

### *Transfer of Rights to a "Patent"*

The statute requires that there be a transfer of rights to a patent. The regulations define a "patent" as a United States patent or "any foreign patent granting rights generally similar to those under a United States patent."<sup>16</sup> It is not necessary, however, that the patent or patent application be in existence at the time of the transfer.<sup>17</sup> It would seem, however, that for the section to apply a patent must in such a case be issued subsequent to the transfer.<sup>18</sup> The section does not apply to transfers of property rights in an invention "differing from the monopoly rights evidenced by a patent."<sup>19</sup>

### *Transfer of All Substantial Rights*

The Report of the Senate Finance Committee discloses that the statutory requirement of a transfer of "all substantial rights" to a patent was adopted in continuation of the basic criteria of "sale or exchange" under then existing law (with as a notable exception the non-application of Mimeograph 6490 relating to contingent payments).<sup>20</sup> Thus the essential question continues to be whether the transfer of

<sup>15</sup>§1235(d) was amended on Sept. 2, 1958, by the Technical Amendments Act of 1958. The section as amended appears above.

<sup>16</sup>Treas. Reg. §1.1235-2(a) (1957).

<sup>17</sup>*Ibid.*

<sup>18</sup>S. Rep. No. 1622, 83d Cong., 2d Sess., p. 439 (1954).

<sup>19</sup>*Ibid.*

<sup>20</sup>*Ibid.*

the patent amounted to a complete assignment rather than a mere license agreement. This aspect of patent transfers has been, both before and after the enactment of Section 1235, a most prolific source of tax litigation and one that warrants detailed examination.

A line of earlier cases, in determining whether an assignment had been effected, adopted the criteria of the classic infringement case of *Waterman v. McKenzie*<sup>21</sup> in requiring that the transferred interest include the "exclusive right to make, use, and vend" the patented article for the full term of the patent.<sup>22</sup> There has been criticism that this test, while appropriate to patent title law, is frequently unworkable for the purposes of substantive tax law.<sup>23</sup> The regulations under Section 1235 effect a seemingly more flexible and sensible standard in defining "all substantial rights" to a patent as all rights which are of value at the time of the transfer.<sup>24</sup> The circumstances of the whole transaction rather than the terminology of the instrument of transfer determine whether all substantial rights have been transferred.<sup>25</sup>

In the recent case of *Gruber v. United States*<sup>26</sup> the transferee was granted the exclusive right to manufacture and sell the patented article, and the right to use *only* in so far as necessary to manufacture and sell. The court ruled that while the transaction clearly did not satisfy the *Waterman* test, it nonetheless amounted to a transfer of all substantial rights to the patent in that the transferor's retained right "to use" the patent did not have "provable substantial value." The decision finds precedent in prior case law, where it was held that because the grant of an exclusive license *to manufacture and sell* necessarily included the right *to use*, the transfer represented an assignment of property and not a mere licensing.<sup>27</sup>

The regulations indicate that transfers limited geographically or to a particular use would not qualify under Section 1235.<sup>28</sup> While this position is seemingly contrary to prior case law,<sup>29</sup> it derives some support from the Report of Senate Finance Committee.<sup>30</sup> Transactions falling within these categories may possibly be accorded capital gains treatment without the use of the section. Logically, however, the application of Section 1235 should be predicated essentially on the question of whether the transferor retained rights of substantial value. And it would seem that an exclusive license to manufacture, use, and sell within the limits of a given industry should qualify where it can be shown the patent is without value for other purposes.<sup>31</sup>

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<sup>21</sup>138 U.S. 252 (1891).

<sup>22</sup>Edward C. Meyers, 6 T.C. 258 (1946); Ernest G. Hoffman, 8 B.T.A. 1272 (1927).

<sup>23</sup>See Wallick, *A "Sale or Exchange" of Patent Rights for Federal Income Tax Purposes*, 23 GEO. WASH. L. REV. 456 (1955).

<sup>24</sup>Treas. Reg. §1.1235-2(b) (1) (1957).

<sup>25</sup>*Ibid.*

<sup>26</sup>158 F. Supp. 510 (D.Ore. 1958).

<sup>27</sup>Rollman v. Comm'r, 244 F.2d 634 (4th Cir. 1957); Comm'r v. Celanese Corp. of America, 140 F.2d 339 (D.C. Cir. 1944); Rose Marie Reid, 26 T.C. 622 (1956).

<sup>28</sup>See note 9 *supra*.

<sup>29</sup>Crook v. United States, 135 F. Supp. 242 (W.D.Pa. 1955); Kavanaugh v. Evans, 188 F.2d 234 (6th Cir. 1951).

<sup>30</sup>S. Rep. No. 1622, 83d Cong., 2d Sess., p. 439 (1954).

<sup>31</sup>See *United States v. Carruthers*, 219 F.2d 21 (9th Cir. 1955), which although not involving §1235, granted capital gains treatment to such a transfer on the ground that the transferor had retained no right of provable substantial value.

The transferor need not part with his entire interest in a patent. The section is satisfied if there is a transfer of an "undivided interest." This term is defined as "fractional share of each and every substantial right to the patent."<sup>32</sup> The qualification of the transfer of an undivided interest represents a continuation of prior law.<sup>33</sup>

### *Reservation of Rights*

The transferor may retain any right which is not deemed substantial under Section 1235. Retention of bare legal title for the purpose of securing performance, or of a security interest such as a vendor's lien, or a reservation in the nature of a condition subsequent (such as a provision for forfeiture on account of non-performance) does not represent the retention of substantial rights.<sup>34</sup>

The regulations provide that "amounts received in settlement of, or as an award of damages in, a suit for compensatory damages for infringement of a patent shall be considered payments attributable to a transfer to which Section 1235 applies to the extent that such amounts relate to the transferred interest."<sup>35</sup> The recovery of damages must, of course, post-date the transfer if the proceeds are to be attributed to the transfer. The very recent case of *Magnus v. Comm'r*,<sup>36</sup> suggests that the transferor should establish at the time of the transfer his express right to all or a portion of damages from infringement if he is to realize capital gains on the receipt of amounts therefrom. This arrangement would seem to have special economic appropriateness in the contingent royalty transaction, for presumably infringement would have the effect of reducing payments to the transferor. Quite probably, the right to receipt of a portion of the damages should be fixed as a direct incident of the royalty payments in order to assure its status as a part of the sales price.

Frequently, the patentee will reserve to himself the exclusive or joint right to prosecute or defend patent infringement suits. It is well established that the retention of legal title for this limited purpose does not render the transfer taxable as a license rather than a sale.<sup>37</sup>

The retention of a right to terminate the transfer at will effects a mere licensing of the patent.<sup>38</sup> In the recent case of *Arthur M. Young*,<sup>39</sup> the inventor, fearful that his invention would not be put to its most advantageous use by the transferee, agreed that the assignment could be terminated by either party upon six months' notice. The Tax Court ruled that the taxpayer's right to terminate was inimical to the concept of absolute transfer *for the full term of the patent*.

<sup>32</sup>Treas. Reg. §1.1235-2(c) (1956).

<sup>33</sup>*Waterman v. McKenzie*, 138 U.S. 252 (1891); *Kavanaugh v. Evans*, 188 F.2d 234 (6th Cir. 1951).

<sup>34</sup>Treas. Reg. §1.1235-2(b) (2) (1957).

<sup>35</sup>Treas. Reg. §1.1235-1(c) (1957).

<sup>36</sup>Civil No. 12,470 (3d Cir. Nov. 6, 1958) 58-2 USTC ¶ 9853.

<sup>37</sup>*Watson v. United States*, 222 F.2d 689 (10th Cir. 1955), *Comm'r v. Celanese Corp.*, 140 F.2d 339 (D.C. Cir. 1944); *Parke, Davis & Company*, 31 B.T.A. 427 (1934).

<sup>38</sup>Treas. Reg. §1.1235-2(b) (4) (1957).

<sup>39</sup>29 T.C. \_\_\_\_\_, No. 92 (1958).

The question is unsettled whether a right to terminate vested solely in the transferee is inconsistent with the absolute transfer of the patent.<sup>40</sup> The *Young* case, because of its emphasis on the transferor's right to terminate, is perhaps susceptible to the interpretation that the retention of that right solely by the transferee would be viewed in the nature of a condition subsequent over which the transferor had no control, and thus would not be fatal to the attempted assignment.

Frequently patents are acquired not for the purposes of exploitation, but rather to protect against patent infringement in the use of a similar device. In the recent case of *Bannister et ux v. United States*,<sup>41</sup> the transferee was motivated by this specific purpose in entering into an "exclusive license" agreement with the inventor. By the explicit terms of the agreement, the transferee was denied the use of a patent for the purpose of its greatest utility. He considered his own device superior for this purpose. The court ruled that there had been a mere licensing of the patent. The decision is clouded by the presence of another factor in the case, the ability of the inventor to terminate the "exclusive" feature of the interest upon 30 days' notice, which in and of itself was adequate to defeat an assignment.<sup>42</sup> It can be argued that absent this factor, and because the inventor would seem to have retained no rights of provable substantial value, the transaction should have qualified under Section 1235.

The regulations state that the retention by the transferor of an absolute right to prohibit sublicensing or subassignment by the transferee may or may not constitute the retention of a substantial right.<sup>43</sup> The inclusion of such condition pursuant to a royalty arrangement will be sustained under Section 1235 as necessary to protect the transferor's interest as to future payments.<sup>44</sup>

Business and other considerations often dictate that the inventor reserve several rights in transferring a patent. In these situations the question arises, in determining if there has been a retention of rights of substantial value, as to whether these rights should be considered individually or in quantum. Recent decisions of the courts reflect a lack of agreement on the question. In *Arras v. Comm'r*,<sup>45</sup> the inventor reserved the following rights:

1. paper title
2. a veto over sublicensing
3. royalties and the right to check the licensee's books
4. an option to cancel the agreement if the patent was shelved, and
5. a right to terminate for breach.

The approach of the court, in finding for the taxpayer, was to examine and evaluate separately each of the retained rights.

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<sup>40</sup>See Bailey, *The Inventor*, 15 N.Y.U. INST. ON FED. TAX. 285, 289 (1957).

<sup>41</sup>161 F. Supp. 298 (S.D. Tex. 1958).

<sup>42</sup>See p. 510 *supra*.

<sup>43</sup>Treas. Reg. §1.1235-2(b)(4) (1957).

<sup>44</sup>*Watson v. United States*, 222 F.2d 689 (10th Cir. 1955); see also, *Rollman v. Comm'r*, 244 F.2d 634 (4th Cir. 1957) (decided under prior law).

<sup>45</sup>164 F. Supp. 150 (D. Conn. 1958).

In *Watkins v. United States*,<sup>46</sup> the taxpayer retained:

1. a right to royalties
2. the power to terminate in event of transferee's failure to obtain funds for patent litigation
3. a conditional right to conduct patent litigation
4. a right to approve all sublicensees, and
5. certain contingent rights to manufacture, sell and sublicense.

In finding against the taxpayer, the court made no attempt at analysis of each of the retained rights; rather, the rights were evaluated *in aggregate*. In the focal point of the opinion the court observed that "in no case where an assignment was found did such a *mass of interests* remain in the transferor."<sup>47</sup> No quarrel is entered with the result in either the *Arras* or *Watkins* case. The cases are distinguishable and their presentation here is intended merely to illustrate the disparity in method employed by the courts.

### Holder

Section 1235 requires that the transferee be a "holder" of the patent. The term "holder" is defined as any individual whose efforts created the patent property (the "original and first" inventor, or joint inventors, within the meaning of Title 35 of the United States Code), or any other individual who acquired his interest for a valuable consideration prior to the actual reduction of the invention to practice.<sup>48</sup> The inventor may, of course, be an amateur or professional. A donee or legatee of the inventor's patent would not be eligible under the section. Capital gains may be available to such persons, however, under other provisions of the tax law if their disposition of the patent satisfies as the sale or exchange of a capital asset.

An investor must acquire his interest in the patent prior to its actual reduction to practice. An invention is said to be reduced to actual practice when it has been tested and operated successfully under operating conditions.<sup>49</sup> The requirement should not be confused with "constructive reduction to practice," which refers to the filing date of the patent application.<sup>50</sup> A person related to the inventor, except as a brother or sister, may not by investment become a holder of the patent.<sup>51</sup> The term "related person" is defined to include the spouse, ancestors and lineal descendants of the inventor.<sup>52</sup>

The inventor's employer is likewise disqualified as a holder. (But the *inventor* may realize capital gains on transferring a patent to his employer. See p. 513, *infra*.) The determination of status as a related person and employer is made both at the

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<sup>46</sup>252 F.2d 722 (2d Cir. 1958), *cert. denied* 78 S.Ct. 1384 (1958).

<sup>47</sup>252 F.2d at 725 [emphasis added].

<sup>48</sup>Treas. Reg. §1.1235-2(d) (1957).

<sup>49</sup>Treas. Reg. §1.1235-2(e) (1957).

<sup>50</sup>See S. Rep. No. 1622, 83d Cong., 2d Sess., p. 440 (1954).

<sup>51</sup>Int. Rev. Code of 1954, §1235(b)(2).

<sup>52</sup>Int. Rev. Code of 1954, §267 to which §1235 refers for definition of the term.



time when the interest in the patent is acquired and at the time when the consideration to be paid therefor becomes fixed.<sup>53</sup>

While a partnership cannot be a holder, a member of a partnership who is an individual may qualify as to his share of the patent owned by the partnership.<sup>54</sup>

### *Permissible Transferee*

A transfer to a related person, other than a brother or sister, cannot qualify under Section 1235. A transfer to a controlled corporation is deemed to have been made to a related person. Under the 1954 enactment, a controlled corporation was defined as a corporation more than 50% of the stock of which is owned, directly or indirectly, by the holder.<sup>55</sup> By recent amendment, a corporation is now said to be controlled for the purposes of the section when 25% or more of its stock is owned, directly or indirectly, by the holder.<sup>56</sup>

Indirect ownership of stock is determined under the relationship rules of Section 267(b) of the Code. As originally interpreted, stock ownership of a brother or sister was attributable to the inventor in determining his control of the transferee corporation.<sup>57</sup> The interpretation was seemingly inconsistent with the provisions of Section 1235 which otherwise excepted brothers and sisters from the status of related persons.<sup>58</sup> The problem has been obviated by a recent amendment to Section 1235 which provides that the holding of brothers and sisters are to be disregarded in determining the constructive ownership of stock in the purchasing corporation.<sup>59</sup>

While a transfer to a controlled corporation is without the purview of Section 1235, it may nonetheless qualify under the general capital gain provisions as the sale or exchange of a capital asset. The transfer must be, however, at arms' length and for a reasonable consideration.<sup>60</sup> And, of course, the patent must have been held for more than six months.

### *The Employee-Inventor*

Section 1235 does not proscript against the assignment of a patent to the employer of the inventor. The employment relationship, however, frequently brings into issue the factual question of whether payments received by the employee-inventor are in consideration of the patent transfer or in compensation for services rendered.<sup>61</sup> The regulations provide that in this determination "consideration

<sup>53</sup>Treas. Reg. §1.1235-2(d)(1).

<sup>54</sup>Treas. Reg. §1.1235-2(d)(2).

<sup>55</sup>See note 52 *supra*.

<sup>56</sup>§54 of the Technical Amendments Act of 1958, amending 1235(d) of the Int. Rev. Code of 1954.

<sup>57</sup>Proposed Treas. Reg. §1.1235-2(d)(2).

<sup>58</sup>H.R. Rep. No. 775, Technical Amendments Act of 1958.

<sup>59</sup>See note 15 *supra*.

<sup>60</sup>See Roy J. Champayne, 26 T.C. 634 (1956); see also, Leonard Coplan, 28 T.C. \_\_\_\_\_, No. 141 (1957).

<sup>61</sup>Treas. Reg. §1.1235-1(c)(2).

shall be given not only to all the facts and circumstances of the employment relationship, but also to whether the amount of such payments depends upon the production, sale, or use by, or the value to, the employer of the patent rights transferred by the employee."<sup>62</sup> The existence of a royalty-type arrangement, then, would seem to be strongly evidentiary that payments to the employee are in consideration of an assignment of the patent.

An employer, of course, derives no interest in the invention of an employee by the mere reason of the employment relationship. Where, however, the inventor conceives and perfects an invention during his hours of employment and with his employer's equipment, the employer is said to be vested with "shop rights" to the invention, that is, he gains a non-exclusive license to use the invention in his field of business without compensating the inventor.<sup>63</sup> The employer's shop rights are insufficient to dilute the inventor's "substantial rights to the patent," and the inventor in assigning these rights, either to his employer or to a third person, is eligible for capital gains under Section 1235.<sup>64</sup> A transfer to a third person is, of course, subject to the employer's shop rights.

Assignments of future inventions to employers are valid and may be specifically enforced.<sup>65</sup> In cases decided prior to the 1954 Code, there was a conflict as to whether such transactions could result in capital gain. Denial of this treatment was predicated on either of these two grounds: (1) The inventor, because of the future assignment, never owned the invention and hence could not sell it;<sup>66</sup> or (2) assuming ownership, the inventor had not satisfied the six-month holding period required for long-term capital gains, the complete rights to the invention being deemed automatically to vest in the employer upon its reduction to practice.<sup>67</sup>

Other decisions adopted the theory that the future assignment could not effect a present sale of an asset not yet in being, and that ownership of the invention could vest in the employer only upon formal assignment by the inventor after the invention had come into existence. Thus, if the inventor held the invention for six months prior to formal assignment, he was entitled to long-term capital gains.<sup>68</sup>

The recent case of *Becker v. United States*<sup>69</sup> would seem to sustain the qualification of future assignments under Section 1235. In that case, the taxpayer entered into a written contract with his employer company, whereby he agreed that as long as he was employed by the company he would assign all inventions "in entirety" to the company, together with all the United States and foreign patents thereon. The agreement required the company to pay for its own use of the United States and foreign patents a sum of not less than \$8,000 per year, provided the company's earnings were a specified minimum and that the taxpayer remained in its employ.

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<sup>62</sup>*Ibid.*

<sup>63</sup>*United States v. Dubilier Condenser Corporation*, 289 U.S. 178, 187-88 (1933).

<sup>64</sup>*Hans Jordan*, 27 T.C. 265 (1956); see also, *Herbert C. Johnson*, 30 T.C. \_\_\_\_\_, No. 64 (1958).

<sup>65</sup>*Littlefield v. Perry*, 88 U.S. (21 Wall.) 205, 226 (1875); *Conway v. White*, 9 F.2d 863, 866 (2d Cir. 1925).

<sup>66</sup>*Blum v. Comm'r*, 183 F.2d 281 (3d Cir. 1950).

<sup>67</sup>*Paul L. Kuzmick*, 11 T.C. 288 (1948).

<sup>68</sup>*Carl G. Dreyman*, 11 T.C. 153 (1948); cf. *Richard W. Te Linde*, 18 T.C. 91 (1952).

<sup>69</sup>161 F. Supp. 333 (W.D.Pa. 1958).

Additionally, the company agreed to pay the inventor or his heirs an additional 20% of net profits from licenses granted under foreign patents. The main invention was in existence at the time of the agreement, and subsequent patented inventions were improvements on this invention. In 1957, the company paid the inventor \$8,000 for its use of the inventions and over \$70,000 in percentage payments from income realized from licensing of the foreign patents on the main invention. The court, in ruling that the entire proceeds were capital gains, concluded as a matter of law that the contract to assign did not vest in the company the ownership of those inventions made thereafter, and that the subsequent formal assignment of the patents thereto was required to effect this result.

The decision then is to be aligned with those earlier cases which held that the formal assignment of the patent constituted the actual sale of the patent. And, of course, there is no requirement under Section 1235, as there was under prior law, that the inventor hold the patent for at least six months prior to its transfer.

The qualification of future assignments under Section 1235 has not been ruled upon by the Tax Court or any of the Circuit Courts of Appeal. For this reason, and in view of prior decision of these courts,<sup>70</sup> the *Becker* case should perhaps not be viewed as definitive of the question. One writer has suggested that the inventor can insure capital gains in these situations by granting the employer an option to acquire future inventions at a specified royalty.<sup>71</sup> This arrangement would guarantee that there would be no completed sale until the option was exercised by the employer and hence that payments would clearly relate to the transfer of the patent.

### *Services Incident to Sale*

Frequently an inventor will be required, incident to the sale or assignment of a patent, to render certain services in connection with perfecting and marketing the patented product. The question arises as to whether payments for these services are allocable to the transfer of the patent and hence taxable at capital gains rates, or whether such payments constitute compensation to the inventor taxable as ordinary income. Where the patented device is technical and intricate, ordinary services are construed as ancillary and subsidiary to the sale of the patent and the complete proceeds of the transaction are taxable as capital gains.<sup>72</sup>

The duration of the service is an important factor in the determination. In *Arthur C. Ruge*,<sup>73</sup> the taxpayers, in transferring all right, title, and interest to certain inventions, agreed to give the assignee a certain number of man-days consulting service per year if requested, but not to exceed 60 days per year. Certain percentage payments called for by the agreement were in consideration of the inventions and of the consulting services. The Tax Court found that the services

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<sup>70</sup>See notes 66 and 67 *supra*.

<sup>71</sup>Bailey, *supra* note 33.

<sup>72</sup>Raymond M. Hessert, 6 Tax Ct. Mem. 1190 (1940); see also, William M. Kelly, 6 Tax Ct. Mem. 646 (1947).

<sup>73</sup>26 T.C. 138 (1956).

were merely ancillary to the assignment of the patents and of a type and kind usually called for to implement the sale of highly technical and intricate inventions. Accordingly, the percentage payments in their entirety were held to constitute consideration for the sale of the inventions and thus taxable as capital gains.

In *Ruge* the taxpayers, by further provision and in consideration of additional royalty payments, agreed to give the assignee assistance and advice in promoting the inventions and to assign all right, title and interest in future related inventions. The court ruled that payments under this provision did not relate to the transfer of the patents and were thus compensation for personal services taxable as ordinary income.

#### RESEARCH AND EXPERIMENTAL EXPENDITURES

Section 174 of the 1954 Code allows the taxpayer to deduct research and experimental expenditures incurred in the taxable year in connection with his trade or business.<sup>74</sup> In the alternative, the taxpayer may elect to treat these expenditures as deferred expenses and amortize them ratably over a period of not less than 60 months beginning with the month in which the taxpayer first realizes benefits from the expenditures.<sup>75</sup> Failure to elect either to deduct currently or amortize over 60 months or more requires that the expenditures be charged to capital and depreciated over the useful life of the resulting invention.<sup>76</sup>

Research and experimental expenditures are defined as research and development costs in the experimental or laboratory sense, and include costs incident to developing an experimental or pilot model, a plant process, formula or invention or improvements of such property already in existence, as well as costs of obtaining a patent, such as attorney's fees expended in making the patent application.<sup>77</sup>

The requirement that research and experimental costs be incurred in connection with the taxpayer's trade or business might seem to deny the availability of the Section 174 to the so-called amateur or part-time inventor. On the other hand, it can certainly be argued that, while such inventor is not formally in the business of selling inventions, he is nonetheless engaged in the business of producing and developing patents for the purpose of obtaining proceeds thereon and should therefore qualify under the section. This would appear especially true where substantial time and money are devoted to a research project in the expectation of profit. The professional inventor, of course, is unquestionably eligible under the section.

It will usually benefit the professional inventor to deduct research and experimental expenditures in the current year provided, of course, there is income against which to offset the deduction. For one thing, while the inventor may elect to amortize over 60 months or more, the right to amortize ceases when a patent is

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<sup>74</sup>Int. Rev. Code of 1954, §174(a).

<sup>75</sup>Int. Rev. Code of 1954, §174(b).

<sup>76</sup>Proposed Treas. Reg. §1.174-1.

<sup>77</sup>Treas. Reg. §1.174-2(a)(1) (1957).

issued, and unrecovered expenditures must be depreciated over the life of the patent.<sup>78</sup> Thus the inventor may be forced to forego for several years the complete recovery of these costs.

The greatest advantage of current expensing of research and experimental costs is to be seen in the taxation of patent transfers. The inventor gets a normal tax deduction for the year in which the expenditures are incurred. And while this fact effects a corresponding increase in his income upon transferring the patent, since the expenditures are not added to the capital basis of the patent, the increased income is taxable at the reduced capital gains rates.

Where there is an election to amortize and the patent is subsequently assigned, costs unrecovered through amortization, or through depreciation after the patent is issued, are reflected in an increased capital basis of the patent. Effectively then, the inventor in realizing a decrease in capital gain income does so at the price of relinquishing an ordinary deduction in the same amount.

The election to expense research and experimental expenditures may be made without consent for the first taxable year after 1954 in which such expenditures are incurred. An election made thereafter requires the consent of the Secretary of the Treasury or his delegate.<sup>79</sup> The election to amortize may be made for *any* taxable year after 1953, but not later than the due date for the return with respect to which the election is made.<sup>80</sup> The election to expense currently or to amortize binds the taxpayer, with respect to a given project, for the taxable year in which made and for all subsequent years, unless the Commissioner consents to a change of method.<sup>81</sup> The taxpayer is presumably at liberty to expense currently the expenditures of one project and to amortize those of another.

#### LONG-TERM COMPENSATION

The inventor whose disposition of a patent does not qualify for capital gains may under certain circumstances be afforded tax relief under Section 1302 of the 1954 Code. With certain limitations the section permits the spreading of ordinary income concentrated in a taxable year over several taxable years.

It is required: (1) that the work on the invention cover at least 24 calendar months; and (2) that the gross income in the taxable year attributable to the invention constitute not less than 80% of the aggregate of the gross income from the invention received in the taxable year, in all previous taxable years, and in the 12 months immediately succeeding the close of the taxable year. The 24-month requirement represents an important concession over the provisions of prior law which required that the work period be at least 36 months.<sup>82</sup>

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<sup>78</sup>Treas. Reg. §1.174-4(a)(4) (1957).

<sup>79</sup>Int. Rev. Code of 1954, §174(a)(2); see also, Treas. Reg. 1.174(1957).

<sup>80</sup>Int. Rev. Code of 1954, §174(b)(2).

<sup>81</sup>Int. Rev. Code of 1954, §174(a)(2) and 174 (b)(2); see also, Treas. Reg. 1.174-3 and 1.174-4 (1957).

<sup>82</sup>Int. Rev. Code of 1939, §107(b).

The benefits of the section are limited solely to income derived from patented inventions<sup>83</sup> and do not apply to income taxable as capital gains.<sup>84</sup>

The section effects a ratable allocation of the total income from the invention over the period from the beginning of the work to the end of the taxable year, such period not to exceed 60 months.<sup>85</sup> The use of the section is completely optional and in certain income situations may be of no advantage to the inventor.

COMPENSATORY DAMAGES  
FOR PATENT INFRINGEMENT

In 1955 Congress added to the Internal Revenue Code a new law, Section 1304, which permits the allocation of compensatory damages back over the period in which the infringement occurred. Specifically, the section provides that the increase in tax by reason of the inclusion of compensatory damages in the taxpayer's income in the taxable year in which such amounts are received or accrued shall not be greater than the sum of the increases in taxes which would have resulted if such amount had been included in the taxpayer's gross income in equal installments for each month in which the patent infringement occurred.

The section is available only with respect to damages for infringement of a patent issued by the United States and is without application to foreign patents.<sup>86</sup> The term "compensatory damages" is limited to that portion of the award which represents compensation for the actual infringement, and does not include amounts representing increased damages over and above the amount found adequate to compensate for infringement.<sup>87</sup> Nor does it include amounts awarded the taxpayer to cover attorney's fees, interests or costs.<sup>88</sup> The award of compensatory damages must be pursuant to a judgment or decree in a civil action.<sup>89</sup> An amount received in settlement of an action where no judgment or decree has been entered does not qualify under the section.<sup>90</sup> The provisions of Section 1304 are applicable to amounts awarded after August 11, 1955.<sup>91</sup>

The benefits of the section are available with respect to amounts which are considered as received from the sale or exchange of a capital asset.<sup>92</sup> Thus if an inventor who has sold a patent within the meaning of Section 1235, later and in accordance with the sales agreement, shares in infringement damages, he is required in determining the limitation of tax under Section 1304 to treat the amounts of his share allocable to the several years as long-term capital gain.<sup>93</sup> The regulations

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<sup>83</sup> Int. Rev. Code of 1954, §1302(b)(1).

<sup>84</sup> Int. Rev. Code of 1954, §1302(a).

<sup>85</sup> *Ibid.*

<sup>86</sup> Treas. Reg. §1.1304-1(b)(2), (1958).

<sup>87</sup> Treas. Reg. §1.1304-1(b)(1), (1958).

<sup>88</sup> *Ibid.*

<sup>89</sup> Treas. Reg. §1.1304-1(b), (1958).

<sup>90</sup> *Ibid.*

<sup>91</sup> Treas. Reg. §1.1304-1(f), (1958).

<sup>92</sup> Treas. Reg. §1.1304-1(e), (1958).

<sup>93</sup> Treas. Reg. §1.1304-1(g)(2), (1958).

provide, however, that the question of whether the portion of an award allocable to each year is to be considered as capital gains or ordinary income shall be determined under the law applicable for each such year and the regulations thereunder.<sup>94</sup>

#### CONCLUSION

The new provisions of the 1954 Code effectively eliminate many of the prior tax barriers which were probably deterrent to patent creativity and utilization. Section 1235 has wrought an unprecedented stability and certainty in the taxation of patent transfers by inventors. The section places a premium on the exclusive license arrangement, a fact which will in time probably affect the pattern of patent exploitation.

The heavy incidence of litigation under the statute, and under Section 117(q) of the 1939 Code, reflects the need for careful compliance with its technical requirements. It is appreciated, however, that the bulk of this litigation involved agreements which were concluded prior to the enactment of Section 1235. Prospective assignments can quite feasibly be made to conform to these requirements.

Certain aspects of Section 1235 require further clarification. Principally, there is a demonstrated need for a more exact and uniform standard in defining the transfer of *all substantial rights* to a patent.

The availability of capital gains on transactions without the purview of Section 1235 is determined under the general capital gains provisions of the Internal Revenue Code. The difficult factual questions regarding the amateur or professional status of the inventor and whether the patent was held primarily for sale continue to be focal to such determinations. There is encouragement in the fact that, by reason of the recent revocation of Mimeograph 6490, the existence of a contingent royalty arrangement is no longer an obstacle to the realization of capital gains.

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<sup>94</sup>Treas. Reg. §1.1304-1(c), (1958).

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## EDUCATIONAL ACTIVITIES

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**W**E ARE INAUGURATING THIS SECTION of the *Journal* in accordance with Article III of the Declaration of Trust which states that one of the objectives of the Foundation is to organize educational programs on the systems for use in courses of instruction in all stages and fields of study.

We believe that Professor Oppenheim's<sup>1</sup> study guide, reprinted below, will be useful for instructional purposes. This section on Educational Activities will contain not only study materials, but also information on the progress of programs and projects to improve the knowledge and understanding of the patent and related systems.

We are fortunate in being able to bring to our readers by arrangement with the publishers section 1 of the chapter on "Patents and Antitrust" in Professor Oppenheim's revision of his *Federal Antitrust Laws—Cases and Comments* (1175 pp. \$15.00), which has just been released, by West Publishing Company, St. Paul, Minnesota. This co-publication will give greater and timely circulation to that portion of the book of special interest to readers of the *Journal*. Many may also find interest in the other chapters which deal with such subjects as: Summary of Statutory Standards and Remedies, Exemption Areas, Economic Indicia of Competition and Monopoly, Trade Association Activities, Arrangements Involving Price and Resale Price Maintenance, Special Problems of Conspiracy, Study Guide on Economic Concentration and Big Business, Monopolization, Study Guide on Mergers, Foreign Commerce, Checklist for Industry or Business Firm Study, Chart of Federal Antitrust Laws, bibliographies on all topics.

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### SECTION 1. GUIDE NOTE FOR STUDY OF THE AMERICAN PATENT SYSTEM AND COMMENTARY<sup>1</sup>

The most recent comprehensive bibliography is Allen, *Economic Aspects of Patents and the American Patent System—A Bibliography*, Study No. 14 of the Subcommittee on Patents, Trademarks and Copyrights of the Senate Committee on the Judiciary, 85th Cong., 2d Sess. (1958).

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<sup>1</sup>S. Chesterfield Oppenheim, Professor of Law, University of Michigan Law School, is the Foundation's Adviser on Research.



The bibliographical references in this guide note have been selected with the purpose of providing a sampling of the literature of the patent system in its historic, economic and technological aspects sufficient to reveal to the inquiring student some of the controversial questions that have arisen concerning the patent laws and the patent system and, more particularly, in relation to the antitrust laws in the topics covered in this chapter. This introductory bibliography does not repeat references classified and cited according to the specific subject topics in Sections 2-8 *infra* this chapter. While this introduction only incidentally includes references to the great body of literature on the technical substantive and procedural phases of patent law treated in the specialized courses in that field, the following general works merit citation: the historic Robinson, *The Law of Patents for Useful Inventions* (3 v.) (1890); the authoritative treatise of Walker on Patents (4 v.) (Deller's Ed. 1937) and cumulative supplement (1955); Toulmin, *Handbook of Patents* (2d ed. 1954); Waite, *Patent Law* (1920); Arthur M. Smith, *Patent Law—Cases, Comments and Materials* (1954).

#### A. REFERENCES ON PATENT SYSTEM IN GENERAL

1. *English Historical Background.* See Price, *English Patents of Monopoly* (1906); Hulme, *Early History of the English Patent System*, 3 *Selected Essays in Anglo-American Legal History* (1909); Fox, *Monopolies and Patents* (1947); Inlow, *The Patent Grant* (1950).

*Darcey v. Allein*, 11 Coke 84-b (K.B. 1602) 77 Eng. Rep. 1260 (The Case of Monopolies), held void as contrary to the common law and divers Acts of Parliament a royal grant of the exclusive right to manufacture playing cards within the realm. See Miller, *The Case of the Monopolies* (1907) 6 Mich.L.Rev. 1; Davies, *Further Light on the Case of Monopolies* (1932) 48 L.Q.Rev. 394. In *the Clothworkers of Ipswich*, *Godbolt* 252 (K.B. 1615), 78 Eng.Rep. 147, a royal grant of the monopoly

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<sup>1</sup>It is evident that as background for consideration of patent-antitrust problems the student must acquire an understanding of the constitutional and statutory basis of the patent laws and the patent system of which the antitrust laws are an integral part. This study guide note and commentary is designed to provide an introduction to this extensive subject. The purpose is to create an awareness of the historical, legal, technological and economic factors which require consideration from the standpoint of both theory and practice in any evaluation of the patent system. The literature cited herein includes arguments pro and con on controversial issues. For the purposes of this book, the bibliography and commentary are chiefly focused upon aspects of the patent laws and system substantially related to an appraisal of the patent-antitrust policies. While it is true that the technical substantive doctrine and procedure of patent law are subjects for specialized courses and the patent law specialist, the general practitioner can and often does benefit from knowledge of the essentials of patents in the context of the patent laws and patent practices. See Seidel, *What the General Practitioner Should Know About Patent Law and Practice* (1956). The antitrust lawyer in particular has become conscious of the need for such understanding in counseling on antitrust and trade practice problems related to the commercial utilization of patented inventions.

The commentaries in this text are intended as reflections of views stated in the cited literature. The personal views of the writer are expressed in the following: Oppenheim, *The Public Interest in Legal Protection of Industrial and Intellectual Property* (1950) 40 T.M.Rep. 613; Oppenheim, *A New Approach to Evaluation of the American Patent System* (1951) 33 J.Pat.Off.Soc. 555; Oppenheim, *Patents and Antitrust: Peaceful Coexistence?* (1955) 54 Mich.L.Rev. 199; Oppenheim, *Patents, The Monopoly Issue and the War* (1942) 24 J.Pat.Off.S. 667.

of a particular trade was declared void. The opinion of the court, however, declared an exception in favor of the actual inventor. The Statute of Monopolies, 21 Jac. I, Ch. 3 (1623-1624) codified the distinction between monopolistic grants of things already in existence and inventions of new and useful manufactures. The exception in the statute of patents for inventions is the foundation stone of the English patent system and basic to the American system.

The dissenting opinion of Mr. Justice Burton (The Chief Justice and Mr. Justice Frankfurter concurring) in *United States v. Line Material Co.*, 333 U.S. 287, 68 S.Ct. 550, 92 L.Ed. 701 (1948), sets forth the following historical development:

"American patent rights find their origin in Great Britain. That nation appears to have been the first to issue 'patents' to secure to inventors for limited times exclusive rights to their respective discoveries. These 'patents' were called '*literae patentes*,' i.e., 'open letters,' because they were not sealed up but were exposed to view with the Great Seal pendant at the bottom. They were addressed by the sovereign to all subjects of the realm. Such instruments were, and to a degree still are, the common form used for making grants of dignities, such as peerages, appointments to certain offices and grants of privilege of various kinds. Their form, therefore, was similar to that of the 'patents' used to grant exclusive rights of 'monopolies' to trade guilds, corporations, and, in some cases, individuals, permitting them to exclude competitors from the conduct of certain lines of profitable business.

"The contrast between these two kinds of exclusive rights in their relation to the public was reflected later in acts of the British Parliament and in the Constitution and statutes of the United States. A patent to an inventor took nothing from the public which the public or the inventor's competitors already had. By hypothesis, it dealt with a new asset available to civilization only through its inventor. The royal patent served to encourage the inventor to disclose his invention. By granting to the inventor the right to exclude all others from making, using, or selling the invention for a limited time, it was felt that the public was well served by the invention's disclosure, its early availability under the patent and its later general availability to everyone. This procedure was popular. On the other hand, royal patents securing exclusive rights to private parties to conduct profitable enterprises to the exclusion of existing or available competitors were issued to show royal favor or to secure funds at the expense of the public. Such patents were highly unpopular. The courts, at an early date, held them invalid.

"As early as 1602, Francis Bacon, in the House of Commons, supported the principle that a monopoly should be granted only for a 'new manufacture.' In 1623, there was enacted the Statute of Monopolies (21 Jac. I, c. 3 § 1; 1 Walker on Patents, pp. 18-21, Deller's Ed. 1937) which declared void all monopolies and letters patent 'of or for the sole Buying, Selling, Making, Working, or Using of any Thing within this Realm, \* \* \*.' However, § VI of this Act made an express exception in favor of patents for inventions. That Section has become the foundation of the patent law securing exclusive rights to inventors not only in Great Britain but throughout the world.

"The result, historically and in principle, has not been a conflict between the two legislative mandates. It has been rather a long standing approval, both by the British Parliament and the Congress of the United States, of the unique value of the exercise for limited periods, of exclusive rights by inventors to their respective inventions, paralleled by an equally sustained and emphatic disapproval of certain other restraints of trade not representative of exclusive rights of inventors to their inventions."

2. *Evolution of the American Patent System.* Outline of the History of the United States Patent Office (1936) 18 J.Pat.O.S. 5; United States Department of Commerce, The Story of the American Patent System: 1790-1940 (1940); Federico, The First Patent Act (1932) 14 J.P.O.S. 237; Federico, Operation of the Patent Act of 1790 (1936) 18 J.P.O.S. 237; Fenning, The Origin of the Patent and Copyright Clause of the Constitution (1929) 17 Geo.L.J. 109; Lutz, Patents and Science, A Clarification of the Patent Clause of the United States Constitution (1949) 18 Geo. Wash.L.Rev. 50; National Committee on Centennial Celebration of the American Patent System, 1836-1936 (1936); Proceedings in Congress During the Years 1789 and 1790, Relating to the First Patent and Copyright Laws (1940) 22 J.P.O.S. 243, 352; United States Patent Office, The Story of the United States Patent Office, 1790-1956 (1956).

3. *The American Patent System—In General.* Spencer, The United States Patent System (1931); Wood, Patents and Antitrust Law (1942); Wood, The United States Patent System: A Survey (American Enterprise Ass'n, National Economic Problem Series No. 420) (1946); Vaughan, The Economics of Our Patent System (1925); Vaughan, The United States Patent System; Legal and Economic Conflicts in American Patent History (1956); Bennett, The American Patent System (1943); Ballard, Patents, Progress, and Prosperity (1953); Drews, The Patent Right in the National Economy of the United States (1952); Folk, Patents and Industrial Progress (1942); Frost, The Patent System and the Modern Economy (1957); The Patent System (1947) 12 L. & Contemp. Prob. 645 and (1948) 13 L. & Contemp. Prob. 245; The Public Interest in a Sound Patent System (1943) 195 J. Comm. 1; United States Congress, Senate Committee on the Judiciary, Review of the American Patent System (1956); United States National Patent Planning Commission: The American Patent System, First Report, June 18, 1943; Government-Owned Patents and Inventions of Government Employees and Contractors, Second Report, January 9, 1945; Third Report on the American Patent System, September 6, 1945.

4. *For Current Developments Consult:* Journal of the Patent Office Society, a valuable monthly publication on all phases of the patent system; American Patent Law Association Bulletin (monthly); Proceedings and Reports of Section of Patent, Trade-Mark and Copyright Law, American Bar Association; Patent, Trademark, and Copyright Journal of Research and Education (quarterly), published by The Patent, Trademark and Copyright Foundation of The George Washington Uni-

versity; United States Patents Quarterly (Patent, Trademark and Copyright Weekly Reports); 35 United States Code Annotated (pocket part supplement).

## B. BASIC NATURE OF PATENT GRANT

As stated in the Report of the Attorney General's Committee at 223: "All patent laws derive from the Constitutional clause expressly vesting in the Congress the \* \* \* Power \* \* \* To promote the Progress of Science and useful Arts, by securing for limited Times to \* \* \* Inventors the exclusive Right to their \* \* \* Discoveries; \* \* \*. Since enactment of the first patent law in 1790, patent statutes have been continuously in effect, the current statute being the 1952 Patent Code".

1. *The Nature of the Patent Characterized as a Legal Monopoly.* The orthodox theory of the patent grant is that it creates for a limited time a legal monopoly which gives the owner the right to exclude everyone else from making, using or vending the patented invention without permission or license. Section 154 of the Patent Code (reprinted supra) removes any doubt that this right of exclusion is intended as an addition to the common law right of an inventor to make, use and sell what he invented or owned. The Code explicitly provides that every patent shall contain "\* \* \* a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the right to exclude others from making, using, or selling the invention throughout the United States \* \* \*". Apart from the above statutory provision, the exclusiveness of the invention generally depends upon the ability of the inventor to keep it a trade secret and to protect it against breaches of contract and confidence through unauthorized disclosures.

See Powell, *The Nature of a Patent Right* (1917) 17 Col.L.Rev. 663; Wigmore, *The Patent "Monopoly"* (1943) 25 J.Pat.O.S. 687.

While characterized as a legal monopoly, some commentators have emphasized the distinction between the patent as a short term public welfare monopoly and the species of economic monopoly power that deprives the public of the benefits of a competitive economic order.<sup>2</sup> In his dissenting opinion in *United States v. Line*

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<sup>2</sup>Cf. economic indicia of monopoly, supra Ch. 2. The characterization of a patent as a monopoly, in addition to evoking a Supreme Court caveat that this is not wholly accurate (see excerpt infra) has also been qualified in economic analysis e.g., Bennett, *The American Patent System* Ch. VII (1943), where he deals with patents as a form of imperfect or monopolistic competition and asserts at 121:

"Many people believe that a patent gives the inventor an absolute monopoly. They believe that the owner of a patent is free to exploit his monopoly to the fullest extent without serious repercussions. This is, of course, incorrect. No monopoly is absolute \* \* \*".

After mentioning the factors that limit a monopoly, Bennett states that "Monopolies based upon patents are even further limited."

But compare Hamilton, *Patents and Free Enterprise*, TNEC Monograph No. 31 (1941); Machlup, *An Economic Review of the Patent System*, Study No. 15, Subcommittee on Patents, Trademarks and Copyrights, Senate Committee on Judiciary, 85th Cong., 2d Sess. (1958).

"To denounce patents merely because they create monopolies is to indulge in superficial thinking. We may still want our society to be fundamentally competitive. But there has seldom been a society in which there have not been some monopolies, i. e., special privileges. The legal and medical professions have their respective guild monopolies. The owner of real estate, strategically

Material Co., from which other parts are reprinted *infra*, Sec. 4, Justice Burton quoted from the testimony of former Commissioner of Patents, Conway P. Coe, on this distinction:

“ ‘The American patent system was established at a time when mechanical inventions had already begun to affect not only the industrial conditions, but also the economic, social, and political status of Europe and the new Nation just erected on this continent. The significance of the inventions put to work in England and the States of the Confederation was realized by the American statesmen of that era. It is agreed that their recognition of the value of these new economic factors prompted them to write into the Constitution the provisions of article I, section 8, empowering Congress ‘to promote the Progress of Science and useful Arts, by securing for limited Times to Authors, and Inventors the *exclusive* Right to their respective Writings and Discoveries.’ This provision, by the way, is impressive not only because it is included in the Constitution as one of the major grants of power to Congress, but equally because it bestows on patentees a complete monopoly, and therefore raises a question as to the constitutionality of an attempt to compel the owner of a patent to share with others the title, use and avail of his property. I do not presume to determine the point; but I must contemplate it as an issue to be met here or hereafter.

“ ‘The authors of our patent system, judging by the language of article I, section 8, held the *exclusiveness* of the rights vested in a patentee as a powerful aid to progress in arts and sciences.’ Hearings before the Temporary National Economic Committee, 76th Cong. 1st Sess. 839-840 (1939).

“He [Commissioner Coe] analyzed the ‘patent rights’ granted to the inventor and stated his reasons for concluding that the ‘monopoly’ vested in a patentee is not in conflict with our antitrust laws as follows:

“ ‘It occurs to me that a great deal of misapprehension results from the failure to distinguish between the monopoly or privilege vested in a patentee and the sort of

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located, has a monopoly; so has the owner of a valuable mine; and so have railroad and electric power companies. The problem is not whether there should be monopolies, but, rather, what monopolies there should be, and whether and how much they should be regulated.” Frank, J., concurring, *Picard v. United Aircraft Corp.* 128 F.2d 632, 643 (2d Cir. 1942).

“ \* \* \* For patents are governmentally created monopolies. The Supreme Court has called them ‘public franchises,’ granted by the government, acting on behalf of the public. It is, accordingly, appropriate to ask whether the holder of such a public franchise should be permitted, without any governmental control whatever, to decide that no public use should be made of the franchise during its life or only such public use as the franchise-holder, in its utterly unregulated discretion, deems wise, and at such prices as it sees fit to exact. We accord no such powers to the holder of a public franchise to run a bus line or to sell electric power.

“To bring patents into line with the constitutional provision relating to patents, it is worth considering whether they should not, by statute, be assimilated, to some extent, to certificates of convenience and necessity. For one may doubt whether the birth-control or arbitrary restrictions on the manufacture of new important industrial devices by private persons owning patents could have been in the minds of the Founding Fathers when they provided in the Constitution that Congress might pass laws authorizing patents to ‘promote the Progress of Science and Useful Arts.’ A patent system which thus stressed the public obligations of patentees while, at the same time, it furnished protection to investors in patents, would be well worth achieving.” Frank, J., concurring, *Picard v. United Aircraft Corp.*, 128 F.2d 632, 645 (2d Cir. 1942).

monopoly that British sovereigns once conferred. It is only when we appreciate this distinction that we can understand how Jefferson could consistently advocate the monopoly of patents for inventions while condemning the traditional form of monopoly.

“ ‘Americans generally detest monopoly in the true sense of the term because it makes possible the ruthless exercise of power. Indeed, the American Revolution was precipitated by popular resentment of the monopoly on tea held by the East India Co. It would, therefore, have been exceedingly strange if, only a few years later, the delegates sent to the Constitutional Convention by Massachusetts and the other Colonies had been willing to sanction an equivalent form of monopoly under the new government they were creating. In the sixteenth and seventeenth centuries a king or queen of England could reward a favorite by granting him a monopoly on salt or some other necessary of life. This beneficiary of royal favor was not, of course, the discoverer of salt. That came ready-made from the hands of the Creator eons before the advent of man. What the darling of his or her majesty received was the power to compel others to use salt solely of his supplying and only on terms of his dictation.

“ ‘But a patent is no such monopoly. It is a reward for the invention or discovery of something new, something before unknown, something added to the sum total of human knowledge, utility, well-being; something which the inventor or discoverer, despising the lure of money or fame might have withheld from his fellow men. By the monopoly that goes with a patent, then, the Government recompenses and, for a limited time, protects the inventor or discoverer who gives to the world the use and benefit of his invention or discovery. This is a kind and a degree of mutuality that negatives monopoly in the old or the current concept. Monopoly in the latter sense of the term gave to an individual or a group complete dominion of something already existent. A patent awards monopoly to the producer of something original, something superadded to the common store. So it is that two things bearing the same name need not be of the same nature. \* \* \*

Justice Burton continued:

“A comparable analysis of the nature of the grant to inventors of the exclusive right to their respective inventions or discoveries for a limited time has been made by this Court.

“ ‘Though often so characterized a patent is not, accurately speaking, a monopoly, for it is not created by the executive authority at the expense and to the prejudice of all the community except the grantee of the patent. *Seymour v. Osborne*, 11 Wall. 516, 533, 20 L.Ed. 33. The term ‘monopoly’ connotes the giving of an exclusive privilege for buying, selling, working, or using a thing which the public freely enjoyed prior to the grant. Thus a monopoly takes something from the people. An inventor deprives the public of nothing which it enjoyed before his discovery, but gives something of value to the community by adding to the sum of human knowledge. *United States v. American Bell Telephone Co.*, 167 U.S. 224, 239, 17 S.Ct. 809 [810], 42 L.Ed. 144; *Paper Bag Patent Case*, 210 U.S. 405, 424, 28

S.Ct. 748 [753], 52 L.Ed. 1122; *Brooks v. Jenkins*, 3 McLean 432, 437, Fed. Cas. No. 1,953; *Parker v. Haworth*, 4 McLean 370, 372, Fed. Cas. No. 10,738; *Allen v. Hunter*, 6 McLean 303, 305, 306, Fed.Cas.No.225; *Attorney General v. Rumford Chemical Works*, 2 Bann. & Ard. 298, 302. He may keep his invention secret and reap its fruits indefinitely. In consideration of its disclosure and the consequent benefit to the community the patent is granted. An exclusive enjoyment is guaranteed him for seventeen years, but, upon the expiration of that period, the knowledge of the invention inures to the people, who are thus enabled without restriction to practice it and profit by its use. *Kendall v. Winsor*, 21 How. 322, 327, 16 L.Ed. 165; *United States v. American Bell Telephone Co.*, supra, page 239 of 167 U.S., 17 S.Ct. 809 [at page 810, 42 L.Ed. 144]. To this end the law requires such disclosure to be made in the application for patent that others skilled in the art may understand the invention and how to put it to use.' *United States v. Dubilier Condenser Corporation*, 289 U.S. 178, 186, 187, 53 S.Ct. 554, 557, 77 L.Ed. 1114, 85 A.L.R. 1488."

2. *Patent as a Property Right.* The Attorney General's Committee Report at 225 summarizes the patent as a property right in these words:

"It is now well settled, in the words of the Patent Code, that a patent has 'the attributes of personal property.' Like other property it achieves its social and economic purpose by its transferability as well as by its existence. The statutes have accordingly long provided that the whole of the patent right may be transferred by assignment, and the right transferred as to a specified part of the United States by a grant. Similarly, less than the whole of the patent right may be transferred by license, which may be express or by implication. These rights of transfer may serve directly to adapt private interest to the public purpose of elevating our national standard of living through technological progress and increased productivity."

In recent years there has been questioning of the patent as a property right. It has been said that a patent is "a privilege" or "a private stake" in the public domain, a public franchise, or assimilable to a certificate of convenience and necessity as in the public utility field.<sup>3</sup> While the Supreme Court has repeatedly referred to the patent as a privilege conditioned by public purpose (see e.g. *Mercoid case*, infra Sec. 6), it has nevertheless adhered to the conception that a patent is property. In *Hartford-Empire Co. v. United States*, 323 U.S. 386, 65 S.Ct. 373, 89 L.Ed. 322 (1944), the majority opinion of the Court flatly stated: "That a patent is property, protected against appropriation both by individuals and by government, has long been settled". Thus, as early as *Wilson v. Rosseau*, 4 Howard 646 (U.S. 1846), the Court said: "The law has thus impressed upon [the patent] all the qualities and characteristics of property, for the specified period; and has enabled him [the owner] to hold and deal with it the same as in case of any other description of

<sup>3</sup>Hamilton, op. cit. supra at 158; Meyers and Lewis, *The Patent "Franchise" and the Antitrust Laws (1941-1942)* 30 Geo.L.J. 117, 260.

property belonging to him, and on his death it passes with the rest of his personal estate, to his legal representatives, and becomes part of the assets."

In his dissenting opinion in *Special Equipment Co. v. Coe*, 324 U.S. 370, 65 S.Ct. 741, 89 L.Ed. 1006 (1945), Justice Douglas observed that "It is a mistake \* \* \* to conceive of a patent as but another form of private property. The patent is a privilege 'conditioned by a public purpose' ". Yet two years later the same Justice in *Transparent-Wrap Machine Corp. v. Stokes and Smith Co.*, 329 U.S. 637, 67 S.Ct. 610, 91 L.Ed. 563 (1947), affirmed that "A patent is a species of property". As stated above, The Patent Code of 1952 now affirmatively declares that "patents shall have all the attributes of personal property".<sup>4</sup>

3. *Scope of Exclusiveness of Patent—Disclosure and Claims.* The conventional theory of the patent grant also refers to the patent as in the nature of a contract whereby, in consideration of the limited time governmental grant of exclusive rights, a full disclosure of all the essential features of the invention must be made by the applicant for a patent. This contribution must be something new and useful which is an invention or discovery as provided in Section 101 of the Patent Code, reprinted *supra*.

The purpose of the disclosure is said to be twofold. First, it insures that upon expiration of the patent there will be a dedication to the public of the invention, so that anyone skilled in the art may practice it without restriction and profit by its use. Second, the disclosure informs others of the ambit of the patent in order to demarcate the claimed invention from areas in which others may claim invention and improvements of prior inventions.

In marking out the boundaries of the patent grant, as shown in the Supreme Court opinions reprinted or summarized in this chapter, the Supreme Court has stressed that the limits of the patent grant are fixed by the invention, no more and no less. Frequently quoted in this connection is the reaffirmation of a long established rule of interpretation of the patent statutes in accord with the Constitutional provision as stated in the *Motion Picture Patents* case, reprinted *infra* Sec. 6:

"1st. The scope of every patent is limited to the invention described in the claims contained in it, read in the light of the specification. These so mark where the progress claimed by the patent begins and where it ends that they have been aptly likened to the description in a deed, which sets the bounds to the grant which

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<sup>4</sup>"This label [property] does not, however, render the patent immune to legislative and judicial limitations on use, nor does it alter the basic purpose underlying the grant. Abuse of property by non-use or otherwise, has long been a problem in our capitalistic economy and remedies devised to prevent this abuse are no less applicable to patents than to property generally. Statutes relating to eminent domain, police power, wartime price control, and the antitrust law, all designed to eliminate abuse of property rights, have been applied to property generally and to patents. Similarly, the judicial doctrines relating to unclean hands, public policy, and the like constitute an additional limitation on the 'exclusiveness' of rights associated with both patents and property generally". Frost, *Legal Incidents of Non-Use of Patented Inventions Reconsidered* (1946) 14 Geo. Wash.L.Rev. 273, 279-280.



it contains. It is to the claims of every patent, therefore, that we must turn when we are seeking to determine what the invention is, the exclusive use of which is given to the inventor by the grant provided for by the statute,—He can claim nothing beyond them. \* \* \*

This insistence upon keeping the patentee strictly within the sphere of his patent grant was manifested by the Supreme Court from an early date. In *O'Reilly v. Morse*, 15 How. 62, 121 (1853), the Court pointed out that when the patentee attempts to enlarge his grant beyond the invention "He prevents others from attempting to improve upon the manner and process which he has described in his specification—and may deter the public from using it, even if discovered. He can lawfully claim only what he has invented and described, and if he claims more, his patent is void."

Indefinite or colorable claims beyond the scope of the invention have resulted in denial of enforcement of the patent. See e.g. prior to the Patent Code of 1952, *United Carbon Co. v. Binney Co.*, 317 U.S. 228, 233, 63 S.Ct. 165, 87 L.Ed. 232 (1942), *Universal Oil Products Co. v. Globe Oil & Refining Co.*, 322 U.S. 471, 484-485, 64 S.Ct. 1110, 1116-1117, 88 L.Ed. 1399 (1944). On changes in the Patent Code, Ch. 25, regarding amendment and correction of patents, see *Federico*, *Commentary on the New Patent Act*, 35 U.S.C.A. 1 at 43-50.

In Motion Picture Patents the Court also stressed the importance of harmonizing the private rewards of the inventor and the public interest in the promotion of progress of the technical arts. In *Kendall v. Winsor*, 21 How. 322 (U.S. 1858), the Court treated these considerations as follows:

"It is undeniably true, that the limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage; the benefit to the public or community at large was another and doubtless the primary object in granting and securing the monopoly. This was at once the equivalent given by the public for benefits bestowed by the genius and meditations and skill of individuals, and the incentive to further efforts for the same important objects. \* \* \* Whilst the remuneration of genius and useful ingenuity is a duty incumbent upon the public, the rights and welfare of the community must be fairly dealt with and effectually guarded. Considerations of individual emolument can never be permitted to operate to the injury of these. \* \* \*

The Motion Picture Patents opinion said to the same effect:

"\* \* \* 3d. Since *Pennock v. Dialogue*, 2 Pet. 1, 7 L.Ed. 327, was decided in 1829, this court has consistently held that the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents, but is 'to promote the progress of science and the useful arts' (Constitution, art. 1, § 8). \* \* \*

### C. INCENTIVE TO INVENT, SOURCES OF INVENTION, AND INCENTIVE TO INVEST RISK CAPITAL

1. *Incentive to Invent.* It is well known that another widely accepted premise of the patent system is that it tends to achieve the public purpose of promoting technological progress by fostering incentives to invent. Motives of inventors, apart from the patent system, is a subject on which only a limited amount of empirical data has been gathered. A pioneering study by Joseph Rossman<sup>5</sup> of 710 inventors revealed the following frequency of motives or incentives mentioned by the inventors: love of inventing—193; desire to improve—189; financial gain—167; necessity or need—118; desire to achieve—73; part of work—59; prestige—27; altruistic reasons—22; laziness—6; no answers—33. Theory and opinion evidence apparently vary. It is sometimes asserted that the profit motive either may not be the dominant incentive to the individual inventor or may not result in directing inventive activity in socially useful fields. On the other hand, hope of monetary reward has been regarded as the paramount motive for both the independent individual inventor and the employed inventor as well as the entrepreneur inventor. While recognizing that the monetary incentive may co-exist with the other motivations, one economist concluded that "The price and profit system of our pecuniary economy is by far the most important force exerting directive influence upon inventive ability."<sup>6</sup> Whether this tends to maximize the social benefits of invention is a controversial issue.

Incentives to invent in relation to the motivations of the patent system raise additional considerations beyond those mentioned above. This is also a controversial question, but, as previously stated, the traditional view is that the patent system in both England and the United States was founded on the belief that the limited time exclusivity of patent rights encourages inventive activity. Compare questions suggested in Stedman, *Invention and Public Policy* (1947) 12 L. & Contemp. Prob. 649.

2. *Sources of Invention.* Related to this are divergent views concerning the sources of invention. This has been approached in discussions of the nature of the inventive process and the role of the individual inventor versus the industrial and other research laboratories. Some commentators have characterized invention as an organic, social process—accretive, cumulative and cooperative.<sup>7</sup> This theory assumes that no invention is a self-contained unit. Every invention, it is said, is borrowed in some measure from the past. From this point of view the inventor's contribution in novel elements is thought to be conditioned by the whole technology in which he shares.

<sup>5</sup>Rossman, *The Psychology of the Inventor* (1931); Rossman, *The Motives of Inventors* (1931) 44 Q.J.Econ. 524; See also Bennett, *op. cit. supra* Ch. II; Taussig, *Inventors and Money Makers* (1915).

<sup>6</sup>Bennett, *op. cit. supra* at 34.

<sup>7</sup>TNEC Hearings, Part 30, p. 16212 (referring to invention of the art of invention as itself the most significant invention of the 19th Century); Kaempfert, *Invention and Society* (1930); Ogburn and Thomas, *Are Inventions Inevitable?* (1922) 37 Pol.Sci.Quart. 83; Ogburn, *Social Change* (1922) Cf. Hamson, *Patent Rights for Scientific Discoveries* (1930).

For many years there has also been debate on the respective roles of the individual or "lone" inventor and organized team-work research, especially in industrial research laboratories. This is another area where empirical studies are needed to test the validity of the theoretical assumptions underlying the variant views. The most recent study is Jewkes, Sawers and Stillerman, *The Sources of Invention* (1958). One of these authors, John Jewkes, Professor of Economic Organization in the University of Oxford, has summarized the results of the inquiry in an article on this subject in *Lloyds Bank Review* (January, 1958). He stated the problem as follows:

"In the nineteenth century most inventions came from the individual inventor who had little or no scientific training and who worked largely with simple equipment and by empirical methods and unsystematic hunches. The link between science and technology was slight. In the twentieth century, the argument runs on, the characteristic features of the nineteenth century are rapidly passing away. The individual inventor is becoming rare; men with the power of originating are largely absorbed into research institutions of one kind or another, where they must have expensive equipment for their work. Useful invention, in particular, is to an ever-increasing degree issuing from the research laboratories of large firms, which alone can afford to operate on an appropriate scale. There is increasingly close contact now between science and technology. The consequence is that invention has become more automatic, less the result of intuition or flashes of genius and more a matter of deliberate design. The growing power to invent, combined with the increased resources devoted to it, has produced a spurt of technical progress to which no obvious limit is seen."<sup>8</sup>

Concomitant with the contentions on this problem is the argument that the constitutional purpose of the patent system contemplates the reward of the individual inventor rather than the gain of the corporation. It has been asserted, on the other hand, that the theoretical assumption of reward to the individual inventor is no longer generally valid since the modern research laboratory has all but supplanted independent inventors who, it is claimed, have become so-called "captive" inventors<sup>9</sup> as corporate employees engaged either in basic or applied research and assign to the corporation resulting patentable inventions.<sup>10</sup> An unprecedented

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<sup>8</sup>But compare views in TNEC Hearings, Part 3 passim; Folk, *op. cit. supra*, pp. 144-166 (reprints excerpts from testimony of Vannevar Bush, William Coolidge, Frank B. Jewett, George Backeland, Philo T. Farnsworth); TNEC Hearings, Part 30, p. 16212 et seq., 16292 et seq. (Charles F. Kettering's testimony).

<sup>9</sup>See Hittson, "Captive Inventors" (1945) 27 J.Pat.O.S. 561; *The Inventor in Eclipse* (1954) 50 *Fortune* 132.

<sup>10</sup>"Before the modern large-scale research laboratories and modern scientific techniques were developed, it was correct to say that the 'discoveries' of men like Edison resulted from creative genius. The area open for discoveries thus made has become severely restricted. For that we have the word of experts: In 1935, a Committee of the Science Advisory Board, consisting of men who have played conspicuous roles in the progress of science and the useful arts, published a Report on *The Relation of the Patent System to the Stimulation of New Industries* [See TNEC Hearings, part 3, p. 1139]. The Committee's Report reads in part as follows: 'There has been enormous change in technique and commercial practice in the last hundred years. The patent system at its inception contemplated an individual inventor; given a monopoly for 17 years as a reward and stimulant for invention, and to enable funds to be obtained from commercialization. This simple situation no longer obtains. What was originally a self-sufficient patent to an individual for 17 years has

judicial approach to issuance of patents to corporations which evoked considerable discussion<sup>11</sup> is reflected in former Judge Thurman Arnold's opinions in *Potts v. Coe*, 79 U.S. App. D.C. 223, 145 F.2d 27 (1944); see also 78 U.S. App. D.C. 297, 140 F.2d 470 (1944). Potts, an employee in the research laboratory of the Teletype Corporation, a wholly owned subsidiary of the Bell Telephone Company, made a discovery for which the Corporation, as assignee, filed a patent application. The Patent Office and the District Court ruled against the applicant on findings of lack of invention. On appeal, these decisions were affirmed. The Court of Appeals stated as the grounds of its holding:

"Where a corporation, as assignee of one of its employees, seeks a patent on a discovery made in the course of its organized technical research it must assume a different burden of proof from that imposed where the discovery is the product of independent inventive genius. The corporation, which in substance is seeking the patent, must show that (1) the employee is the real inventor, and (2) the discovery is above the level of the art current in its own corporate laboratory and other corporate laboratories with which it has connections and affiliations. Such a burden is not met merely by showing that the discovery is an advance over the art shown in technical literature outside the laboratory or in previous patent application by others." (145 F.2d at 28.)

Closely associating its ruling with the theory of a high standard of invention akin to the "flash of genius" test (see *infra*), the court further explained the basis of its decision in these terms:

"We believe this result is compelled if we apply the fundamental principles of the patent law to the actual facts of the complex modern technology of corporate research laboratories. These principles are (1) that a discovery which is the result of step-by-step experimentation does not rise to the level of invention; (2) that invention must rise above the level of accomplishment of the ordinary skilled technicians engaged in the art; (3) that the patent law must be so administered as to

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developed into a patent structure or assemblage of patents, giving a substantially permanent monopoly in an advancing art to an industry or a group of industries. The justification for the extension in a democratic country of an absolute monopoly to an invention, in lieu of maintaining its secret, no longer applies generally. In these days of intensified research and development, it is the usual experience to find that important advances arise nearly simultaneously at many points. They are the result of an advancing knowledge and technique, and the advent of a specific human need and commercial opportunity. The individual inventor plays an important part in recognizing the situation and supplying the needed combination. In most cases, however, he could not hold it secret and use it privately if he wished. Moreover, if he did not appear with his invention, it would not be long in these intense times before some other inventor would supply the necessary creative thought. This is not exclusively the situation of course. There are still brilliant and striking flashes of intellect which create startling inventions which would not otherwise be made for perhaps a generation. The point is that inventions of this type are few and far between, and they are insignificant in number compared to the nearly 100,000 patents now issued annually. Moreover, most of these brilliant advances would be made and disclosed whether or not there was a patent system to produce a reward. The old justification for the extension of exclusive monopoly no longer holds.'" Frank, J., concurring, *Picard v. United Aircraft Corp.*, 128 F.2d 632, 640 (2d Cir.1942). See Patent Office, *Distribution of Patents Issued to Corporations*, Study No. 3, Subcommittee on Patents, Trademarks and Copyrights, 84th Cong., 2d Sess. (1957).

<sup>11</sup>Comments (1944) 57 *Harv.L.Rev.* 564; (1944) 38 *Ill.L.Rev.* 421; (1944) 26 *J.Pat.O.S.* 593. See *Recent Developments in the Law of Patents Under Thurman Arnold* (1945) 45 *Col.L.Rev.* 422; Deller, *Test of Patentability for Inventions Made in Corporate Research Laboratories* (1945) 27 *J.Pat.O.S.* 682.

promote science and the useful arts. These three somewhat overlapping principles are questioned by no one". (145 F.2d at 28.)

Judge Arnold's thesis is that individual achievement is the aim of the patent law and that patents on corporate inventions issuing from group research in corporate industrial laboratories is incompatible with the basic theory of the patent grant. He would enlarge the scope of the judicial function in determining the proper scope of the patent grant by making it the duty of the Patent Office and the reviewing courts "to see to it that the reward is not in fact so large as to violate the Constitutional mandate by discouraging invention by others and thereby impeding the progress of science and the useful arts". (145 F.2d at 20.) To prevent this result he advocates maintenance of competition between individual inventors by discouraging liberal issuance of patents to corporations on the ground that modern corporate research laboratories tend to suppress competition between individuals, and to substitute team work and cooperation for individual incentives. "Instead," said the court, "the race is between financial interests, that organize the laboratories". (145 F.2d at 31.)

Judge Arnold's opinion has been criticized as an invasion of the legislative domain.<sup>12</sup> One commentator has suggested that it might appear the court "is utilizing its position as an overseer of the Patent Office to engage in 'threshold' antitrust activities in patent administration." The same writer concludes that "The obvious effect of the Potts decision will be that the acquisition of patents by corporate groups, except perhaps by assignment, will be practically impossible".<sup>13</sup> On the other hand, it has been pointed out that laboratories are often motivated by rewards other than patents, such as cost-saving and efficiency to keep abreast of competition.<sup>14</sup>

The approach of Judge Arnold is intended to be geared to the problem of industrial control. In *Monsanto Chemical Co. v. Coe*, 79 U.S. App. D.C. 155, 145 F.2d 18, 20 (1944), he added to the standard of invention a criterion of patentability based upon an inquiry into "the actual degree of control which the inventor hopes to gain by means of all of his claims taken as a whole, over competing industry and competing invention". This would place on the applicant a new burden of proving the scope of protection to which he is entitled.<sup>15</sup>

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<sup>12</sup>Gottschalk, *Further Comments on Recent Patent Decisions and Current Trends* (1944) 26 J.Pat.O.S. 151, 184, 186.

<sup>13</sup>(1945) 45 Col.L.Rev. at 423, 435. Compare view of Judge Frank, concurring in *Picard v. United Aircraft Corp.*, 128 F.2d 632, 643 (2d Cir. 1942), emphasizing incentive to investment of speculative capital. On company policies toward inventions of employees, see Rossman, *Stimulating Employees to Invent* (1936) 18 J.Pat.O.S. 110; U. S. Chamber of Commerce, *Agreements With Employees in Regard to Inventions Made by Them* (1939); Jewett, *The Relation of Research and Invention to Economic Conditions* (1939) 21 J.Pat.O.S. 195; Schairer, *Patent Policies of Radio Corporation of America* (1939).

<sup>14</sup>Testimony of Kettering, TNEC Hearings, Part 2, pp. 341-343.

<sup>15</sup>In (1945) 45 Col.L.Rev. at 435 the writer observes: "It would seem that the underlying reasoning in the Potts case, as in the other Arnold cases, is the desire to handcuff all attempts by corporate groups to use the patent system as a means of gaining more extensive monopolies than those they already enjoy". See references to studies on patent system and research, *infra*.

3. *Concept of Patentable Invention.* Cognate is the spate of judicial opinions and literature on the concept of invention as a requirement for the grant of a patent. This is a topic of technical patent law beyond the purpose of these introductory comments intended chiefly as background for understanding the relation of patent and antitrust public policies. However, as the Attorney General's Committee Report at 223, note 4, points out, patent issuance procedures "may indirectly pose antitrust problems. This is so because a patent issued and later held invalid constitutes a restraint on competition not within the intended scope of the patent law. Moreover, 'weak' patents may afford an undeserved cloak of immunity and leverage for anti-competitive activity and antitrust abuse. To this extent, improved Patent Office issuance procedures may be a matter of both antitrust and broader public concern."

Only passing reference is made here to the standard of patentable invention, a topic customarily discussed in the technical literature on patents.<sup>16</sup> Some members of the patent law bar have expressed concern over the invalidation by the courts of a large number of issued patents. This anxiety was heightened by the language in *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 62 S.Ct. 37, 86 L.Ed. 58 (1941), invalidating a patent on the ground that "the new device, however useful it may be, must reveal the flash of genius, not merely the skill of the calling." More fuel was added to this concern by the later observation by Judge Learned Hand that certain Supreme Court decisions constituted a "pronounced new doctrinal trend" toward a higher standard of patentable invention. It will suffice to refer to two new key provisions of the Patent Code relevant to this problem.<sup>17</sup>

Section 103 (reprinted *supra*) states two criteria of invention not previously made explicit. First, there is a clear statutory bar to obtaining a patent on subject matter which "would have been obvious at the time the invention was made to a person having ordinary skill in the art." Second, there is the mandate that "patentability shall not be negated by the manner in which the invention was made." The House Report referred to Section 103 as one of the two "major changes or innovations" in the former law. H.Rep. No. 1923, 82d Cong., 2d Sess. 5 (1952). The House Report, in disclaimer of the unsettling effect of some of the Supreme Court's interpretations of the concept of patentable invention, stated "it is immaterial whether [an invention] resulted from long toil and experimentation or from a flash of genius" and further declared that Section 103 "should have a stabilizing effect and minimize great departures which have appeared in some cases".

<sup>16</sup>See, for example, Efforts to Establish a Statutory Standard of Invention, Study No. 7, Subcommittee on Patents, Trademarks and Copyrights, Senate Committee on Judiciary, 85th Cong., 2d Sess. (1958); Dodds and Crotty, The New Doctrinal Trend (1948) 30 J.Pat.O.S. 83; Patent Policy and Invention (1951) 46 Ill.L.Rev. 609; Prager, Standards of Patentable Invention from 1474 to 1952 (1952) 20 U.Ch.L.Rev. 69; Smith, Arthur M., Recent Developments in Patent Law (1946) 44 Mich.L.Rev. 899. See Allen, *op. cit. supra* for extensive bibliography.

<sup>17</sup>See Allen, *op. cit. supra* for comprehensive bibliography on Patent Act of 1952 and on specific aspects the following: Harris, Some Aspects of the Underlying Legislative Intent of the Patent Act of 1952 (1955) 23 Geo.Wash.L.Rev. 658; Federico, Commentary on the New Patent Act, 35 U.S.C.A. 1 at 14-42; Galston, Invention and the "Obvious", 13 Fed.Rules Dec. 463 (1953); Hamann, The New Patent Act and the Presumption of Validity (1953) 21 Geo.Wash.L.Rev. 575; Webb, The Changing Standard of Patentable Invention: Confusion Compounded (1957) 55 Mich.L.Rev. 985.

4. *Incentive to Invest Risk Capital.* As the American industrial system matured and technological development accelerated, increased importance has been attributed to the incentive to invest risk capital in research and development prior and subsequent to invention and in the commercial utilization of inventions. In this connection, it has been contended that the patent system is essential to the preservation and continuity of these incentives. Invention alone, it is said, does not account for industrial progress.<sup>18</sup> Discoveries must be commercially developed before benefits to the public can be realized. To that end, under private competitive enterprise, risk capital must be available. The Attorney General's Committee Report at 224-225, after stating that early disclosure of patentable inventions is one way in which private reward is reconciled with public purpose, continues:

"\* \* \* The patent system seeks to achieve its public purpose by encouraging investment of risk capital. This is accomplished by affording a market within which the patent owner can invest and induce others to invest without fear of competition. New products and processes have always entailed substantial investment at considerable risk. In recent years the expenditures required to this end have increased. By protecting such investment—and thereby encouraging new technologies—the patent seeks to increase competition by what is superficially an inconsistent grant of monopoly, but is in fact a mechanism intended to assure competition in invention."

Former Commissioner of Patents, Conway P. Coe, asserted that "speculative capital will not back new inventions without the patent protection."<sup>19</sup>

In this connection consideration should be given to the role and impact of the patent system on research and development, another aspect on which controversial discussions are available in published materials.<sup>20</sup>

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<sup>18</sup>"Maybe, then, this is where we are heading: Maybe, if we adhere to a patent system founded on the notion of giving rewards to inventors, and, if at the same time, we streamline that system, we shall discover that there will be but the tiniest handful of persons entitled to such rewards. As Judge Hand recently remarked in another case, 'Perhaps the [patent] system is outworn. \* \* \* Dewey & Almy Chemical Co. v. Mimex Co., 2d Cir., 1941, 124 F.2d 986, 990.

"If that means that every kind of patent system is outworn, the idea is disturbing. For, as I see it, there seems still to be room for some kind of patent monopoly which, through hope of rewards to be gained through such a monopoly, will induce venturesome investors to risk large sums needed to bring to the commercially useful stage those new ideas which require immense expenditures for that purpose.

"We may not need patents as rewards to inventors. \* \* \*

"But if we never needed, or do not now need, patents as bait for inventors, we may still need them, in some instances, as a lure to investors. It is sometimes said that there is no need thus to coax investors, because our giant corporations, with their research laboratories, will, without such bait, do the needful. The answer perhaps is that industrial history discloses that those corporations, at times and to some extent, have been prodded into undertaking such research and into developing improvements because of the threat of competition from occasional 'outsiders,' armed with patent monopolies, and supplied with funds by a few private enterprisers. Thus, paradoxically, monopoly may evoke competition. The threat from patent monopolies in the hands of such 'outsiders' may create a sort of competition—a David versus Goliath competition—which reduces the inertia of some huge industrial aggregations that might otherwise be sluggish." Frank, J., concurring, *Picard v. United Aircraft Corp.*, 128 F.2d 632, 642-643 (2d Cir., 1942).

<sup>19</sup>TNEC Hearings, Part 3 at 858.

<sup>20</sup>The extensive literature is cited in Allen, *op.cit. supra* which, in addition to general discussions dealing in part with research, includes items on patents and technology, patent policy on government-sponsored research and government-owned patents. Exemplifying the widely diver-

## D. FUNCTIONING OF PATENT SYSTEM

As previously stated, this guide note to further study and commentary is intended to create awareness of the numerous facets of the theory and practical operations of the patent system reflected in the divergent views in the literature on this subject. In turning more particularly to the functioning of the patent system—in part covered by the overlapping of the factors previously mentioned—it is obvious that study and evaluation of the patent system in actual operation involves analysis of the complexities of legal, technological, economic and social factors that cut across the various physical and social sciences. This interdisciplinary approach requires consideration not only of the historical basis and theoretical premises of the patent system, but also, as this writer has elsewhere suggested,<sup>21</sup> enlargement of the scope of inquiry in an effort to bridge the gap between theory and fact with respect to the structure, actual operations and accomplishments of the patent system.

In general, some critics have pointed out that the patent system in practice has disclosed discrepancies between the theoretical assumptions upon which the Constitutional provision and patent laws are based and the realities of the modern competitive enterprise system and modern technology. This viewpoint permeates Walton Hamilton, *Patents and Free Enterprise*, op. cit. supra, which concluded that "the cluster of usages which make up the patents system" has produced a patent system-in-action quite different from the one historically contemplated. See also Kahn, *Fundamental Deficiencies of American Patent Law* (1940) 30 *Am. Econ. Rev.* 475. Other writers, exemplified by George E. Frost's study on *The Patent System and the Modern Economy* op. cit. supra, find substantial compatibility in the theory and operation of the patent system, without denying the need for improvements in its administration. Another recent study by an eminent scientist, Dr. Vannevar Bush op. cit. supra, while generally favorable to the purposes of the patent system, is critical of its failure to keep abreast of modern developments with resulting maladjustments within the system which need correction.

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gent conclusions that may be reached are two recent studies made for the Subcommittee on Patents, Trademarks and Copyrights of the Senate Committee on the Judiciary. Study No. 2 by George E. Frost on *The Patent System and the Modern Economy*, 84th Cong. 2d Sess. (1957), concludes that patents have performed a vital and unique function in compelling research and development and encouraging such activity, rewarding the successful inventor and stimulating investment of capital in new enterprises and innovations.

Study No. 11 by Seymour Melman on *The Impact of the Patent System on Research*, 85th Cong. 2d Sess. (1958), on the other hand, concludes that "The patent system in the contemporary scene has not, as a rule, promoted conditions that facilitate research in science or the industrial arts". But see *Natn. Ass'n of Manufacturers, Trends in Industrial Research and Patent Practices* (1948).

Cf. Study No. 1 by Vannevar Bush on *Proposals for Improving the Patent System*, 85th Cong., 1st Sess. (1957). For policies, practices and experiences of universities and other nonprofit research organizations, see Study No. 6 by Archie M. Palmer on *Patents and Nonprofit Research*, 85th Cong., 1st Sess. (1957).

For a sampling of views of eminent persons experienced in industrial research, see Jewett, *Modern Research Organizations and the American Patent System* (1932) 14 *J.Pat.O.S.* 487; Kettering, *The Role of Invention in Industry* (1932) 14 *J.Pat.O.S.* 500; Wilson, *Research and Patents* (1943) 25 *J.Pat.O.S.* 239.

<sup>21</sup>Oppenheim, *A New Approach to Evaluation of the American Patent System* (1951) 33 *J.Pat.O.S.* 555.



In broad outline, Congressional hearings and reports, opinions of the courts and the general literature cited or otherwise included in this chapter, comment either favorably or unfavorably, on aspects of the patent system<sup>22</sup> in one or more of the following categories of factors, not completely separable from one another: (a) economic and social; (b) science and technology; (c) misuse of patent in violation of the public policy of the patent laws or patent abuses in violation of the federal antitrust laws; and (d) substantive patent law and procedures in Patent Office administration and in the courts.<sup>23</sup> In this chapter of the book, the focus is the relation of patent and antitrust policy. Accordingly, apart from mention below of certain proposals for changes in the patent laws and patent system relevant to anti-trust policy, there is no need for repeating here the multiplicity of issues presented in subsequent sections of this chapter on patent-antitrust problems.

One general observation is here pertinent. There is a conflict of view regarding the interaction of patent and antitrust policies. One view is that there is no inherent opposition between these two public policies.<sup>24</sup> As excerpts from the Attor-

<sup>22</sup>This note and commentary cites samplings of the different views on the public policy issues regarding patents and the antitrust laws. These views can be fairly classified on specific aspects or factors. So far as general appraisals are concerned, it is usually not a matter of black or white, or all or nothing. Recent discussions generally recognize that that misuse of patents or antitrust abuses of patents beyond the scope of valid patent grants constitute "hard core" violations of either the patent or antitrust laws. There are degrees of variance in views regarding the proper scope of "hard core" protection of patent rights. Borderland or novel issues obviously engender divergent views. The cited literature also reveals ideological and theoretical differences in the prima facie acceptance of the fundamental premises of, and evaluation of the benefits traditionally imputed to, the patent laws and patent system. Suggestions for the improvement of the patent system are, of course, compatible with any viewpoint approving its purposes.

<sup>23</sup>Among the recent studies of the Subcommittee on Patents, Trademarks and Copyrights of the Senate Committee on the Judiciary relevant to recommendations for improvement are Bush, *op.cit. supra*; Frost, *op.cit. supra*; Federico, *Opposition and Revocation Proceedings in Patent Cases*, Study No. 4, 84th Cong., 2d Sess. (1957); Whinery, *The Role of the Court Expert in Patent Litigation*, Study No. 8, 85th Cong., 1st Sess. (1958); Edwards, *Patent Office Fees—A Legislative History*, Study No. 13, 85th Cong., 2d Sess. (1958). See further Allen's bibliography, *op.cit. supra*.

For proposals made by prominent practitioners in patent law, see Brown (Jo Bailly), *The Situation Confronting our Patent System* (1939) 21 J.Pat.O.S. 159; Frost, *op.cit. supra*; Kenyon, Jr., *Current Problems in the Patent System* (1946) 28 J.Pat.O.S. 224 and answer by Lutz (1946) 28 J.Pat.O.S. 508; Woodward, *Reconsideration of the Patent System as a Problem of Administrative Law* (1942) 55 Harv.L.Rev. 950; Toulmin, *Patents and the Public Interest* (1939); Ooms, *What Should be Done to Make Our Patent System More Effective in Accomplishment of Its Intended Purpose* (1946) 28 J.Pat.O.S. 5. A well-known set of suggestions by a judge is Evans, *Some Stray Thoughts of a Federal Judge on Our Patent System and Its Operation* (1945) Wis.L.Rev. 477 and (1945) 27 J.Pat.O.S. 293; see also excerpts from opinion of Judge Jerome Frank in *Picard v. United Aircraft Corp.*, 128 F.2d 632 (2d Cir. 1942) reprinted *supra* and his article on *What's Wrong With Our Patent System*: Sat. Eve. Post, Nov. 28, 1942.

See also Final Report and Recommendations of TNEC, Sen.Doc. No. 35, 77th Cong., 1st Sess. (1941); Forkosh, *Economics of American Patent Law* (1940) 17 N.Y.U.L.Q.Rev. 406; Feuer, *The Patent Privilege and the T.N.E.C. Proposals* (1940) 17 Temple L.Q. 180.

An interesting debate is Thurman Arnold, *The Abuse of Patents*, Atlantic Monthly, July, 1942, reprinted (1942) 24 J.Pat.O.S. 531 and Langner, *We Depend on Inventions, An Answer to Thurman Arnold*, Atlantic Monthly, July, 1942, reprinted (1942) 24 J.Pat.O.S. 545.

Taxation of patents has also been the subject of discussion. See Allen, *op.cit., supra* at 45-46; Gitlin and Woodward, *Tax Aspects of Patents, Copyrights and Trade-Marks* (Practicing Law Institute) (1950); Bangs and Driscoll, *The Taxation of Patents* (1957) 1 J. Res. & Ed. (Conference Supplement) 137; (1957) 1 J. Res. & Ed. 244.

<sup>24</sup>In addition to references in the text, see Folk, *The Relation of Patents to the Antitrust Laws* (1948) 13 L. & Contemp.Prob. 278; Stedman, *Patents and the Antitrust Laws* (1949) 31 J.Pat.O.S. 14; Wood, *Patents and Antitrust Laws* (1942); Rich, *Relation Between Patent Practices and the Antimonopoly Laws* (1942) 24 J.Pat.O.S. 85, 159, 241, 328, 422; Wood and Johnson, *Patents and the Antitrust Laws* (1950) Univ.Ill.L.Forum 544; Oppenheim, *Patents and Antitrust: Peaceful Coexistence?* (1955) 54 Mich.L.Rev. 199; Frost, Study No. 2, *op. cit. supra*.

ney General's Committee Report reprinted *infra* show, the Report took the position that both policies stem from the principles of competitive enterprise and are mutual aids to its preservation. In some zones, however, the Report points out, the patent law and antitrust each has its own measures of liability for policy transgressions. An example is the Report's assertion that patent misuse is not invariably *per se* an antitrust violation. A Staff Report to Subcommittee No. 5 of the House Committee on the Judiciary, 84th Cong., 2d Sess. (1957), characterized the accommodation of one policy to the other in these terms:

"\* \* \* Industry regulation seems superficially to authorize monopoly and negate competition; the monopolistic patent grant seems at first blush to exempt the exploitation of inventions from antitrust enforcement. On closer scrutiny, however, industry regulation is shown to require a delicate adjustment of co-existent public policies, and the exclusive patent grant is seen to have its sole justification in the public interest in stimulating inventive initiative, and thereby extending rather than curtailing competition, so that its commercial exploitation must conform to the policies of the antitrust laws."

The Staff Report concluded:

"Analysis of the leading judicial decisions in the patent-antitrust area discloses no discernible threat to the integrity of the American patent system and no basic incompatibility or irreconcilable conflict between the patent laws and the antitrust laws. The patent owner whose practices are consistent with the scope of his patent grant runs no risk of antitrust involvement. It is the patent owner who attempts to exploit his patent beyond its intended scope who loses his patent protection. With few exceptions the so-called patent-antitrust cases mark attempts to use a patent for purposes for which it was not intended. Such attempts necessarily subject the patent owner to the risk of having his patent tested and declared invalid or infringed with impunity, and to the penalties of the antitrust laws, for the courts have been alert to recognize and condemn the use of patents in monopolization and in combinations to restrain trade.

"The present statutory scheme and judicial climate afford ample means for preserving the rights of patent owners in the legitimate exploitation of their property, while at the same time correcting patent abuse and safeguarding competitive opportunity."

The other view is that patent and antitrust laws are intrinsically in conflict. In his dissenting opinion in *Hartford-Empire Co. v. United States*, 323 U.S. 386 at 452, 65 S.Ct. 373 at 484, 89 L.Ed. 322 (1944), Justice Rutledge said: "Basically these [patent laws and antitrust laws] are opposed in policy, the one granting rights of monopoly, the other forbidding monopolistic activities." A former head of the Antitrust Division of the Department of Justice has expressed a similar view: "It will be helpful in our thinking on the subject if we face frankly the fact that these two systems do conflict. It only confuses the issue if we shut our eyes and pretend they do not." Bergson, *Patents and Antitrust Laws*, Practising Law Institute Lecture, July 20, 1949, at p. 3 (Mimeo). But compare Clapp, *Some Recent Develop-*

ments in Patent-Antitrust Laws (1952) 34 J.Pat.Off.Soc. 945 at 946: "I think it must be conceded that the concept of free competition is at least to a certain degree in conflict with that of the patent monopoly," and to the same effect, Hollabaugh, Recent Antitrust Developments Affecting Patents, University of Michigan Law School Institute on Federal Antitrust Laws, 61, 63 (1953).<sup>25</sup>

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*Bibliography on Patent-Antitrust Problems in General.* See Attorney General's Committee Report (1955), op. cit. supra Ch. 5; Antitrust Problems in the Exploitation of Patents, Staff Report to Subcommittee No. 5, House Committee on Judiciary, 84th Cong., 2d Sess. (1957); Barnett, Patent Property and Antimonopoly Laws (1943); Patent Abuses and Antitrust: The Per Se Rule (1951) 64 Harv.L.Rev. 626; Diggins, The Patent-Antitrust Problem (1955) 53 Mich.L.Rev. 1093; Diggins and Nitschke, Patent Practices under the Antitrust Laws (1951); Feuer, The Patent Monopoly and the Antitrust Laws (1938) 38 Col.L.Rev. 1145; Folk, Scope and Limitations of the Patent Monopoly (1940) 22 J.Pat.O.S. 135, 184; Hamilton, Patents and Free Enterprise, TNEC Monograph No. 31 (1941); Havighurst, The Legal Status of the Industrial Control by Patent (1941) 35 Ill.L.Rev. 495; Hollabaugh, Patents and Antitrust Laws (1956) 25 U.Cin.L.Rev. 43; Meyers and Lewis, The Patent "Franchise" and the Antitrust Laws (1941-1942) 30 Geo.L.J. 117, 260; Morison, The Patent Grant and Free Enterprise: the Abuses of the Patent Monopolies (1952) 38 A.B.A.J. 739, 797; Oppenheim, Patents and Antitrust: Peaceful Coexistence? (1955) 54 Mich.L.Rev. 199; Rich, The Relation between Patent Practices and the Antimonopoly Laws (1942) 24 J.Pat.O.S. 85, 159, 241, 328, 422; Schramm, The Relationship of the Patent Act of 1952 to the Antitrust Laws (1954) 23 Geo.Wash.L.Rev. 36; Stedman, Patents and the Antitrust Laws (1949) 21 J.Pat. O.S. 14; Stocking and Watkins, Monopoly and Free Enterprise, Ch. 14 (1951); Wood, Patents and Antitrust Law (1942); Wood, Patent Reform and 1943: Antitrust or Antipatent Law (1943) 11 Geo.Wash.L.Rev. 473; Wood and Johnston, Patents and the Antitrust Laws (1950) Ill.L.Forum 544; Wood, Patent Combinations and the Antitrust Laws (1943) 17 Geo.Wash.L.Rev. 59.

For earlier general discussions, see bibliography by Allen, op. cit. supra at 26-33. References on specific aspects are cited infra under relevant topics.

In addition to the antitrust issues covered in this chapter, mention is here made only of the following matters which have been the subject of proposals for Congressional legislation:

(1) enactment of the so-called Twenty Year Bill as recommended by the National Planning Commission, whereby the patent grant would expire twenty years from the date of the filing of the application. Three years would be allowed within which an application must be prosecuted to allowance. Any avoidable delay

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<sup>25</sup>See also, Hamilton and Till, What is a Patent? (1948) 13 L. & Contemp.Prob. 245; Meyers and Lewis, The Patent "Franchise" and the Antitrust Laws (1941-1942) 30 Geo.L.J. 117, 260; Petro, Patents, Judicial Developments and Legislative Proposals (1944-1945) 12 U.Chi.L.Rev. 80, 352.

beyond that period would subtract from the duration of the patent which would be seventeen years, as at present. It is said that this type of legislation is needed to cure the abuse of deliberately delaying the prosecution of a patent application in order to keep the application pending longer in the Patent Office, thereby prolonging the patent protection beyond the seventeen years from date of issuance of the patent grant.

(2) Recording of patent agreements and licenses has been frequently proposed as a means of preventing practices in violation of patent law or antitrust policy.

(3) Proposals for compulsory licensing of patents has apparently evoked more opposition than any other single controversial issue in this field.<sup>26</sup> The patent bar generally has voiced its disapproval of such measures. As stated in the majority opinion in the *Hartford Empire* case *infra*, Section 5 and in *Special Equipment Co. v. Coe*, *infra*, Section 3, since 1877 Congress has repeatedly refused to take action on proposed bills for compulsory patent licensing. A comprehensive review of proposals for Congressional legislation is Corry, *Compulsory Licensing of Patents—A Legislative History*, Study No. 12, Subcommittee on Patents, Trademarks and Copyrights of Senate Committee on the Judiciary, 85th Cong., 2d Sess. (1958), which includes an extensive bibliography on compulsory licensing of privately owned patents, registration of patents voluntarily made available for licensing, and dedication and compulsory licensing of government-owned patents.

Compulsory licensing proposals vary in purpose and scope. A few of these propose across-the-board or general compulsory licensing. Most proposals, however, are limited to compulsory licensing to combat suppression of patents (see *infra* Section 3 for distinction between nonuse and suppression). Some proposals are limited to patented inventions related to national defense, public health and safety (see bibliography by Allen, *op. cit. supra* at 22-24 for atomic energy legislation involving compulsory licensing) or as a remedy for antitrust violation (see *infra*, Sec. 8).

Some other legislative proposals are indirectly related to antitrust or trade regulation but most of them, discussed in the bibliographical references cited in this note, deal with the technical phases of patent law doctrine and procedure.

#### E. NEED FOR EMPIRICAL DATA

In this commentary reference has been made to the need for factual information concerning the Patent System and its impact on the American private enterprise economy. The fundamental principles derived from the theoretical premises of the system reflected in the purposes of the Constitutional provision and patent laws must be understood. It is nevertheless recognized that in striking a balance between

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<sup>26</sup>Arguments pro and con are extensively covered in the bibliographical references cited in Corry, *op. cit. infra*. As a remedy for antitrust violation, see references cited *infra* Sec. 8.

theory and practice, there is need for further research to supplement and to test the validity of theory when translated into the realities of the modern industrial and technological order.

Parallel to analysis of a particular industry<sup>27</sup> (see Ch. 2 and 8 *supra*), theory provides a road map to exploration of the structure, behavior and achievements of the American Patent System. This writer has long held the view that the approach to accommodation of the patent laws and patent system to the antitrust laws should be guided by the yardstick of a workable patent system as an integral part of a workable competition economy through application of an economic and legal Rule of Reason (see Ch. 1 and Ch. 2 *supra* and the cases in various parts of this book involving Rule of Reason issues). Oppenheim, *A New Approach to Evaluation of the American Patent System* (1951) 33 J.Pat.O.S. 555; Oppenheim, *Federal Legislation: Guideposts to a Revised National Antitrust Policy* (1952) 50 Mich. L.Rev. 1139.

Currently there are patent system research projects designed to fill the wide gulf that still exists between theory and fact. Arguments pro and con and generalizations are still characterized to a preponderant degree by abstractions, opinion evidence and at times by emotional thinking.

Two current programs of research merit special mention. One is the series of studies published and in process under the supervision of the Associate Counsel, Professor John C. Stedman, of the Senate Subcommittee on Patents, Trademarks and Copyrights. At this writing fifteen of these studies have been published as Committee Prints and are available at a nominal price through the United States Government Printing Office. All of these studies have been cited in various parts of this study guide and commentary and therefore are not cited again at this point. In each instance, the Subcommittee states that "The views expressed by the author are entirely his own" but that the publication does "testify to the subcommittee's belief that the study represents a valuable contribution to patent literature and that the public interest will be served by its publication". Some of these studies are factual e.g., Patent Office, *Distribution of Patents Issued to Corporations 1939-1955* (1956), others are historical and theoretical, e.g., Machlup, *An Economic Review of the Patent System* (1958), and still others are a mixture of theory and factual data, e.g., Melman, *The Impact of the Patent System on Research* (1958). In each instance the reader must judge for himself the extent to which the conclusions are based on theory or on empirical data.

The other current series of research studies are those being made by The Patent, Trade-Mark and Copyright Foundation of The George Washington University.

<sup>27</sup>Among industry studies on patents are Maclaurin, *Invention and Innovation in the Radio Industry* (1949); Maclaurin, *Patents and Technical Progress—A Study of Television* (1950) 58 J.Pol.Econ. 142; Maclaurin, *Technological Progress in Some American Industries* (1954) 44 Am. Econ.Rev. 178; Bright, *The Electric Lamp Industry* (1949); Kottke, *Electrical Technology and the Public Interest* (1944). Cf. Bright and Maclaurin, *Economic Factors Influencing the Development and Introduction of the Fluorescent Lamp* (1943) 51 J.Pol.Econ. 429; Frost, *op. cit. supra* at 4-19.

See also Princeton University Conference on Quantitative Description of Technological Change (1951).

This Foundation was established as part of the University's research and educational facilities under a Declaration of Trust executed by its Board of Trustees and declaring that the research will be carried on "without regard to, and independently of, the special interest of any group, or body politic, whether political, legal, social, or economic". Dean O. S. Colclough is the Director, L. James Harris is Executive Director, and this writer is Adviser on Research. In the respects relevant to this part of the commentary, the Foundation's research program stresses empirical research coordinated with the disciplines of the various physical and social sciences and its research staff includes specialists from some of these fields. At the present writing the research projects of the Foundation include the following (some of which have already been published in summary or extended form as interim reports or in a more advanced stage in the Foundation's *Journal of Research and Education* as noted below):

Markham, Worley and Brothers, *The Value of the American Patent System: An Inquiry into Possible Approaches to Its Measurement* (1957) 1 J.Res. & Ed. (Conference Supplement) 108 and (1957) 1 J.Res. & Ed. 20; Sanders and Rossman, *Patent Utilization* (1957) 1 J. & Res.Ed. (Conference Supplement) 66, (1957) 1 J.Res. & Ed. 74 and (1958) 2 J.Res. & Ed. 1; Frost, Oppenheim and Twomey, *Effects of Certain Antitrust Decrees Involving Patents as a Major Factor* (1957) 1 J.Res. & Ed. 17, (1957) 1 J.Res. & Ed. 127 and 2 J.Res. & Ed. 61 (interim report on Concrete Block Making Machine Industry); *Effect of Patents on the Creation and Growth of Small Industrial Units*, a trilogy of studies on the custom heat-treating industry (Belfer and Siegel), the steel industry (Weidenhammer and Siegel), and the electronics industry in the Boston area (Welfling and Siegel), on which see (1957) 1 J.Res. & Ed. (Conference Supplement) 44, 134, (1957) 1 J.Res. & Ed. 57, 112, 119, (1958) 1 J.Res. & Ed. 216, 218 and (1958) 2 J.Res. & Ed. 278; Behrman, *Licensing Abroad Under Patents, Trademarks, and Know-How by U. S. Companies* (1958) 2 J.Res. & Ed. 181 and earlier interim reports (1957) 1 J.Res. & Ed. (Conference Supplement) 128, (1957) 1 J.Res. & Ed. 220, and see also Behrman, *Advantages and Disadvantages of Foreign Licensing* (1958) 2 J.Res. & Ed. 137; Mosel, *Public Attitudes Toward Patents, Trade-Marks and Copyrights (beginning with Patent System)* (1957) 1 J.Res. & Ed. (Conference Supplement) 130, (1957) 1 J.Res. & Ed. 159, 243; Mosel, *Attitudes of American Inventors Toward Defense Inventions (Incentives to Inventing for National Defense)* (1957) 1 J.Res. & Ed. (Conference Supplement) 132, (1957) 1 J.Res. & Ed. 168; Bangs and Driscoll, *The Taxation of Patents* (1957) 1 J.Res. & Ed. (Conference Supplement) 137, (1957) 1 J.Res. & Ed. 244.

## Program for Young People

BECAUSE OF THE GENERAL INTEREST in our educational program for young people\* reported in the September issue of the *Journal* (2, No. 3, p. 443), we are printing the memorandum of December 3 on this program which was sent to members of the National and Area Committees so that interested persons might address information, ideas, advice, etc., to Area Committee chairmen or to the Foundation office.\*\*

### NATIONAL DIRECTORS OF THE AREA COMMITTEES

Fulton B. Flick, 1706 First National Bank Building, Pittsburgh 22, Pennsylvania  
Lawrence C. Kingsland, 7912 Bonhomme Avenue, St. Louis 5, Missouri  
Harry H. Semmes, 1000 Connecticut Avenue, Washington 6, D. C.

### AREA COMMITTEE CHAIRMEN

*Boston:* Merwin F. Ashley, 140 Federal Street  
*Chicago:* James P. Hume, 38 South Dearborn Street  
*Cleveland:* Albert R. Teare, 1114 Terminal Tower Building  
*Detroit:* Arthur M. Smith, 23913 Michigan Avenue, Dearborn  
*Milwaukee:* Elwin A. Andrus, Chairman, Suite 1112 First Wisconsin National Bank Building; Merl E. Sceales, Vice Chairman, 735 North Water Street.  
*New York:* George S. Hastings, 261 Madison Avenue  
*Philadelphia:* John D. Myers, 1420 Walnut Street  
*Pittsburgh:* Karl B. Lutz, 1706 First National Bank Building  
*San Francisco:* Carl Hoppe, Crocker Building, and Paul D. Flehr, Crocker Building.  
*St. Louis:* Alfred W. Petchaft, 1220 Boatman's Building, 314 North Broadway  
*Washington, D. C.:* John W. Malley, American Security Building, 730 Fifteenth Street, N.W.

### MEMORANDUM

TO: MEMBERS OF THE NATIONAL AND AREA COMMITTEES  
SUBJECT: EDUCATIONAL PROGRAM FOR YOUNG PEOPLE

Since it is our hope to formulate a unified program that is consistent with our Declaration of Trust and our Foundation principles, the Area Committees are asked to:

1. Assure that the material they develop is objective in tone.

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\*As of interest by analogy with the Foundation's educational program for young people is the article dealing with the Oregon State Bar's pre-adult level "high-school-bar" educational program appearing in volume 6, No. 12, Dec. 1, 1958, of the American Bar Association Coordinator and Public Relations Bulletin.

\*\*The Foundation is in the process of developing material for national distribution.

2. Furnish us copies of materials as they are developed.

The Foundation is available for consultation on the preparation of appropriate material. We hope to benefit from the exchange of ideas with the Area Committees and develop a pool of information which might be applicable to more than one area, and facilitate this exchange. On the basis of the information developed from your local efforts we hope to establish a unified Foundation program consistent with our research program and Declaration of Trust.

We should like to add this word with respect to the nature of the educational program. It is not a plan for the general spreading of information about the system throughout the country. It is something much more modest and more specific. In short, it is an attack on the ignorance of a relatively small group (teenagers) of high school and college students. It is felt that whatever good it can do at that level is worth the effort and the very small cost.

You will note that the report on the Foundation's study on the "Public Attitude Toward Patents, Trademarks, and Copyrights," conducted by Professor James N. Mosel has just been published in the *Foundation Journal* (Volume 2, Number 3, pages 319-339) and the reference to the educational program for young people is made on page 443 of that issue.



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## BOOK REVIEW

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THE SOURCES OF INVENTION by John Jewkes, David Sawers and Richard Stillerman.  
New York: St. Martin's Press. 1958. 428 pp. \$6.75.

Reviewed by JOSEPH ROSSMAN\*

ACCORDING TO THE PREFACE this work was begun in 1954 in the Law School of the University of Chicago and has been financed by that institution. The stated object of this essay is to throw some light upon the question: Where and under what conditions have industrial inventions arisen in modern times? In order to answer this question the authors selected 61 inventions made since 1900 which they regard as important. The authors devote nearly 150 pages to concise case histories of 50 of these inventions, giving a brief history of the development of each, the names of the inventors, companies involved in the development work and other pertinent facts which are well documented, obtained directly from the inventors themselves, or from those closely connected with them. The authors admit that their choice was arbitrary but "every case selected has been a commercial success, or shows promise of so becoming, or has revealed itself as an effective weapon of war" (p. 73). Some omissions however may be questioned.<sup>1</sup>

In view of the arbitrary selection of the inventions, any conclusions must necessarily be limited to the sample. The authors, however, appear to draw broad conclusions which may not necessarily be true for all recent industrial inventions. They found that more than one-half of the inventions (33 of the 61 or 54%) were made by individual inventors in the sense that much of the pioneering work was carried through by men who were working on their own, or if connected with institutions or universities, were autonomous or free to follow their own ideas without hindrance.<sup>2</sup> Of the remaining inventions, 21 were developed by companies, and 7 were of mixed technological parentage difficult to classify.<sup>3</sup>

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<sup>1</sup>The *Scientific American*, Sept. 1958, p. 224, is highly critical in this regard. "Some of the omissions are astonishing: the Wright brothers, for example, don't even merit a place in the index. And if the authors have come to any conclusion, other than that no one can come to any conclusions about the sources of invention, their study gives no sign of it." The authors also deliberately left out nuclear energy inventions.

<sup>2</sup>This list includes air-conditioning, automatic transmissions, Bakelite, ballpoint pen, catalytic cracking of petroleum, cellophane, chromium plating, Cinerama, cotton picker, Cyclotron, domestic gas refrigeration, electric precipitation, electron microscope, gyro-compass, hardening of liquid fats, helicopter, insulin, jet engine, Kodachrome, magnetic recording, penicillin, "Polaroid" Land Camera, power steering, quick freezing, safety razor, self-winding wristwatch, streptomycin, synthetic detergents, synthetic light polarizer, titanium, xerography, and zip fastener.

<sup>3</sup>This list includes acrylic fibres (Orlon), cellophane tape, continuous casting of steel, continuous hot-strip rolling, crease-resisting fabrics, DDT, Diesel-electric railway traction, Duco lacquers,

It appears that practically all the selected inventions were patented, but the authors reject the value of patent statistics. They correctly state that patent statistics show the percentage of patents issued to corporations fluctuates from 50 to about 60 in recent years and that in the electrical and chemical industries the percentages are much higher. This agrees with The Patent, Trademark, and Copyright Foundation findings.<sup>4</sup> However, the authors conclude that "The relevance of patent statistics to what is really happening in the field of invention is very obscure" (p. 105). They state that "perhaps 95 per cent of all patents have no commercial value at all." The Patent, Trademark, and Copyright Foundation's preliminary statistical study indicates that about 60% of assigned patents and 45 to 50% of unassigned patents have some commercial use at some time during the life of the patent.<sup>5</sup>

The authors also seem to be inconsistent in stating "the fact that two-fifths of the patents issued in the United States and Great Britain are still issued to individuals ought not to be overlooked," but they fail to analyze the significance of such statistics which certainly have an important bearing on their entire study. It appears to this reviewer that patent statistics can be of great value if properly evaluated and analyzed. They are indicators of certain kinds of industrial inventive activity though not necessarily of all inventive activity. Admittedly the number of patents issued from decade to decade may also be influenced by many factors which are extremely difficult to determine statistically, such as the varying standards of patentability in the Patent Office and the courts, the size of the Patent Office staff, the effects of business cycles and war, the effects of antitrust law enforcement, the growth of expenditures for industrial research, increasing mergers of companies, the tremendous growth of technical literature and issued patents, etc.<sup>6</sup>

The authors are greatly concerned with the eventual fate of the individual inventor and whether he will disappear with the accelerated growth of corporation research if the present trend continues. If the majority of important inventions have been made in the past by individual inventors, will the flow of important new inventions diminish? The authors believe that organized corporation research is not favorable for inducing invention. However, the specific cases studied by them appear to indicate this is not necessarily true. No matter where inventions are made the creative ideas must still originate in the brain of an individual—the

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fluorescent lighting, Freon refrigerants, Krilium, long-playing records, methyl methacrylate polymers, modern artificial lighting, Neoprene, nylon, polyethylene, radar, radio, rockets, shell moulding, silicones, stainless steels, television, tetraethyl lead, polyester fiber (Dacron), transistor, and tungsten carbide.

<sup>4</sup>PTC J. Res. & Ed., 2, No. 1 (March 1958), pp. 48-49.

<sup>5</sup>*Ibid.*, No. 3 (Sept. 1958), p. 342. Of 600 patents, over 30% were reported by assignees to be in current use, 19% reported that the patent had been used in the past, and 8% indicated that it was to be used in the immediate future.

<sup>6</sup>Professor Jacob Schmookler, University of Minnesota, has given considerable study to this problem. See, e.g., "The Interpretation of Patent Statistics," *Journal of the Patent Office Society*, 32, (1950), 123; "The Utility of Patent Statistics," *Journal of the Patent Office Society*, 35, (1953), 407; "Patent Application Statistics as an Index of Inventive Activity," *Journal of the Patent Office Society*, 35, (1953), 539; "The Level of Inventive Activity," *Review of Economics and Statistics*, May 1954. An example of the failure properly to evaluate such factors leading to absurd conclusions is *The Impact of the Patent System on Research* by Seymour Helman, Senate Subcommittee on Patents, Trademarks and Copyrights. Study No. 11. Washington, 1958.

inventor. Therefore, the creative individual is indispensable in organized research and development work. The emotional and psychological attitudes of captive creative individuals may be the determining factors in the output of creative ideas. Some corporation research directors are beginning to realize these factors may be extremely important by allotting uncommitted research time with freedom to explore any interesting problem not necessarily related to current company activities.<sup>7</sup>

It is interesting to note that in the case histories of specific inventions made by corporation research, the authors have been able to identify the names of the individual inventors responsible for the inventive concepts. Thus, it is clear that no matter how large a team may be put to work on a problem there will always be one or more identifiable individuals who can be credited for sparking the creative idea. Some sweeping and baseless statements have been made to the contrary.<sup>8</sup> Certainly unlimited facilities and resources do not necessarily assure that organized research will produce basic inventions or even minor improvement inventions without the drive and imagination of the individuals in the organization. The real problem today is how to avoid frustration of the creative individual working in an organization so that he does not become an "organization" man lulled by the security of his job and suppressing his non-conformist viewpoints.<sup>9</sup>

There is an interesting discussion of prominent 19th-century inventors and how some of their inventions originated. The authors try to show that these inventors were generally well-informed in their fields whether by formal or self-education. The present-day individual inventor seems to work very much like his 19th-century predecessors. The authors barely touch on the psychological factors of the creative mind which are being explored intensively today, although a great deal of unfortunate pseudo-scientific "brain storming" techniques have been recently exploited by "sales psychologists" in industry. Certainly a knowledge of these factors is critical in increasing the output of inventions, particularly in organized research. The authors point out that "the essential feature of innovation is that the path to it is

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<sup>7</sup>See Francis Bello, "The World's Greatest Industrial Laboratory," *Fortune*, Nov. 1958, p. 149, which indicates Bell Telephone Laboratories tries to maintain a "campus" attitude; two Nobel prizes were awarded to its physicists.

<sup>8</sup>Melman, op. cit., states the concept of the "inventor" as a person responsible for the production of given technical knowledge and its expression in the form of a new object or process is obsolete. The designation of "the" inventor "often becomes increasingly difficult, if not impossible, under modern conditions because of the division of labor." Melman completely overlooks the existence of individual inventors who are still obtaining currently around 40 to 45% of all issued patents according to U. S. Senate Study No. 3, *Distribution of Patents Issued to Corporations (1939-1955)*, Jan. 1957.

<sup>9</sup>See William H. Whyte, Jr., *The Organization Man* (New York: Simon and Shuster, 1956), who forcefully calls attention to this serious problem. He points out that the scientist among others is becoming an "organization" man. The viewpoint that inventions are inevitable and can be produced by teamwork may lead to our technological disaster. He is disturbed by the existing "fight against genius" (c. 16). The dominant characteristic of the outstanding scientist is fierce independence, but in the "organization" there is "no room for virtuosos." Where will our new ideas come from? We have become "too much the technicians, too little the innovators." Whyte refers to a study by Dr. George P. Bush who checked the trend of individual authorship in articles appearing in *Science* in 1921, 1936, and 1951. In 1921, he found 85% of the papers were written by one man; in 1936 the percentage was 41, and 36% in 1951. In 1951, 38% of the papers were by two men and 26% by three or more men. The tyranny of collectivism, team management, or the organization is not conducive to creativity.

not known beforehand." They point out that chance still remains an important factor in invention, but they make no attempt to pursue this subject as an important source of new basic or revolutionary inventions. They speculate that perhaps corporations, being able to bear the expense of numerous inevitable failures, may thus stumble on the lucky accident which the individual inventor might miss. The authors observe that accidental inventions are common in chemistry, but rare in mechanical engineering. The role of serendipity in inventing deserves study.<sup>10</sup>

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<sup>10</sup>The literature relating to serendipity in inventing is meager. Unquestionably, there is an accidental quality in most discoveries and basic inventions. Something unforeseen or unexpected happens which is caught by the sagacious mind of investigators prepared to perceive and appreciate the significance of the "accident." True originality involves a leap or mutation from the known to the unknown. It cannot be achieved by mere routineering. Most reported accounts of accidental inventions are more fictional than factual. In such cases the inventor had set the stage by his previous efforts, mental or physical, and was well prepared to perceive the significance of some chance event which led him to a new conception of relations or to a new configuration which had practical value. See Rossman, *Psychology of the Inventor*, 1931, chapter 7, "Chance and Accident in Invention," where he concludes accidental inventions happen only to those who deserve them. Also E. D. Hutchinson, *How to Think Creatively*, 1949, c. 14. Also see R. Taton, *Reason and Chance in Scientific Discovery*, Philosophical Library, 1957, and a very thought-provoking review of this book by James R. Newman in *Scientific American*, April 1958, p. 141. An interesting pamphlet, *Some Accidental Scientific Discoveries*, 1955, distributed by Schaar & Co., Chicago, gives brief stories of about 20 chemical inventions. It is documented. C. D. Tuska, *Inventors and Inventions*, 1957, c. 7.

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Volume two discusses competitive conditions in 12 additional industries characterized by major antitrust suits and includes a discussion of each similar to that of volume one, with additional consideration of the consequences of the specific antitrust judgments in each industry. The industries so studied include cast iron pipe, tobacco products, anthracite, aluminum, shoe machinery, motion pictures, tin cans, farm machinery, corn refining, cement, Pullman cars, and insurance. This volume also includes the report of the Committee on Antitrust Policy appointed by the Twentieth Century Fund, and specific critiques of the respective case studies.

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No. 8. Latman, Alan, and William S. Tager. *Liability of Innocent Infringers of Copyrights*, June 1958.

No. 9. Brown, Ralph S., Jr. *The Operation of the Damage Provisions of the Copyright Law: An Exploratory Study*, June 1958.

No. 10. Latman, Alan. *Fair Use of Copyrighted Works*, Aug. 1958.

No. 11. Varmer, Borge. *Works Made for Hire and on Commission*, Oct. 1958.

No. 12. Blaisdell, W. M.: *The Economic Aspects of the Compulsory License in the Copyright Law*, Nov. 1958.

No. 13. Cary, George D. *Joint Ownership of Copyrights*, Dec. 1958.

*Economic Report on Antibiotics Manufacture.*

Federal Trade Commission. Washington: Government Printing Office, June 1958, 361 pp.

A comprehensive study of the organization and operation of the antibiotics industry of the ethical drug industry. The report

gives detailed account of the origin of the antibiotics industry, the efforts of the Government to encourage large-scale production of penicillin and the development of other commercial antibiotics, including current pricing policies. Includes chapter on patent ownership and licensing (VIII, pp. 225-57) and on trademarks (IX, pp. 258-68). The entire report is of interest as a case history of technological progress and particularly the role of competition with respect to such progress. As a result of this study, the Federal Trade Commission filed on August 2, 1958, antitrust charges against six leading antibiotics manufacturers.

*Federal Funds for Science: VIII. The Federal Research and Development Budget, Fiscal Years 1957, 1958, and 1959.* Washington: National Science Foundation, 1958. 78 pp.

Authoritative statement on federal expenditures and obligations for work conducted at government, non-profit, and private facilities.

Publications of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, 85th Cong., 2d Sess., pursuant to S. Res. 236.

No. 16. Friedman, *The Research and Development Factor in Mergers and Acquisitions*, 1958. 35 pp.

*Relationship of Prices to Economic Stability and Growth: Commentaries*, The Joint Economic Committee, 85th Cong., 2d Sess., Oct. 31, 1958.

Includes 15 economic essays on analyses made and issues raised in other papers on the same general subject submitted earlier by 47 experts. Many references are made to company pricing policies.

*Report of the Attorney General on Defense Minerals Exploration Assistance*, Nov. 10, 1958, 58 pp. and appendix tables. (Mimeographed.)

Submitted pursuant to Sec. 708 (e) of the Defense Production Act of 1950, as amended. Discusses, among other things, "competitive effects"; and includes a second part on voluntary agreements made under the same Act.

*Scientific Manpower—1957.* Washington: National Science Foundation, 1958. 46 pp.

Collection of papers presented at the Sixth Conference on Scientific Manpower, held in conjunction with the annual meeting of the American Association for the Advancement

\*See p. 559.

of Science in December 1957. Of special interest is the paper by Yale Brozen on "Scientific Advance as a Factor in Economic Change."

*Proceedings of a Conference on Research and Development and Its Impact on the Economy*, Washington: National Science Foundation, 1958, 223 pp.

Presents eight conference papers and discussion on basic research in industry, research and development activities in three selected industries, and the implications of research and development for the total economy. An introductory essay, by Dr. Jacob Perlman, presents a framework for the conference papers.

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## NOTES

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### Kettering Commemorative Issue

AS WE WERE GOING TO PRESS, we were saddened by the news of the death of Dr. Charles Franklin Kettering. He was one of the six leaders in research who were named honorary members of the Foundation and aided in its establishment in 1954. He continued to serve as a member of our Advisory Council and the Foundation's annual award for research and education bears his name.

The Foundation will publish the

Charles F. Kettering Commemorative Issue of the *Journal* as a tribute to Dr. Kettering: the inventor, the researcher, the entrepreneur, the teacher, the leader of men, and the inspirer of others. Certain persons who were closely associated with him and with his work have been invited to write papers on those aspects of his life with which they are familiar. We are compiling a Kettering bibliography for the commemorative issue.

### The Kettering Award

ROBERT C. WATSON, United States Commissioner of Patents, will receive the 1958 "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education." The award, which is presented annually by the Foundation, is given for outstanding work in the field of patent, trademark, and related areas.

As the recipient, Commissioner Watson will receive an honorarium and an appropriate citation. The presentation will be made at the third Annual Public Conference at a dinner in Mr. Watson's honor on the evening of June 24, 1959, at the Mayflower Hotel in Washington, D. C.

Commissioner Watson played an important role in the establishment of The Patent, Trademark, and Copyright Foundation, and was one of three distinguished patent attorneys appointed in July 1952 as National Directors of the Foundation's Area Committees. He withdrew as a National Director by reason of his appointment as Commissioner of Patents, and accepted an invitation to serve as an ex officio member of the Foundation's Advisory Council, in which capacity he actively continues. Among the projects under his direction as Commissioner, the Patent Office is currently engaged in a comprehensive research study on the devising of mechanized patent searching facilities; he also has spon-

sored a series of highly successful public exhibits illustrating technical advances through invention, and has established an Office of Information Service in the Patent Office.

A patent lawyer for more than 40 years, Mr. Watson is the author of numerous articles and addresses on the patent system. He served as President of the American Patent Law Association in 1950-51, and as Chairman of the Section of Patent, Trademark, and Copyright Law of the American Bar Association in 1946. This year, he was awarded the Jefferson Medal by the New Jersey Patent Law Association for his role in modernizing the operations of the U. S. Patent Office and for his continued service to the patent system.

Mr. Watson is a graduate of Lehigh University and The George Washington University Law School. A former Trustee of Lehigh, he was awarded an honorary Doctor of Laws degree by that institution in 1954, and by The George Washington University in 1957. He is a member of the American Law Institute, the American Bar Association, the American Patent Law Association, and the Federal Bar Asso-

ciation. He is also a member of Phi Delta Phi and Psi Upsilon fraternities.

Final selection of Commissioner Watson to receive the Kettering Award was made by a six-man Board of Review of the Foundation: Cloyd H. Marvin, President of The George Washington University; O. S. Colclough, Director of The Patent, Trademark, and Copyright Foundation and Dean of Faculties of the University; L. James Harris, Executive Director of the Foundation; Lawrence R. Hafstad, Chairman of the Foundation's Advisory Council and Vice President in Charge of Research of General Motors Corporation; John C. Green, Executive Director of the National Inventors' Council, Department of Commerce, representing the Research Staff of the Foundation; and Fulton B. Flick, of Brown, Critchlow, Flick, and Peckham, Pittsburgh, Pennsylvania, representing the Foundation's National and Area Committees.

The award was presented the first time for the year 1957, when the recipient was S. Chesterfield Oppenheim, Professor of Law at the University of Michigan.

### Third Annual Public Conference

THE FOUNDATION'S THIRD ANNUAL PUBLIC CONFERENCE will be held the evening of June 24th and from 9:30 a.m. to 5:30 p.m. of the 25th at the Mayflower Hotel in Washington, D. C. The Conference will open with a reception at 7:30 p.m. June 24th, to be followed at 8:30 by a dinner, the presentation of the Charles F. Kettering

Award, and an acceptance address by the recipient. Director O. S. Colclough will preside.

Presentation and discussion of Foundation research project reports (tax and foreign licensing aspects of patents, industry experience with patents and trademarks, etc.) is scheduled to begin at 9:30 a.m. on June 25th and

continue until 3 p.m. Luncheon will be served from 12:30 to 2 p.m.

A highlight of the afternoon program will be a special session from 3 to 5 p.m. devoted to discussion of current issues in the fields of the Foundation's interest. Introduced last year, this session was very well received by those

attending the 1958 Conference. The Conference will adjourn at 5:30 p.m.

Advance notice and registration blanks will be mailed shortly. Please reserve the evening of June 24th and from 9:30 a.m. to 5:30 p.m. June 25th on your calendar.

## Early Patent Records

We have received the following communications.

Mr. L. James Harris, Executive  
Director  
The Patent, Trademark, and Copy-  
right Foundation  
The George Washington University  
Washington, D. C.

Dear Mr. Harris:

IN RESPONSE TO YOUR QUESTION CONCERNING our experience with the patent records prior to 1908 in the National Archives, I have listed below a few of the comments, indicating unique materials contained in these records, that have resulted from occasional study by curators of the Department of Science and Technology of Smithsonian Institution. The records examined are the file wrappers, which contain the original application, manuscript specifications, letters of rejection by the patent examiner, amended specifications, and other correspondence having to do with the transaction.

*90,815 Pyrometer.* The entire application was cancelled and replaced by another. The claims were reduced from seven to one general claim. Correspondence reveals that the application had been on file for a long time with-

out action, of which the inventor complains. The examiner rejected it giving reasons in detail, with many citations of prior art. The inventor replied that his instrument was designed for the steel industry, in which the other instruments mentioned by the examiner had been found inadequate. A second rejection followed, and after that a significant letter from the inventor indicated that he had brought a model to Washington, discussed it with the Patent Office, and was making certain changes in it in accordance with their suggestions.

*102,654 Pyrometer.* This file contains two letters of rejection by the Patent Office, and four sets of amendments to the application. The issue revolved around the examiner's claim that the instrument was similar to one described in the *Philosophical Transactions* many years earlier. The inventor replied that he had visited all of the dealers in New York and Philadelphia without finding such an instrument, and called the attention of the Patent Office to an alleged passage in the law to the effect that non-patented foreign inventions should not prejudice the rights of a United States inventor. He appears to have been

granted a patent after an appeal to the examiner-in-chief.

*8,841 Air Engine.* The principal claim, to a regenerator, was not allowed because its use was already well established. The original specifications were replaced by a completely amended set of specifications. As evidence of the questionable validity of the claims, there is a long letter from the patent attorney to the Patent Commissioner asking that the application be considered in a "most liberal spirit to the end that great merit may be amply awarded."

A study of a printed patent reveals a true history of the invention only if the patent is granted without question. Many were not so granted, however, in which case additional documentation which gives the true history of the device and of the patent itself remains in the original file. In addition, the examiner's notes frequently amount to a capsule history of the device in question. In such cases the printed patent actually serves to conceal, rather than reveal, the history of the patent.

Comments by the examiner are unique source materials, giving as they do an expert opinion by a disinterested contemporary, which is not available elsewhere. The information available in the technical press frequently is not an adequate substitute, because in many cases it is written by an interested party.

The Official Gazette of the United States Patent Office carried in the issues of July 13, 20, and 27, 1954, the following statement:

The Patent Office is contemplating the destruction of the original files of all pat-

ents issued prior to January 1, 1905, except those which have historical value or whose preservation is found to be justified for other reasons.

This Office will receive suggestions submitted on or before October 1, 1954, as to the desirability of preserving any particular file in the group indicated. Such suggestions should be submitted in writing, specifically identifying the file of the patent or patents the preservation of which is desired, and setting forth briefly the reasons why it is thought that such files should be preserved.

This question is still under study, and it is possible that members of your organization will be interested in assessing the probable research value of the material.

Yours very truly,

EUGENE S. FERGUSON

Curator

Division of Mechanical  
and Civil Engineering  
Smithsonian Institution

Mr. L. James Harris, Executive  
Director

The Patent, Trademark, and Copy-  
right Foundation  
The George Washington University  
Washington, D.C.

Dear Mr. Harris:

WE AT THE NATIONAL ARCHIVES AND RECORDS SERVICE are grateful for the opportunity to comment on Dr. Ferguson's letter. Your readers may be interested in a brief account of our consideration of problems relating to patent records. The problem came to us when the Patent Office submitted a plan for the permanent preservation of its most valuable records and the disposal of those of no foreseeable historical usefulness commensurate with the costs of preservation. Included was an arrangement with respect to the

"patented files" (case files showing Patent Office consideration of successful patent applications . . .). These are the records regarding which Dr. Ferguson raises questions. It must be borne in mind that these records, from 1836 to the present, come to about 50,000 cubic feet of files. The arrangement finally accepted envisaged a selective retention of patented files, based on professional judgment as to what categories of inventions were of prime importance to scholars in the field of patent, technological, and economic history.

Immediately after we approved the plan we began a canvass of experts and professional organizations for advice on a method of selection. Some failed to reply to our letters, others replied that they could offer no help, and a few sent lists of significant patents. We have been in touch with Dr. Ferguson's agency, the Smithsonian Institution, in this matter. Before we asked the Smithsonian Institution for advice, we had received only two suggestions for dealing with the file as a whole. Professor A. A. Potter, Dean Emeritus of Engineering, Purdue University, recommended that certain classes of inventions—the fields of communication, transportation, mechanized agriculture, metallurgy, and other significant technologies—should be retained. This approach is still under study. The

other suggestion came from the University of Pittsburgh. It proposed that we lend the University all patented files 1901-05 for an intensive study that would result in a series of monographs on technological history and a comprehensive list of important files. Had this proposal been carried out, it might have established a pattern for dealing with the entire body of records. Unfortunately the University found that it was unable to accept the records because of the cost involved in using such a large body of material.

We are still studying the question of how best to make a selection of patented files, including even the possibility of total retention. In the meantime we are planning to accession a large part of the early interference files, which contain significant information about the process of invention and the utilization of new devices. Such information does not often appear in the patented files. Your readers are invited to make use of the more than 6,000 cubic feet of patented files, 1836 to 1900, now in the National Archives.

Yours very truly,

MEYER H. FISHBEIN  
Archivist in Charge  
Business Economics Branch  
National Archives and  
Records Service

## Copyright Studies

THE PROGRESS OF THE PROGRAM OF STUDIES\* undertaken by the Copyright Office, Library of Congress, to examine the present United States copyright law

and intended to produce recommendations for a general revision of that law is reported in the *Annual Report of the Register of Copyrights for the*

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\*See p. 554 *supra*.



*Fiscal Year Ending June 30, 1958*, which has just been received. During this fiscal year the first drafts of a number of additional studies were sent to a panel of specialists for review and comment. The studies include subjects

such as: "the economic aspects of the compulsory license"; "fair use of copyrighted works"; "works made for hire and on commission"; "limitations on performing rights"; and "the economic size of the copyright industries."

## Project Information and Supplements

### Patents and Other Factors in the Development of Independent Firms in the Scientific and Other Instruments Industry\*

PAUL R. NICHOLS, Research Associate

#### NATURE OF INDUSTRY

FOR THE PURPOSES OF THIS STUDY, the "Scientific and Other Instruments Industry" is composed of firms engaged primarily in developing or manufacturing the following types of instruments: (1) accessories, (2) acoustical, (3) aeronautical, (4) electric measuring, testing, sorting, and recording, (5) electromechanical, (6) experimental, (7) photographic, (8) laboratory, (9) meteorological, (10) nuclear, (11) optical, (12) scientific, and (13) visual inspection.

#### PURPOSE OF STUDY

The aim of this study is to examine the role of patents and other factors in the development, operations, and prospects of independent firms in the scientific and other instruments industry. It is confined to New England and the Middle Atlantic states.

The nature and purposes of the study are expressed more explicitly in

the questionnaire mailed early in July 1958 to 78 firms in the New England-Middle Atlantic area. This questionnaire sought information relative to:

1. The nature of the firm surveyed (including its form of legal organization, products made, size with respect to receipts and employment, existence of formal research and development programs, dates of establishment of the firm and its research program, and general historical evolution of the firm).

2. The role of owned and licensed patents, as well as other factors (entrepreneurship, capital, "know-how," trade secrets, trademarks, and government contracts), in the origin, history, and current operations of these firms.

3. Specific aspects of the firm's patent experience (including numbers and brief descriptions of patents owned, used under licenses, or licensed to others; exchange agreements; extent to which equipment used is, or has been, covered by patents; and details of patent infringement or interference actions).

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\*Dr. Nichols is Associate Professor of Economics at Simmons College, Boston. This study is one of several organized and conducted under the general direction of Dr. Irving H. Siegel, Consultant on Project 3a, *Role of Patents in the Creation and Growth of Small Industrial Units*.

## A SAMPLE

The 78 firms comprising the sample were selected from the list of scientific and other instruments firms contained in the *Conover-Mast Purchasing Directory*, 33rd edition, 1957, with the following criteria in mind:

1. That all sampling units be "small" with respect to capitalization and number of employees. (To achieve this purpose, all parent holding companies or subsidiaries were omitted, together with all multi-unit firms and firms with listed securities.)

2. That the numbers of firms producing the principal types of instruments appear in the same proportions in the sample as in the universe. (The universe comprised all small instrument firms in the New England-Middle Atlantic area.)

3. That the firms selected be representative relative to location, as well as type of instrument, within the New England-Middle Atlantic area.

The distribution of sampling units, classified by type of instrument or instrument work and by state where located, is shown in the accompanying table.

SURVEYED SCIENTIFIC AND OTHER INSTRUMENTS FIRMS, CLASSIFIED BY TYPE OF INSTRUMENT  
AND BY STATE, JULY 1958

TYPE OF INSTRUMENT OR INSTRUMENT WORK	STATE WHERE LOCATED								TOTAL	PER CENT OF TOTAL
	Conn.	Mass.	Md.	N.H.	N.J.	N.Y.	Penn.	R.I.		
Electric Measuring, Testing, Sorting, and Recording.....	4	5	--	--	5	7	5	2	28	35.8
Experimental.....	2	2	--	--	3	3	1	--	11	14.1
Aeronautical.....	2	--	--	--	3	2	1	--	8	10.3
Accessories.....	1	1	--	--	1	2	1	--	6	7.7
Scientific.....	--	1	--	--	--	2	2	--	5	6.4
Laboratory.....	2	--	1	--	--	1	1	--	5	6.4
Electro-Mechanical.....	--	2	--	--	1	1	--	--	4	5.1
Nuclear.....	--	--	--	--	2	--	1	--	3	3.8
Optical.....	--	--	--	--	--	2	1	--	3	3.8
Acoustical.....	--	2	--	--	--	--	--	--	2	2.5
Photographic.....	--	1	--	--	--	--	--	--	1	1.3
Visual Inspection.....	--	1	--	--	--	--	--	--	1	1.3
Meteorological.....	--	--	--	1	--	--	--	--	1	1.3
Statistical Discrepancy...	--	--	--	--	--	--	--	--		0.2
Total Number.....	11	15	1	1	15	20	13	2	78	100
Per Cent of Total.....	14.1	19.2	1.3	1.3	19.2	25.7	16.6	2.6	---	100

## Patents and Firm Size in the Plastics Fabricating Industry

MURRAY BROWN, Research Associate

THIS NOTE SUPPLEMENTS the statistical findings presented in "Patents and Other Factors in the Plastics Fabricating Industry,"<sup>1</sup> PTC J. Res. & Ed., 2, No. 3 (Sept. 1958), pp. 366-375. We shall offer some remarks on various responses to a questionnaire sent to firms in the plastics fabricating industry. These remarks are based on interviews conducted with members of the industry since September. The general problem area to be discussed is the role of patents per se in the development of the firms in the plastics fabricating industry.

To introduce the problem, consider the general impact which patented processes may have on a firm's development. On the one hand, the patent system may affect the demand for a firm's product by permitting the firm to acquire a market. On the other hand, patented processes may enable a firm to make an existing product more efficiently, thus decreasing costs of manufacture. But in the plastics fabricating industry patents have a significant influence only on the demand side; for the equipment that is used is produced by another industry and is either rented or sold to the fabricators, and it is standardized for each type of fabricator (extruder, laminator, molder, etc.). Thus, patents on new productive processes would show up in the equipment supplying industry and not

in the plastics fabricating industry. This is confirmed by the responses to our questionnaire: all firms indicated that patents had no effect on their costs of manufacturing. Therefore, any effect of patents on the development of the responding firms can be interpreted as influencing the demand for the firm's product.

Although one-third of the responding firms owned or licensed patented processes, 19% of the sample reported that patents had increased their share of the market. Deducting this figure leaves about 14% of the firms which own patents but consider them no help in increasing their market. In terms of current operations (interpreted as current market demand), 37% of the responding firms cited patented processes developed by the firm as influential and 32% cited patented processes licensed to the firms as influential. From all this, we may conclude that the patent system has an influence on the market demand of a significant proportion of the plastics fabricating industry.

The question of what part of the industry is affected most by the patent system follows naturally from the above. Our findings showed that the larger the firm, the more likely it is to see the patent system as offering an opportunity to increase its share of the market and to be important in its cur-

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<sup>1</sup>This paper was prepared by Dr. Murray Brown, Assistant Professor of Economics, Wharton School of Finance and Commerce, University of Pennsylvania. It is an interim report on one of several studies conducted under the general direction of Dr. Irving H. Siegel as part of Project 3a, *Role of Patents in the Creation and Growth of Small Industrial Units*.

rent operations. Parenthetically, this pattern follows an industry-wide trend indicated in the TNEC Hearings. In 1921-1938, patents issued to 157 large corporations rose from 2% to 17% of all patents issued in the United States.<sup>2</sup>

How can these patterns respecting patents and firm size be explained? A reasonable hypothesis emerged from interviews with members of the industry. It was suggested that, *as a firm becomes large, the consequences of forfeiting control of its market increase*. Patents for these firms assume a very important role by providing a control over part of the market. Furthermore, *as a firm increases in size, its impact upon its competitors is greater*—it begins to assume an oligopolistic

position. The very nature of an oligopolistic market induces an attempt on the part of participating firms to carve out part of the market for themselves.<sup>3</sup> The patent system may be used for this purpose.

In conclusion, mention should be made of the role of trademarks in the plastics fabricating industry. About 50% of the responding firms believed that trademarks increased their markets. Also, 3% indicated that trademarks were partially responsible for their rivals' success. Again, the larger firms tended to react to the trademark variable. In the light of the hypothesis mentioned above, this is hardly surprising.

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<sup>2</sup>Testimony of the Commissioner of Patents, TNEC, *Hearings*, Part 3, Washington: Government Printing Office, 1939, pp. 843-845.

<sup>3</sup>An alternative explanation of these behavior patterns involving Schumpeter's theory of economic development was offered by the author at the June 1958 Public Conference of The Patent, Trademark, and Copyright Foundation. However, this was rejected in favor of the present hypothesis. Since neither theory has been subjected to direct tests, we must offer them only as suggestive of future research.

## Darden v. Besser Award Affirmed

GEORGE E. FROST\*

THE CASE OF *Darden v. Besser*<sup>1</sup> is discussed in the report on "The Concrete Block Making Machine Industry."<sup>2</sup> In brief, the district court entered findings of fact and conclusions of law to the effect that Besser and Stearns had injured Darden in violation of the Sherman Act. The acts of violation included threats of patent infringement action and related activity. The court found, however, that Darden was damaged only in the amount of \$15,000. Changed business conditions and other factors were considered primarily responsible for the drop in Darden's sales volume subsequent to the Sherman Act violation.

In a recent per curiam opinion,<sup>3</sup> the court of appeals has held that the district court was not clearly erroneous on the issue of damages. The appellate court further held that the award of attorney fees should have been \$30,000, rather than the sum of \$10,000 awarded by the district court.

The Darden decisions tend to support the conclusion that the decree in the government antitrust action inherently could not have been of substantial aid to Darden and that to this extent the compulsory licensing decree provisions were of mild effect.

## Seventh Report

THE SEVENTH REPORT TO MEMBERS of the Foundation has been distributed. To provide membership a closer look at Foundation developments, we introduced, in the previous report, reproductions of articles on our work appearing in various publications and pictures of Foundation people and

events. Since the Sixth Report was so favorably received it was decided to continue this format in the Seventh. Copies are available for distribution to individuals or organizations interested in applying for Foundation membership and will be mailed upon request.

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\*Mr. Frost, patent attorney, Chicago, is Principal Investigator of *Project 4a, Effects of Certain Antitrust Decrees Involving Patents As a Major Factor*.

<sup>1</sup>Darden v. Besser, 147 F. Supp. 376 (E.D. Mich. 1957).

<sup>2</sup>PTC J. Res. & Ed., 2, No. 1 (March 1958), pp. 61, 95.

<sup>3</sup>Darden v. Besser, 257 F.2d 285 (6th Cir. 1958).

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\*In addition to titles of contributions, names of authors, and conference participants, the index includes references to persons serving the Foundation in various capacities.  
*Italic numbers in the index refer to pages in the 1958 Conference Supplement of the Journal.*

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of  
THE ANNUAL PUBLIC CONFERENCE  
of  
The Patent, Trademark, and Copyright  
Foundation



The George Washington University  
Washington 6, D. C.



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THE PATENT, TRADEMARK, AND COPYRIGHT JOURNAL OF RESEARCH AND EDUCATION is published quarterly with a special Conference Supplement edition by The Patent, Trademark, and Copyright Foundation of The George Washington University. Application for second-class mail privileges pending at Washington, D. C. To non-members, \$3.50 per regular issue; Supplement edition, \$3.00 per copy. Printed by the McGregor & Werner, Inc., Washington, D. C.

Address all communications to: The Patent, Trademark, and Copyright Foundation; The George Washington University, Washington 6, D. C.

Individuals are invited to submit manuscripts to the JOURNAL.

The Patent, Trademark, and Copyright Foundation sponsors objective research in accordance with the Declaration of Trust establishing the Foundation. This purpose is set forth in Article IV, Section 1 of the Declaration as follows: "The purposes and objects of the Foundation shall be promoted and carried on without regard to, and independently of, the special interests of any group or body politic, whether political, legal, social, or economic."

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## THE CONFERENCE

The purpose of the Annual Public Conference is to discuss the staff reports published in *The Patent, Trademark, and Copyright Journal of Research and Education*, unpublished reports completed by the date of the Conference, studies still in progress, the work of the Foundation in general, and current issues concerning the patent and related systems.

The Conference furnishes a forum for the dissemination and discussion of the findings of the Foundation's projects. In this constructive atmosphere of give and take, those in attendance have an unusual opportunity for commenting on the work of the Foundation and making suggestions for future study. Key representatives from the fields of commerce, industry, finance, labor, education, science and the professions are invited to attend and participate.

The proceedings of the second Annual Public Conference are published in this supplement to *The Patent, Trademark, and Copyright Journal of Research and Education*. This supplement contains (1) a summary; (2) an edited transcript of the proceedings, which includes research developed by the staff of the Foundation up to the date of the Conference, comments on this research and on current issues by qualified discussants, and questions from the floor and answers; and (3) appendices to the proceedings.

When discussants are invited to participate in the Conference they are, of course, assured that they will be free to make whatever remarks they wish either as individuals or as members of the organization with which they are associated. Their remarks include both comments bearing directly on the staff reports and on various aspects of the patent and related systems.





# A Summary of the Proceedings

## I. THURSDAY SESSIONS

**L**AURENCE B. DODDS, President, Hazeltine Research Corporation, was moderator of the Thursday general session of the second Annual Public Conference of The Patent, Trademark, and Copyright Foundation of The George Washington University. Mr. Dodds introduced Mr. Newell W. Ellison, Secretary of The Board of Trustees of the University and a member of the firm of Covington and Burling, Washington, D. C. Mr. Ellison welcomed the participants of the Conference on behalf of the University.

A "Report on The Patent, Trademark, and Copyright Foundation's Progress" was given by Director O. S. Colclough and Executive Director L. James Harris. Director Colclough referred to the progress made by the Foundation and the support, both financial and intellectual, that is being received from the varied fields of endeavor related to the purposes of the Foundation. Director Colclough introduced Executive Director Harris who reported on the development of the Foundation programs.

Four Foundation research projects and a Special Session Devoted to the Discussion of Current Issues, as summarized below, were presented during the Thursday sessions. The award dinner, Thursday evening, honored Professor S. Chesterfield Oppenheim, who was presented the first "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education."

Professor Oppenheim, in his acceptance address, "The Judicial Process in Unfair Competition Law," maintained there is no realistic way of legislating a code of specific fair and unfair practices and that we should rely primarily upon the courts for deciding how far the law is to recognize and protect industrial and intellectual property rights outside the patent and copyright systems. He expressed the belief that this is the flexible way of keeping abreast of the changing economic, technological, and social needs of the American competitive society. Professor Oppenheim pointed out that general standards of unfair competition will require interpretation by the courts anyway, so that the judges will have the function of finally deciding what is unfair competition. He stated that the judges are capable of applying a rule of reason in this field in case by case decisions similar to the rule of reason under the antitrust laws. The courts are equipped to decide when to limit these rights to prevent the exclusiveness of monopolies repugnant to American political, economic, and social traditions. He warned, however, against using the word "monopoly" as an emotional catch-word to deny legal protection to persons who invest time, skill, and money to originate business, literary, and artistic values.

**TAXATION AND PATENTS (Project 7a)**

Report presented by Robert B. Bangs and Joseph P. Driscoll.

*Discussants:* Paul D. Seghers, of Seghers, Rhinehart & McCall, New York.  
Walter A. Slowinski, of Baker, McKenzie & Hightower, Chicago and  
Washington, D. C.

Dr. Bangs outlined some of the general problems concerning the income tax treatment of proceeds from invention. He discussed the new provisions allowing capital gains treatment on patents, the deduction for research and development expenses, and the reaction of interviewees to these and other provisions. Mr. Driscoll dealt with specific problems in the application of the new provisions to inventors and those financially interested in the development of patents. He explored the interrelationship of corporation, inventor, and research organization in the patent process and the tax effects of agreements between them.

Mr. Slowinski reviewed recent cases relating to the allowance of capital gains on patents and described the use of base country corporations in the exploitation of foreign patents. Mr. Seghers reviewed taxpayer experience in cases where patents were sold or licensed exclusively, and commented generally on the techniques of foreign operations involving patents.

The questions from the floor raised a number of problems about capital gains treatment. Several questions related to the possibility that under the new provisions a corporate employee might be given the benefit of capital gains treatment with respect to patent awards.

**THE ROLE OF PATENTS IN THE CREATION AND GROWTH  
OF SMALL INDUSTRIAL UNITS (Project 3a)**

(Summary of Completed Studies)

Report presented by Irving H. Siegel.

Dr. Siegel summarized the reports prepared in the first trio of studies conducted under Project 3a—custom heat treating, the Boston area electronics industry, and the new technology emerging in the steel industry. The first study was conducted by Dr. Nathan Belfer, the second by Professor Weldon Welfling, and the third by Professor Robert Weidenhammer. These topics were selected, not because patents or trademarks were known to have a major role in the origin and development of firms, but rather because the situations presented, or were believed to present, opportunities for new small firms.

Most of the independent heat treaters responding to Dr. Belfers questionnaire regarded "know-how" and unpatented, but allegedly patentable, inven-

tions to be essential to their operations. The important patents seem to relate to equipment, but most of these have expired. Suppliers of materials to heat treaters regard trademarks as valuable.

Although scientist-executives in the Boston area electronics industry tend to show little interest in patents per se, they become increasingly interested as opportunities for large-scale commercial exploitation of ideas come within reach.

New iron and steel production techniques are being developed—direct reduction of iron ore, oxygen steelmaking, and continuous casting. Although these apparently require less capital investment and may permit the establishment of smaller-scale facilities, the investment threshold will remain high since a firm needs integrated facilities. On the other hand, small business opportunities are being created in the industries serving iron and steel—for example, the supply of oxygen and oxygen equipment.

Dr. Siegel observed that, although the iron and steel industry has often been accused of technological backwardness, it had adopted the basic principles of “automation” years before this word was invented.

PUBLIC ATTITUDES TOWARD PATENTS, TRADEMARKS, AND COPYRIGHTS  
(Project 6a)

Report presented by James N. Mosel.

Professor Mosel stated that interviews with 250 students reveal that attitudes toward the patent system are extremely uncrystallized and are based upon fragmentary information acquired largely through social happenstance. He discussed specific beliefs and types of information.

EFFECTS OF CERTAIN ANTITRUST DECREES INVOLVING  
PATENTS AS A MAJOR FACTOR (Project 4a)

Report presented by George E. Frost.

*Discussant:* H. Thomas Austern, of Covington & Burling, Washington, D. C.

Mr. Frost considered, among other things, the effects of the antitrust decree on the parking meter industry. He pointed out that since the 1944 antitrust decree in the parking meter industry, only two substantial efforts have been made to enter the field. Neither is considered to be the result of the decree.

In discussing the report, Mr. Austern pointed to the difficulty of generalizing as to the utility of compulsory licensing decree provisions, the controversy that has existed with respect to the power of a court to grant

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compulsory licenses, royalty free, and the problem of standards with respect to setting a "reasonable royalty" on application for a compulsory license.

##### SPECIAL SESSION DEVOTED TO DISCUSSION OF CURRENT ISSUES

*Moderator:* John C. Green, Consultant to the Foundation.

*Speakers:* Floyd H. Crews, of Darby & Darby, New York.  
Carl Kaysen, *Professor of Economics*, Harvard University, Cambridge, Massachusetts.  
Theodore S. Kenyon, of Kenyon & Kenyon, New York.  
Jacob Rabinow, *President*, Rabinow Engineering Co., Inc., Takoma Park, Maryland.

Mr. Kenyon advocated the enactment by Congress of Sections 102(e) and 121 of the Bryson Bill (H. R. 9133) permitting the publication of pending applications at any time during their prosecution and carrying back the inventor's date of invention to the filing date of the application.

Mr. Crews presented a plan of limiting the Patent Office to two office actions on the merits. The patent would be issued with the allowed and unallowed claims. The term of the patent would start to run and unallowed claims would appear if an appeal were taken. The appeal would be taken after the patent issued. If further claims are allowed on appeal, a certificate of further allowance would be made. These claims would be effective as patented claims as of the date of issuance of the certificate. Interference would be limited to issued patents.

Professor Kaysen discussed the question of whether the patent system gives patentees in the aggregate "too much," "just enough," or "too little." He stated that it was his guess that more is being paid for this activity than had to be paid to get as much benefit as is now obtained.

Mr. Rabinow deplored the "quota" system, the relatively low salaries, and the lack of care he notes in some of the work of the Patent Office. He discussed the difficulty of selling ideas to industry and the subject of government-owned patents.

In response to questions from the floor, Mr. Kenyon discussed the problem of controlling material not worth publishing if his proposal for publishing pending applications were adopted. He was not in favor of including a provision for mandatory publication. Mr. Crews suggested the possibility of adding an informal opposition procedure to his own plan. He explained how continuations and divisions would be treated and discussed the retroactivity of claims. He also answered questions on interference, appeal, and bringing suit under the plan. Professor Kaysen and Mr. Rabinow considered the significance of industrial research financed by the government and the role of patents as an incentive. In reply to further questions, they indicated the kind of information they believed would be

useful in evaluating the patent system. They also presented their views with respect to increasing the flexibility of the system, for example, distinguishing between patents given for basic advances and small improvements, and so on.

## II. FRIDAY SESSIONS

Director of the Foundation, O. S. Colclough, was moderator of the Friday sessions of the conference. A fifth research project report, followed by brief progress reports on projects not yet ready for panel review, were presented at the morning session. Two additional research project reports were presented in the afternoon session.

### RELATION OF AMERICAN PATENTS, TRADEMARKS, AND TECHNIQUES, AND AMERICAN-OWNED FOREIGN PATENTS TO FOREIGN LICENSING (Project 5a)

Report presented by J. N. Behrman.

*Discussants:* Paul R. Porter, *President*, Porter International Company, Washington, D. C.

Ira T. Wender, of Lord, Day & Lord, New York.

Dr. Behrman reviewed the statistical information indicating an increase in foreign licensing since the war. He briefly examined exclusivity and restraints in the license contract and discussed corporate practices concerning accounting costs and profitability.

Mr. Porter reviewed some of the major reasons why licensing has grown in relation to exporting and investing and commented upon the similarity of the experience of small- and medium-sized firms with that of the large corporations. He also stressed the long-run profitability of licensing. Mr. Wender commented upon the reasons for cost accounting practices of licensors and tax implications of this practice. He concluded with an analysis of the suitability of a foreign subsidiary carrying out licensing operations, couching his remarks mainly in terms of the tax implications.

Questions from the floor elicited further discussion of the use of foreign subsidiaries, nature of "know-how," and the effects of the European common market on U. S. licensing abroad. Professor Oppenheim was invited to close this portion of the conference with some observations on antitrust and the "rule of reason" as applied to foreign licensing. His comments led to further questions regarding the recent antimonopoly legislation in Europe and the common market.

THE ROLE OF PATENTS IN THE CREATION AND GROWTH OF  
SMALL INDUSTRIAL UNITS (Project 3a)

(Reports on New Studies)

Reports presented by Irving H. Siegel, Marshall C. Howard, and Murray Brown.

Dr. Siegel introduced the discussion of the second trio of industries studied under Project 3a—scientific and other instruments, aluminum processing, and fabricated plastics products. The first is being conducted by Professor Paul Nichols, the second by Professor Marshall Howard, and the third by Professor Murray Brown. These three additional industries were selected because they were known to provide opportunities for the creation and growth of small firms.

Since Professor Nichols was unable to attend, Dr. Siegel spoke on his behalf, noting the heterogeneity of the instruments industry. A stratified sample was selected by Dr. Nichols, and questionnaires have been sent to the companies. Dr. Siegel commented on the technical problem of non-response in sample surveys and the costliness of overcoming it.

Professor Howard described the heterogeneity of the aluminum processing industry, a fact of importance for the design of a sample. He noted that inquiries prior to construction of the questionnaire disclosed no patent obstacles to the rise of small firms in the industry. He also stated that small nonintegrated firms do not appear to have extensive research and development programs.

Professor Brown had already received 53 responses to the questionnaire sent to 207 firms. Patents, owned or licensed, contributed directly to the establishment of a small proportion of the responding firms. A similarly small percentage felt that research and development activities were stimulated by the patent system. All firms considered know-how important in their development. Half of the firms felt that trademarks were. One-fourth regarded patents as effective. As for current operations, it appears that the larger the firm and the faster it grows, the more likely they are to feel that their operations are favorably affected by owned or licensed patents.

THE ROLE OF PATENTS IN EXECUTIVE DECISIONS (Project 8a)

Report presented by Jesse W. Markham.

Dr. Markham explained that the project is seeking to determine the extent the patent system influences private business decisions. In the question period which followed Dr. Markham's presentation he amplified his discussion of the so-called reliance of certain firms upon advertising and also noted differences in available methodologies for study.

PATENT UTILIZATION (Project 1a)

Report presented by Joseph Rossman and Barkev S. Sanders.

*Discussants:* Ewan Clague, *Commissioner of Labor Statistics*, U. S. Department of Labor, Washington, D. C.  
Frank N. Houghton, *Secretary*, Arthur D. Little, Inc., Cambridge, Massachusetts.

Dr. Rossman briefly pointed out those highlights of the findings of the patent utilization project which were presented to the conference. He was followed by Dr. Sanders who explained in greater detail why the findings with respect to the "use" of patents appear to be statistically valid and reliable. Dr. Sanders also presented findings on the effect of used patents upon the volume of sales and reduction of production costs.

In the discussion which followed the presentation, Commissioner Clague commented on possible differences in criteria used by respondents and the effect of time on the reported "usefulness" of patents. Mr. Houghton pointed out that the findings agreed with his company's patent experience. Mr. Houghton also commented on the question of the use of a patent from a complex of patents, obsolescence of patents before issue, and reasons for the non-use of patents.

Mr. Robert O. Spurdle closed the discussion of this project with a caveat on the definition of the word "use" and questioned the rationale of random sampling on a small unit basis.

ATTITUDES OF AMERICAN INVENTORS TOWARD DEFENSE INVENTION  
(Project 6b)

Report presented by James N. Mosel.

*Discussants:* Wadsworth W. Mount, *Inventor and Engineering Consultant*, Summit, New Jersey.  
H. F. Sykes, *Staff Engineer*, Advanced Systems Concepts, Chrysler Corporation, Detroit.

Professor Mosel discussed the main deterrents and incentives in conceiving a defense invention, submitting it to a defense agency, and finalizing negotiations. He outlined three strategies for increasing the flow of defense inventions and their operational implications.

Mr. Mount presented several suggestions for stimulating defense invention, based upon his industrial experience. Colonel Sykes discussed the problem of defense invention from the viewpoint of the military establishment.

In commenting upon Colonel Sykes' remarks, Professor Mosel pointed out the dilemma that while it is easier to influence the inventive output of institutionalized inventors, this probably involved some loss in creativity.

# The Proceedings of the Conference

## THURSDAY MORNING SESSION

June 19, 1958

The Conference was convened at 9:15 A.M., Laurence B. Dodds, Moderator, presiding.

**MR. DODDS:** May I have your attention? I'm sorry for the slight delay, but we would like to open promptly this second Annual Public Conference of The Patent, Trademark, and Copyright Foundation, as we have some very interesting material to cover.

First of all, I will introduce myself. I am Larry Dodds, of Hazeltine Research Corporation, and I am substituting very humbly for the very illustrious gentleman who was supposed to moderate this session, Dr. Lawrence R. Hafstad, Vice President for Research of General Motors Corporation.

Unfortunately, at the last moment Dr. Hafstad was called to an emergency conference on the West Coast on a classified matter, I believe, involving ballistic missiles. While we are all very much convinced of the importance of the work of the Foundation, I'm sure also we will all agree that it will have to yield when it comes to urgent matters of national defense.

Therefore, we will start right off, and I should like to call first on Mr. Newell W. Ellison, who is Secretary of the Board of Trustees of The George Washington University and a member of the firm of Covington and Burling since 1925, who will give you a few words of welcome.

Mr. Ellison.

## Welcome

**MR. NEWELL W. ELLISON:** Mr. Chairman and Gentlemen: It gives me a great deal of pleasure, on behalf of The George Washington University, to welcome you to this Annual Public Conference of The Patent, Trademark, and Copyright Foundation. Since the Foundation was created under the auspices of the University and bears its name, all of us associated with the University—including the Board of Trustees—are very much interested in its activities and have been gratified with the reports which we have had on the work of the Foundation up to this time.



Measured by the high caliber of the work appearing in the first issues of the *Journal* published by the Foundation and the quality of the proceedings at the Public Conference held last year, the launching of the Foundation must be judged a success. The reputation of the Foundation as an institution for empirical research and creative thinking has certainly been enhanced by this excellent beginning, and I am confident that in the future its work will reflect great credit to the learned men and women participating in the Foundation's activities as well as to the University itself.

No enterprise can rise above the objectives which prompted its creation. And so the good start by the Foundation can be attributed in large part to its having basic objectives which are sound. In my view, all of these objectives reflect a single goal—to shed both factual and intellectual light on an area which for generations has been obscured too often by stereotyped generalizations.

As a lawyer in general practice, my experience indicates that many of these generalizations about patents, trademarks, and copyrights have become nothing more than hackneyed expressions and are encountered much too often. When a patent agreement is introduced into an antitrust context, for example, one can almost hear immediately the opposing sides championing a favorite cliché or generalization. According to one view, the agreement is said to be merely the exercise of the "lawful monopoly granted by the patent law and the Constitution," whereas the other side is equally convinced that there is "patent misuse" or an "unlawful extension of the patent monopoly." The analysis of the facts and law may, and occasionally does, stop at this point, and nothing occurs except endless repetition of these meaningless generalizations.

In the broader field with which you are concerned, the truth which you seek is to be found from an analysis and understanding of the contribution which patents have made in promoting the public welfare and not by the financial gain to their owners.

In the past, there has been a notable lack both of empirical factual studies and of creative ideas concerning the operation of our patent and related systems. This means that the opportunities for you to make a real contribution in this field are almost boundless. Since the field is so wide open, it also means that your responsibilities in developing illuminating facts and new ideas are equally great, and it is in this respect that the University can perhaps assist in creating an atmosphere of objectivity free of the suspicion that might arise if the Foundation were identified with a special group.

In any event, the University hopes that all of you who attend these conferences will find them both enlightening and provocative, in keeping with the best traditions of an institution of higher learning. If this can be accomplished—as I am confident it can be and will be—a significant for-

ward step will have been made toward the common goal of both the University and the Foundation, which is to promote a better understanding of our patent and related systems.

Again, I am delighted on behalf of the University to welcome you.

Thank you very much. [Applause]

MR. DODDS: Thank you, Mr. Ellison.

I am going to call now on Dean Colclough, Dean of the Faculties of the University and Director of the Foundation, who I am sure is known to each and every one of you. He is going to give a report on the progress of the Foundation during the last year.

Dean Colclough.

## Report on The Patent, Trademark, and Copyright Foundation's Progress

DIRECTOR O. S. COLCLOUGH: Thank you, Mr. Dodds.

Trustee Ellison, may I express the appreciation of the Foundation, sir, for your being here this morning to extend the University's welcome.

On your program Mr. Harris, the Executive Director of the Foundation, and I are slated at this point to give a report on the progress of the Foundation. Mr. Harris is going to give you a complete report of progress, which I believe, although many of you know about it, will help to set the stage for our discussions.

As a consequence of the fact that he is to give this rather complete report, I shall not duplicate his effort, first because you wouldn't want me to, and secondly because, as our moderator says, we must get on with the vital work of this conference.

One of the things that sometimes interferes with the efficiency of a conference such as this, composed of men who know a great deal about the subject matter and have a great many thoughts in their minds, is that the conference gets out of control and doesn't meet its schedule.

We had a fine example set last year by one of our very loyal and helpful supporters, Mr. Willard C. Asbury, of Esso Research and Engineering. He set the style last year which a great many people commented upon. We were able to cover the tremendous amount of material that came before the annual conference and finish on time.

The point I want to make now is not by way of apology at all, but rather for you who are with us and for the thousands of people who are going to

read the results of this conference. For, as you know, we publish its proceedings.

May I interject here the thought that the many letters we have received from all over the country, from those who couldn't come, always end with: "We can't wait to see the proceedings." So it is most important that our proceedings be published.

Now, the idea is this: When this project was undertaken, I think we were realistic enough to realize that we were tackling quite a job. And last evening, rather to refresh my memory of the past four years, I looked over this little brochure which you have in your folders. It is the booklet which was distributed throughout the country when the Foundation was first being conceived. I commend it to your attention, because anything set forth therein with respect to objectives and methods that isn't sound should be, or we hope has been, changed. That which is sound should stand. As Mr. Ellison just said, an organization of this kind, an effort of this kind, is only going to be as valid and as helpful and as adequate as its objectives.

I have to confess that I was rather warmed—and it was a cool evening—by reading about the goals we set for ourselves and then thinking about where we are today.

One of our difficulties has been, as was to be expected, after the long history of our patent system, and the related systems, with respect to which, as Mr. Ellison just said, many concepts, many ideas, many theories based more upon opinion than upon fact have grown almost to be accepted in our society and in our legal system and in our economy, that when one undertakes to do a real empirical and analytical task of research there is great impatience—great impatience on everyone's part—because the results of the research are so badly needed and have been waited for so long.

But I came upon a little paragraph last night on page 15 of this brochure, and I read it:

The prospects of a high quality end product of authoritative and accurate character cannot be measured, of course, solely in lapsed time, but necessarily will depend upon the scope and complexity of the problems under inquiry. In that sense no research or educational undertaking of merit can circumvent the element of time by a delusive short-cut to the desired end.

I repeat I do not refer to this paragraph by way of apology. I rather refer to it in the context of the progress made. Our splendid research staff, with the assistance we are getting from many of you and from many who are not here in helping us to obtain facts and information so vital to the type of research we undertake, is beginning to produce results. Our publication program is beginning really to cast new and beneficial light upon these great social and economic systems which are of such concern to us.

The conclusion of this pamphlet says:

The George Washington University, believing as it does that the Patent Foundation . . .

which it was then called, subsequently retitled "Patent, Trademark, and Copyright Foundation," for obvious reasons

. . . constitutes an undertaking of great national importance, . . .

we believe that today

. . . expresses the hope that support, financial and intellectual, will come from sources as varied as the fields of human endeavor related to the purposes of the Foundation.

I will underscore that: ". . . will come from sources as varied as the fields of human endeavor . . ." It is for that reason that you find in our research staff, you find in our publications, you find in our research projects that we bring to bear the legal mind, the mind of the economist, the mind of the sociologist, and the mind of the American businessman who uses these systems, all to the common good.

I cannot speak too highly about the Executive Director of the Foundation, his dedication, his competence, and his enthusiasm. It is entirely fitting that he follow me now to give you a factual, more or less chronological, report of how the Foundation arrived at the point where it is today.

So let us have a fine conference. Let everybody contribute to it to the full measure of his ability and his interest, because the conference is not an end in itself. We derive great benefit in our research efforts from the ideas we receive at the conference, and our public at large derives great benefit from the publishing of its proceedings.

Thank you. [Applause]

Mr. Harris, please.

EXECUTIVE-DIRECTOR L. JAMES HARRIS: Mr. Dodds, Mr. Ellison, Dean Colclough, Members of the Conference: As the Dean has just informed you, I shall give you a brief report on the development of the Foundation's programs to help set the stage for the discussions.

The development of the Foundation can be divided into three periods: First, the prenatal period, the period before February 1954, the date we went into operation; second, infancy through the preschool years; and, finally, now we think we are coming of school age. The three periods, of course, also represent different financial resource levels. We believe that in each of the periods we accomplished a considerable amount of work despite a modest operating budget.

As foundations go, we're very young indeed—and we realize it. But we like to believe that we've been somewhat precocious.

It's interesting to look back at the prenatal period and review our great promise and the promises we made. In fact, we were all full of the spirit of this new adventure and we sometimes were pressed to meet rather unexpected challenges.

I remember one in particular. I call it the "Adventure of the Forgetful Eager Beaver."

I visited Detroit for the purpose of enlisting members for the Foundation. Mr. Willits, our Detroit chairman, was particularly helpful, and he was a gracious host. There was a meeting of the Michigan Patent Law Association the very next day, and he arranged for me to address the Association. I looked forward to the opportunity.

I was stopping at the Statler, and retired relatively early, at about 12 o'clock, to be in good shape the following day. About 20 minutes after retiring, there was a loud knocking at the door. It persisted; so I got up, put on my robe, and went to the door.

There were several people, glasses in hand, wearing funny little hats, in high spirits, inviting me to join them.

I begged off and returned to bed.

These invitations followed at intervals, and about 2:30 I called down and asked the manager whether he had a room on a quieter floor. He replied that it was a very bad night. He was full up, but he could help me the next night.

Realizing it was fate, the next time I had a visit from the spirited delegation, which I discovered later were representatives to a fraternity reunion, I joined them.

The next day—or, rather, later the same day—a little the worse for wear, I addressed the assembled patent attorneys, and in response to questions on the new revision of the Patent Act, I proceeded with enthusiasm to discuss the various provisions. Not until Mr. Willits had the presence of mind to whisper that I tell the audience about the Foundation did I realize that I had not. This discussion of the new act was a good way to generate interest in and introduce the Foundation, but I'm afraid I abused somewhat a good thing. Thereafter, I carried a pair of earplugs on my travels and managed to place appropriate emphasis on the work of the Foundation.

This prenatal period was a time full of promise, promises—and lively fund-raising. It was during this formative period that the story of the Foundation was brought to the public and in general the regional committees were organized.

The first postnatal year, the first year after the Foundation went into operation, beginning February 1954, was devoted to the selection of members for the Advisory Council, representing the fields of commerce, education, science, labor, finance, the professions, and the formulation and commencement of pilot projects by specially qualified men on a job assignment basis.

During this first year of development we continued to press forward with our fund-raising, publicity, and organizational programs.

In the second year our research program had begun to take shape in seven selected areas based either upon the uniqueness of the combination of specialties employed or upon the fact that the particular subject matter could best be studied in a unified approach. It was at the end of the first year that we made our first formal report to the members and donors of the Foundation with respect to the program, the status of the projects undertaken under the program, and the principal investigators assigned to the projects.

If we seek some measure of development, perhaps we might say that by the second year our research projects had increased to five pilot projects, carried on by 10 researchers, and, of course, the Dean, Professor Oppenheim, myself, and our office staff numbered two. We were putting out reports and other material of a constantly growing number of lines, and our relatively small quarters were enlarged, by the removal of the floor-to-ceiling bookcases we had inherited from a previous occupant, to make more working room.

And, of course, we continued to press forward with our fund-raising, our publicity, and our organizational programs.

The first meeting of the Advisory Council was held on April 21, 1955. Dr. Joseph W. Barker, Chairman of the Board of Research Corporation, was elected chairman. The projects undertaken were fully discussed and future plans were considered. The Council designated an Executive Committee to perform the duties of the Advisory Council between meetings of the Council. The Council favored the pilot approach, which was being employed by the Foundation before extending projects. They were anxious that a complete and scholarly job be done and that premature publication be avoided. The Council later that year rendered to the Board of Trustees of the University the first annual report on its views and recommendations.

By the third year our executive and research staff was enlarged to 17 and the office staff numbered five. In addition to the periodical progress reports sent to members and donors, the publication of the *Bulletin* of the Foundation was inaugurated with the 1956-57 issue, containing an outline of organization, a list of members and donors, a description of current projects, and the educational program of the Foundation. In addition to

the pilot projects, graduate students of promise and ability were carrying on a continuing series of relatively minor studies under the auspices of the Foundation, and a limited number of student research assistantships were granted. Each research assistant followed an approved program of research under the direction of a member of the Foundation's research staff.

At the second annual Advisory Council meeting held in 1956, the members indicated their satisfaction with the progress that had been achieved.

In that year, the Foundation also inaugurated a patent, trademark, and copyright seminar and lecture series in conjunction with the faculty of The George Washington Law School, and specialists from the various disciplines involved in the work of the Foundation participated in the lectures. Students were introduced to the patent, trademark, and copyright systems as functioning legal, social, and economic institutions. The thought was that the best in this type of teaching is achieved when the students are close to and advance with the progress of research. And, of course, we continued to press forward with our fund-raising, publicity, and organizational programs.

In the fourth year, 1957, our preschool year, our executive and research staff numbered 20, the office staff seven, and in addition to the periodical progress reports and the *Bulletin*, the first issue of *The Patent, Trademark, and Copyright Journal of Research and Education* was distributed, a vehicle for the work of the Foundation and the work of individual scholars. An editorial committee composed of the executives and certain members of the research and office staff was designated, and, on the recommendation of the Advisory Council, a committee of the Council was established to devote itself to the business of the *Journal*. The first issue was intended to set tone, and it was made up of material written solely by Foundation people, an article on the Foundation itself, two final project reports and seven research project interim reports.

In 1957 we were undertaking eight major projects. The second issue of the *Journal* was distributed in December of that year, and contained an article on the research program of the Foundation, a report on a project concerning incentives and deterrents to inventing for national defense undertaken pursuant to an agreement with the National Inventors Council, and six research project interim reports. Three new sections were introduced in this issue: a Contributed Article section, a Student Paper section, and a Notes section.

At the third annual Advisory Council meeting held in April of that year, 1957, the format of the *Journal* was endorsed by the Council. This format was to consist of a brief and concise introductory summary preceding each research project report to convey at a glance (1) what we were seeking and (2) what we found. Following this summary the complete research project report is published. It was believed that in this way the value of

the methods used could be scrutinized by competent publics and the credibility of the authors established. It was also believed that the complete research project report would be useful for permanent reference in view of the scarcity of literature on the subject.

The seminar and lecture series had begun to generate keen student interest in that year and had become a source of publishable student material for the *Journal*. In addition, information contained in some of the papers was found to be of assistance to some of the research staff members.

In this year an "In Memoriam" program of the Foundation was established to provide a means of honoring deceased persons who had been active in the fields of the Foundation's interest.

The establishment of the Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education was announced in the 1957 issue of the *Journal*, and the first award was made public in December of that year.

The Foundation's First Public Conference was held June 13th and 14th of 1957 in Washington, D. C., and provided an opportunity to explore the findings resulting from the Foundation's projects. A number of our members and a representation from different interested publics attended the conference and contributed to the development of the projects by participating in the productive and stimulating exchanges of the conference. An edited transcript of the proceedings was published as the 1957 Conference Supplement to the *Journal*.

In August of 1957 the office of the Foundation was moved from its former location in the Law School to another building on the campus of the University temporarily until the Law Center Building is completed, to provide for our manifold and expanding activities.

Judging from the number of visitors to the Foundation office, the requests for information, the invitations for speakers, and the accounts in newspapers and periodicals, it seemed clear that the work of the Foundation was rapidly increasing and reaching an ever-growing public. Much time was devoted to writing and discussing the Foundation with people here and abroad, who had visited our office or written inquiring about our activities. Officers of the Foundation and members of the research staff participated in meetings of bar groups, associations, and have been present at the deliberations of governmental and private organizations.

Today, in 1958, our executive and research staff numbers 22 and our office staff eight. In this year the 1958-59 bulletin was published and included among its revisions a list of members and donors who had contributed at some time up to the date of publication. Current members and donors receive the publications, reports and other material issued by the Foundation.



This year two issues of the *Journal* have already been distributed. Last year only two issues and a supplement were distributed for the entire year. In fact, we're now following a quarterly *Journal* schedule.

The March issue of the *Journal* contained two rather comprehensive research project interim reports, one on the non-use of patented inventions and the other on the effects of certain antitrust decrees involving patents as a major factor. The antitrust report dealt with the concrete block-making machine industry. In this issue an Annotated Bibliography section was introduced, one division containing material found to be of interest to the research staff and another a bibliography of student papers. In the Notes section of this issue of the *Journal* an announcement was made of the organization of a library devoted to the fields of education and research in which the Foundation is engaged. It was felt that we had arrived at the point where we should serve this specialized need of the public and in this way provide additional depth to the scope of the Foundation's educational and research efforts. This library should eventually become an important storehouse of published and unpublished literature. It is housed at the Foundation on the campus of the University.

Individuals and organizations are invited to contribute as loans or permanent gifts books, materials and manuscripts in the various disciplines such as economics, statistics, law, psychology, sociology, engineering, relevant to the objectives of the Foundation. If you have second copies in your libraries, we would appreciate it if you would consider sending us these second copies for the Foundation library. An eminent librarian said something to the effect that one man's research may be another man's rubbish. I think we can reverse this and say what may be one man's rubbish may be another man's research.

We have devoted a large part of the June 1958 issue of the *Journal*, copies of which you will find displayed at the registration desk in the lobby, to certain aspects of international business dealings involving patents. We feel this is very timely in view of the forthcoming meeting of the International Convention for the Protection of Industrial Property scheduled for Lisbon this fall. This issue features the final report of our pilot project on foreign licensing. It also includes a final report on patents and other aspects of the new steel technology. Among brief "sweeteners" in the issue are two contributed articles concerning ornamental design protection. We feel this too is timely in view of the proposed draft of legislation by the Coordinating Committee of the National Council of Patent Law Associations for the protection under copyright principles of designs of useful articles, which was introduced in Congress as the Willis Bill, H. R. 8873. This issue also continues the section on annotated bibliographies of recently published or reported materials in the fields of the Foundation's interest which was inaugurated in the previous issue.

The Notes section refers, among other things, to the fourth annual meeting of the Advisory Council which was held at the University in April 1958. The officers of the Council elected for this year are: Lawrence R. Hafstad, Chairman; Willard C. Asbury, Vice Chairman. The present members of the Executive Committee are: your moderator, Laurence B. Dodds; Edward R. Weidlein; and William T. Woodson. Joseph W. Barker, Lee J. Gary, and Max McGraw are serving on the *Journal* Committee.

Another note in this issue solicits readers to encourage inventors or their associates to send in case histories of recently patented inventions for publication as notes or contributed articles in the *Journal*. Although our projects are accumulating case histories, it's desirable to gather many more.

Also included as a note is an abbreviated version of a talk I presented under the auspices of the Foundation before the Engineering Society of Detroit, which the members of the Michigan Patent Law Association and the American Patent Law Association in convention in Detroit at the time were invited to attend. Dr. Charles F. Kettering, a member of the Foundation's Advisory Council, very generously gave of his time to introduce me as a representative of the Foundation. Dr. Kettering has been a pillar of the Foundation, and I think this is another indication of his interest in our work.

I might mention that we have been favored with a relatively good press. Although it has been necessary to present our findings in a different style for newspapers, we have striven to retain in all cases (1) our objectivity, (2) our purpose to inform based on fact, and, even more important, our dignity as a research institution. Articles on the Foundation have appeared in the newspapers of our larger cities, and stories have been carried by the various wire services.

At this second annual conference a session devoted to current issues is being introduced for the first time. It is intended to be a kind of a "buzz" session to stimulate give-and-take from the floor. We hope it will encourage the members of the conference to become personally involved in the discussions. You hardy ones who were present last year will notice certain changes in the projects scheduled for discussion. As we progress and new research projects are developed and others near completion, the emphasis, of course, moves to different projects.

I would like to make a *very few* introductory remarks about the research projects. Our researchers are located in different parts of the country, come from different disciplines in which they are busily engaged, talk their own "specialese," and also participate ex officio in the critical review of reports and plans for which they do not have primary responsibility. Thus, we experience the trials and tribulations, as one of our staff put it, of multiple locations, multiple specialties, multiple jobs, and multiple jar-

gons. Our experience indicates, however, that, with patience, relatively good relations can be achieved. In practically every one of our projects the different training, the different experience, the different research tools, and the different modes of thought have proved very fruitful and have eventually led in every case to unanticipated benefits.

At this conference, as at the previous conference, the investigators will present their findings and, to some extent, the methodology employed. These presentations will be discussed by authorities in the respective fields and this will be followed by a limited number of questions from the floor. I would like to make this point. The purpose of pilot projects is, while gathering relatively small samplings, primarily to find out what information is available and to find proper methods to extend the projects where it is feasible. Also we're interested in how to obtain the most research returns for the invested dollar.

The Foundation's financial needs have increased with the development of our research and publication programs. We're not endowed. The major portion of the Foundation's expenditures is devoted to research for the support of which we must rely primarily on individuals, corporations and other organizations. Subscribers to the Foundation's publications contribute only a small part of the cost of these publications.

We ask you to take back to your companies or other organizations what you hear at this conference—to companies and organizations who might interest themselves in and support our work—to the end that all may join us who are interested in ascertaining objectively the facts about the patent and related systems so that these systems may better perform their social and economic functions in today's continually changing environment.

Thank you. [Applause]

MR. DODDS: Thank you, Dean Colclough and Mr. Harris.

The first subject on our agenda this morning is that of taxation and patents, which is a subject of paramount importance to any of us who have a stake in our patent system.

This report was prepared and will be presented by Dr. Robert B. Bangs and Mr. Joseph P. Driscoll.

Dr. Bangs has worked with various governmental agencies, including the Treasury Department and the Department of Commerce. He has had foreign experience, serving as an adviser to the governments of Egypt and Burma during the period 1953 to 1956.

He is at present with the International Finance Division of the Federal Reserve Board.

Mr. Driscoll, a former associate professor of law at George Washington University and formerly a member of the legal advisory staff of the Treas-

ury Department, is at present with the firm of Wynne and Wynne, a law firm in Dallas, Texas, and a visiting professor at the University of Texas. He is also co-author of the textbook *Merton's Law of Federal Income Taxation*.

After the presentations of Dr. Bangs and Mr. Driscoll, two experts in this field who have studied this report will be asked to give their comments and views in order to stimulate discussion. These two gentlemen are, first, Mr. Paul D. Seghers, of the firm of Seghers, Rhinehart & McCall in New York, a lecturer at New York University, the University of Pittsburgh, the University of West Virginia, and Temple University, among others, and founder and president of the Federal Tax Forum. He is a member of the editorial board of the *Journal of Taxation*.

The other man who will discuss this report is Mr. Walter A. Slowinski, a member of the firm of Baker, McKenzie and Hightower here in Washington; adjunct professor at Georgetown University Graduate School of Law, Past Secretary of the Section of Taxation of the American Bar Association, and Past Chairman of the Committee on Taxation of the Bar Association of the District of Columbia.

I am going to ask these gentlemen to come up to the platform during the presentation of this paper.

Now, it has been our experience that it's very difficult to find any group of lawyers who will come to agreement on any given subject. The same is also true of accountants I believe. And when you have a group combining both lawyers and accountants, the problem of reaching agreement on any given subject becomes doubly difficult. So we believe we may have some vigorous discussion, which we hope will be the case.

Mr. Harris, are you going to distribute blanks for written questions, or will we have oral questions?

EXECUTIVE-DIRECTOR HARRIS: The questions will be written on slips of paper, the paper in the kits, and we will pick them up.

MR. DODDS: Maybe some of you didn't hear what Mr. Harris said. I believe there are slips of paper in the kits which each of you has, on which you can write any questions you may wish to present either to the two men who are going to present the paper or the two people who are going to discuss it. We hope that you will all write your questions liberally, because we would like a lively discussion, and we believe that the men who have spent such a great amount of effort in the preparation of this report deserve to have the benefit of practical comments and questions from you people having a very great practical experience in this field.

Now, I understand that both Dr. Bangs and Mr. Driscoll will make the presentation of this paper, so if you gentlemen will all come up on the platform I will call first on Dr. Bangs.

# Taxation and Patents

## (Project 7a)

### RESEARCH PROJECT INTERIM REPORT

**DR. ROBERT B. BANGS:** Thank you, Mr. Dodds.

Gentlemen, in appearing before this distinguished audience of legal and business talent, I am constrained to remember the whale, of whom it has been said the only time he gets harpooned is when he rises to spout.  
[Laughter]

We call this an exploratory project. Its aim is both to pinpoint specific tax problems that trouble inventors and other owners of patent assets and, more generally, to examine some of the broader links between the patent and tax systems.

We are here to report to you on research that is still in progress rather than to offer finished results for your critical inspection.

Our original idea was to keep this project essentially practical. It seemed to us that many inventors probably did not take full advantage of the changes made in the 1954 Revenue Code to minimize their tax liabilities and thus to increase the net financial rewards they could gain from their inventions. We thought it was important to promote better understanding of these new tax rules and to collect some experience as to how they were working in practice.

Our concern is mainly with the present-day United States tax and patent systems; but, because United States patents are a basis for foreign patent rights and because these rights enter into international commerce, we are also concerned with foreign taxes which affect the terms and conditions of licensing across national boundaries.

Our main focus is the Federal income tax, since this is the cornerstone of our revenue system and the main existing burden on business earnings.

But patents as property are also subject to state and local taxation and, when transferred by gift or death, may be dutiable to both the federal and state governments.

We cannot thoroughly explore the connections between the patent and tax systems by looking narrowly only at the specific tax consequences of different transactions in patent rights. We must consider as well the whole organization of our business system to promote invention and must inquire whether and how this is influenced by tax considerations.

Do high taxes discourage invention by lowering the potential financial rewards, or do they stimulate progress by encouraging more research and development?

Are inventors treated equitably by existing tax rules, or should they be further encouraged by additional concessions—or conceivably deprived of some they already enjoy?

These are broad questions not susceptible to easy or precise answers, but it seems to us that some well-grounded answers are possible if the right approach is taken.

The right approach, we think, is to persuade a representative sample of individual inventors, and of corporations administering patent assets, to exchange their experiences and their points of view through the medium of an impartial research study. In this way, better understanding both of the tax consequences of particular transactions in patents and of the equity and incentive considerations that underlie tax philosophy in its application to patent assets may be gained by all interested parties. This is what we hope this study will eventually accomplish.

Our work to date has been limited chiefly to exploring the existing literature, which is not too extensive on this particular subject, and to obtaining and cross-checking impressions about tax and patent problems, both general and specific, by means of numerous interviews with business firms.

We plan now to supplement these impressions and to quantify them by the use of mail questionnaires to be sent to corporations having the most extensive patent experience and also to individual inventors. We hope to reach a broad group of individual inventors ranging from those responsible for only a single patent to those with numerous patented inventions.

It is a commonplace that as our economy has grown invention has become less and less the result of individual effort and more and more the product of organized group effort financed both by business and government. In looking at this trend from the standpoint of this special project, such questions as the following arise:

Does taxation influence the rate at which inventions are made?

Are inventors motivated chiefly by hope of financial reward or by other drives?

Do they profit more by remaining independent or by entering the employ of a corporation with better facilities than they could themselves command?

These questions take us deep into the psychology of invention and into the sociology of inventors' adjustment to their environment.

Tax considerations play a part in all these problems. Just what part depends on how the owners of patent assets react to tax and other alternatives that face them.

We have been concerned in our work to date primarily with two specific subjects: One, whether the tax treatment of research and development expenditures tended to encourage or discourage this sort of outlay by established business firms; and, two, whether transactions in patents are or are not influenced—as to the form they take—to any substantial extent by tax considerations.

The changes made in the Internal Revenue Code in 1954 were intended to provide clarification in both these areas. In general, what the Code did was to establish for the first time a statutory basis for the deduction as a current business expense of research and development outlays. Prior to 1954 the statute was silent on this subject. The welter of administrative rulings, court cases, and other precedents that governed made for considerable uncertainty in this field.

Many firms did, in fact, expense their research and development outlays with the agreement of the Internal Revenue Service. Other firms were forced to capitalize expenditures that in their view should have been currently deductible. The result was a considerable unevenness in tax administration, with some firms getting unintended tax advantages and others having to follow quite restrictive accounting for tax purposes.

Now, although the statute is clear, the difficulty of applying the general rule uniformly still remains. It is often hard to know just what a research and development program properly includes and precisely when a new product or a new process leaves the experimental or laboratory phase of its development and passes into commercial application. This is especially true in the case of new consumer products that must be tested extensively before being distributed on a large scale. It is also true of new processes that must similarly be tested, not for market acceptance but for engineering and cost feasibility in pilot-plant operations.

It is our impression, on the basis of interviews to date, that a good deal of unevenness in the administration of tax rules concerning research and development still remains. This cannot be eliminated by further statutory change nor by writing more detailed regulations. It is, rather, a matter of educating revenue agents and others who make initial decisions concerning tax liability to follow a consistent line in reviewing different individual cases.

As you all know, the importance of research and development varies considerably among different industries in the United States. In fields where the state of technology is advancing rapidly, such as weapons systems, pharmaceuticals, electronics, petrochemicals, applications of atomic energy, and automation, very strong competitive pressure exists to spur research and development forward and to stimulate outlays for this purpose. In older, more established lines, the potential gains from research and development are less spectacular and the emphasis put on this activity accordingly somewhat less.

However, even established firms producing conventional products are becoming increasingly aware that they can neglect continuous effort to improve their products and processes only at their own future peril.

The result has been that rapidly rising trend in research and development expenditure throughout industry that has been noted so frequently in recent years.

Because a successful corporation is today liable for federal tax of 52% on any profits in excess of \$25,000, any deductions from taxable income that are in the nature of investments in the future competitive strength of the business will obviously commend themselves strongly to management. Research and development is such an investment.

For a firm to be able to expense its research costs and in this way to reduce its taxable income and thus to finance roughly one-half the cost of research by lower tax payments is an important advantage. If you will, this is in the nature of a deferment of tax liability given by the United States Government to encourage technical progress in our private enterprise system.

We believe it is wise to defer tax on income invested in this way since it builds up the future tax base by encouraging economic growth.

We have found in our interviews to date that, while the tax effect of deducting research and development costs is undoubtedly present in a general way in the minds of most corporate officials responsible for financial administration, there is seldom a very direct or specific connection between the amount of tax a business would otherwise pay and the amount it spends on research and development. Even though 52% of research cost comes from postponing tax liability, 48% still comes from the stock holders, the management, and others with an equity in corporate profits.

Research programs are not undertaken solely to reduce taxes but because there is a good prospect that some new ideas or advanced techniques having solid commercial value will emerge from this activity.

Nevertheless, we believe it is in general true that more emphasis will be put on research and development at a 52% tax rate than if the rate were significantly lower—say only 10 or 15%.

Historically, the excess profits tax, with its high marginal rates, was undoubtedly one factor that encouraged many corporations to undertake or to expand research programs.

There is little prospect that federal taxes can, in the foreseeable future, be very significantly lower than they are at present. This raises the long-term problem of whether our present tax structure with its high marginal rates actually allows sufficient scope for the encouragement of that economic growth we hope to promote.



Speculation about whether our tax system retards or encourages economic growth often turns to the adequacy of profits and the supply of venture capital. We are increasingly concerned today with policies and programs that will facilitate economic growth on a sustainable basis for the indefinite future. The heavy burden of taxes on profits and on individual incomes above the average size undoubtedly has important deterrent effects on the ability to accumulate capital to finance this economic growth.

At the same time, new capital sources such as retained earnings of business firms and broader investment in securities, either directly or through investment trusts, by modest-income individuals are trends augmenting the supply of venture capital and directing its use into new channels.

For a number of years, certain business groups have argued with considerable cogency that existing tax rules concerning depreciation are unnecessarily restrictive and discouraging to sustained capital investment in plant and equipment. Generally, these groups have sought either the right to accelerate depreciation for tax purposes in some way or to recover tax-free the replacement cost rather than the original cost of property, especially during periods of rising prices.

There is still some prospect that depreciation rules may be modified slightly this year and that some excise taxes bearing on consumer goods, the sales of which have been unusually depressed in recent months, may be modified or eliminated. A general tax reduction, either designed to stimulate recovery from the recent recession or to be of a more permanent nature, is now decidedly unlikely.

The more specific side to our study—namely, the question of whether transactions in patent rights are influenced, either desirably or undesirably, by tax considerations—is more clear-cut. You are undoubtedly acquainted with the general situation here.

Since 1954, any individual inventor or an unrelated individual investor in an invention not yet reduced to practice can dispose of all his substantial rights in the invention and be treated as though he were receiving a long-term capital gain, taxable at 50% or less of the rate that would apply to a corresponding increment of ordinary income. This treatment holds whether the proceeds from the sale of the patent are received in a lump sum or as installments over the life of the patent.

Before 1954, some inventors could get this treatment and some could not. This made for uncertainty and for discrimination taxwise within the ranks of individual inventors. Now they are, in principle at least, all treated alike. Moreover, they are treated more favorably than are authors, composers, and artists whose creations likewise constitute property subject to special legal protection.

This favorable treatment of inventors was the deliberate intent of Congress and shows a concern in that body with encouraging individual inventors to make their maximum contribution to the common welfare.

As a result of the 1954 tax changes, some prospective inventors may have easier access to financing than was previously the case. A syndicate can be formed to finance the work of an individual who is engaged in a promising line of development, with assurance to the investors that, if the project is successful and an invention results, they will get no less favorable tax treatment than they would have received from other investments that yield capital gain.

Individual inventors have always been dependent on outside financing, but frequently they have been compelled to assign their patent rights in return for this financing before knowing precisely what the value of these rights would ultimately prove to be. Now they may be able to hang on to them longer in some cases and to make more advantageous arrangements for themselves before releasing these rights for commercial exploitation.

Since the bulk of patent assets are owned by corporations, we are looking very carefully at how the administration of these assets is influenced by tax considerations. Corporations are generally tax-conscious and may be expected to take full advantage of any provisions of either statutory or case law that will allow them to defer or reduce current tax liability.

As a general rule, outright sales of patents by corporations, except as part of a larger package of business assets, are rare—according to the business firms we have interviewed. The usual practice is to license, either liberally or in a more restricted manner, depending on the company's own policy and the rate at which technology in the industry is advancing.

How best to use patent rights to promote the future competitive and financial strength of a business is in itself a broad subject. Oftentimes, the best use for patents is as trading stock to secure favorable cross-licensing arrangements that will give the firm access to technology it does not possess.

It is our impression that when corporations do sell their patent rights they do so mainly because they are disposing of a certain part of their business and confining themselves to more traditional or specialized operations.

When foreign patents based on United States patents owned by American companies are licensed for international use, numerous tax problems arise. These are generally similar to the tax problems attending any other type of income from foreign sources.

The income tax rules of other countries differ from those in this country. Generally, the United States tax applies to incomes when earned,

while some other nations tax foreign income only when repatriated. By using appropriate foreign-based companies to receive patent license fees as well as other income earned abroad, United States companies may defer tax on this foreign income to their advantage. I believe both Mr. Seghers and Mr. Slowinski will have something to say on this subject.

Since transactions in patents frequently are taxed under the capital gains provisions, it is only natural that inventors and others should have an interest in proposals that recur from time to time to modify these provisions. Representatives of security-trading interests, for example, regularly advocate lowering the capital gains tax rate and lessening the holding period required to qualify gains as long-term.

There is no holding-period requirement in the case of patent assets taxable under Section 1235, but a lower rate of capital gains tax would benefit individual inventors as well as corporations and traders in securities.

The question of what rate of capital gains tax is appropriate, given our present income tax rates, is a complex one. The existing disparity between the two rates—on ordinary income and on capital gain—produces some discrimination and yields many arrangements, often highly ingenious ones, designed to convert ordinary income into capital gain.

On the other hand, lower capital gains rate would encourage additional transactions and would cause less freezing into appreciated investments than we now have.

I do not intend to examine this question further at this time; but merely wish to indicate it is a controversial one that affects inventors as well as other owners of patent assets. It involves other substantial groups of people, chiefly investors in securities, as well. Mr. Seghers I believe has a comment to make on this point.

What we plan to do in our future work is to describe as many specific situations as we can find in which tax considerations have been a material factor in influencing arrangements for the use or non-use of patent assets. These descriptions and other results of our studies will appear in future issues of the Foundation's *Journal*.

We hope you will find this descriptive material interesting and valuable in your daily work concerning the marketing and administration of patent assets. [Applause]

MR. DODDS: Thank-you, Dr. Bangs.

Now we are going to hear from Mr. Driscoll, who was a co-investigator on this subject.

Mr. Driscoll.

MR. JOSEPH P. DRISCOLL:<sup>1</sup> Mr. Chairman. The taxation project has been a joint one. Dr. Bangs has carried the burden with respect to the impact of taxation generally on the patent system. He has explored questions of rate structure and the economic effects of the tax provisions.

My contribution has been to examine in considerable detail some of the existing provisions, rulings, regulations, and cases, and to pinpoint the specific tax problems which affect the patent system.

To some extent I am looking ahead into the future. Our interviews suggest problems that people have encountered in the past. Many of the problems I will mention are just beginning to emerge.

While our study is concerned with taxation and the revenues which the federal government and the states collect from the proceeds of patents and inventions, the real significance of the project is broader. We are talking basically about the dollars derived from patents. In a sense, this is an analysis of the financial management of patents. I have sought to explore those methods of operation which will yield the inventor and the investor the most favorable return under our present tax system.

The tax problems arise in three principal contexts. First, there are corporations, both large and small, which are engaged in the creation or use of patents. In the development of patents, these corporations employ uniquely talented individuals, scientists, researchers and others, who may have tax and financial problems. Apart from the corporate pattern, there is the individual entrepreneur, the "garret-type inventor," who has his own special problems. There is also developing a third category or entity—the research organization, either a commercial or a nonprofit organization, which has an interest in the application of the tax laws.

Let us consider briefly the effect of the capital gains provisions on corporations engaged in patent production. If the capital gains provisions are applicable, the tax cost is reduced from the regular 52% corporate rate to a maximum of 25%.

Dr. Bangs has indicated that, according to our preliminary survey, corporations are not disposed to sell their patents, even with the attractions of the capital gains provisions. They do make sales of patents, however, in some situations. It has been noted, for example, that patent sales may occur where there is a sale of a portion of the corporate business. Furthermore, although corporations are not likely to sell their United States patent rights, they may find it advantageous to make a sale or an exclusive license of their foreign patent rights rather than attempting to manufacture the product abroad.

Corporations may also be affected by some of the new tax provisions which were primarily intended to provide relief for individuals. Section

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<sup>1</sup>This presentation includes certain changes and additions.

1235 in particular provides a strong incentive for individuals to enter into new forms of agreements and exclusive licenses, the effect of which may be to change the traditional agreements that have existed between companies and individual inventors.

You are generally familiar with the provisions in section 1235 which allow long-term capital gain treatment if there is a transfer of all substantial rights to a patent, provided the transfer is made to some person other than a controlled corporation.

Section 1235 as such applies only to individuals—the individual who created the patent and to individual investors. With respect to investors, it applies only to those who acquired an interest in the patent before actual reduction to practice.

Generally speaking, the section eliminates certain of the requirements of prior law for capital gains treatment. Previously it was necessary that the patent be held for more than six months, and the seller would be disqualified if he were a professional inventor.

The holding period requirement presented the problem of determining when the invention came into existence. Was it when the inventor first conceived the idea, when he made his initial drawings, or when he produced a working model? Such problems were encountered where the inventor desired to sell a portion of his rights at an early date in the development of the invention.

The major risk was that the inventor would be denied capital gains treatment if he had produced several prior inventions. He might then be regarded as holding the invention for sale to customers. The concept of the so-called “amateur” inventor, however, is somewhat naive. Most of our valuable inventions come from persons who have been interested in invention for some time. They may have obtained several patents which were not commercially successful. But at some point they may produce an invention from which they can realize substantial income. The question is whether they are professional inventors by virtue of prior unsuccessful patents.

There were many cases under the pre-1954 law as to what constitutes a professional inventor. In one case, the taxpayer had produced some 37 inventions and sold five. He was held to be a professional inventor and therefore not entitled to capital gains treatment. In another case, the individual had produced approximately 20 inventions and sold three. He was held not to be a professional inventor and qualified for capital gains treatment.

The problem as to whether the inventor was in the business of holding the patents for sale to customers was an acute one prior to section 1235. It may still arise in those situations where the provisions of the 1954 Code are not applicable.

Another problem prior to section 1235 was the attitude of the Revenue Service with respect to any arrangement for the disposition of a patent under which the transferor was to receive income based on the productivity of the patent or over a period measured by the life of the patent. The Revenue Service said in effect, "If you want to make a sale, do so for a lump-sum amount." But most of the inventors could not negotiate, nor were the companies willing to pay, a lump-sum for untested patents. The only practical method of negotiating a price was by relating the payment to the actual use of the patent.

The Revenue Service litigated the issue in a great many cases. There have been more than 100 cases on the subject. The courts generally took a realistic view and held that there was a sale of the patent if there has been a transfer of the exclusive right to make, use and sell, even though payments were based upon the use of the patent or related to its life.

Thus, there were three major problems in obtaining capital gains treatment under prior law—the holding period problem, the question of professional status, and the type of payment, that is, whether payment was to be received in a lump sum or over a period of time.

All three problems have been eliminated under section 1235, at least as to certain categories of individuals. The qualifying persons are, first, the person who is the creator of the patent and, secondly, the individual investor who acquires an interest prior to actual reduction to practice.

However, there are certain requirements for application of the new provision. There must be a sale of "all substantial rights" in the patent. The regulations state that a transfer of all rights to make, use and sell will generally be sufficient. Certain rights may be retained without endangering the capital gains treatment. For example, the title to the patent itself can be retained for security purposes.

The assignment may also contain provisions of forfeiture so that if the transferee does not meet a certain minimum level of production or make minimum payments as specified in the contract, the license will terminate.

It should be noted that the forfeiture provision in many of the agreements previously used in industry may be unsatisfactory from the point of view of the inventor. It is common to specify that in the event the transferee, which is usually a manufacturing company, does not meet the minimum requirements for production or minimum payments, then the exclusivity of the license shall terminate. But only the exclusive features of the license are terminated. The company still has the right to manufacture under the patent.

Such a forfeiture clause may be disastrous under the new tax provisions. If the assignee fails to meet the minimum requirements and the license becomes non-exclusive, the inventor will be taxed on ordinary income instead of the capital gains which he had expected to receive during the

period of patent productivity. Moreover, the inventor will be prevented from giving an exclusive license to any other manufacturer.

It would seem therefore that the inventors will probably require that the exclusive license terminate in its entirety upon failure of the assignee to meet the required conditions. The inventor could then make another exclusive license with another company. Possibly, arrangements could then be made for the original licensee to act as a sub-licensee under the exclusive license granted to a third party.

Under the provisions of section 1235, the inventor may not grant an exclusive license of his patent to a controlled corporation, and receive capital gains treatment. He must make the transfer to an unrelated third party or a corporation which he does not control. This requirement may tend to result in assignments to large manufacturing companies which can assure the inventor the capital gains treatment that he desires.

The new tax provisions may also make capital gains treatment available to company employees engaged in the production of patents. Most employees working for companies automatically transfer their patents to the company. That is part of their job. In some cases employees may receive special payment for their work in producing valuable patents. It would appear to be possible to arrange for that compensation to be made in the form of payment which qualifies as a capital gain under section 1235. To accomplish this, it would be necessary to show that the payments were made for the transfer of the patent and not as part of the employee's salary or bonuses.

It would seem that if the employee obtains any benefits or rights which relate to the use of the patent, that is, which are based upon the number of units produced or the number of years the patent is in use, those payments would qualify for capital gains treatment. Moreover, lump-sum payments which are unrelated to salary arrangements should also receive capital gains treatment.

The significance of capital gains treatment for company employees engaged in the creation of patents should not be overlooked. It may make it possible for companies to retain the services of those who would otherwise prefer to go into business for themselves.

The investor group will have increasing importance in the development of patents under several of the new tax provisions. The provision relating to research and experimental expenditures will allow a major portion, if not all, of the investment to be deducted as an ordinary loss. The investors may qualify for capital gains treatment under section 1235 if they participate in the project prior to reduction of the invention to practice.

What is meant by the "actual reduction to practice" of the invention is not entirely clear. The regulations indicate that reduction to practice

occurs when the invention has been tested and operated under "operating conditions." Apparently this precedes the commercial exploitation of the patent. The Treasury seems to interpret the term as referring to mechanical practicability rather than commercial value.

Those purchasers or investors who participate subsequent to reduction to practice will not qualify under section 1235, but they may obtain capital gains treatment under the general provisions applicable to capital gains.

It should be emphasized that, wholly apart from the situations covered by section 1235, capital gains treatment continues to be available, as under prior law, upon the sale or disposition of an interest in a patent. Where the patent has been held for more than six months and the seller is not a professional inventor, the courts will allow capital gains treatment in a sale even though payments are based upon the use, productivity or life of the patent. Accordingly, corporations and investors who acquire an interest after the reduction of the invention to practice, as well as other persons disqualified under section 1235, may obtain capital gains treatment under the general rules of tax law.

The recent provision relating to research and experimental costs has been stated to be a clarification of pre-existing law. Prior to the 1954 Code, it had been the practice of the Internal Revenue Service to permit companies which had a regular research program to deduct their research costs annually if they did so on a consistent basis. The Service could have required capitalization of research expenses. This would have been a futile gesture for the most part since capitalization of the expense in one year and deduction of an abandonment loss in another year would tend to balance out—at least in the case of companies having a substantial number of research programs. Such capitalization, however, might be disastrous in the case of small companies or individuals who were attempting to develop a patent.

The new provision on research and experimental costs provides an option either to deduct all such costs or to defer them and write them off over a period of five years. We have found in the preliminary interviews that most companies want to deduct all of their research and experiment costs in the year incurred. It is anticipated that very few, if any, will wish to capitalize such expenses. Possibly new companies or those which have a large loss carryforward may wish to capitalize research costs. It is possible to capitalize the costs of research on certain projects while deducting the expenses of other projects. The election may be made on a separate project basis.

Under the regulations pertaining to research expenses, research costs include not only the costs of developing new products, but also the cost of acquiring the patent itself. Previously attorneys' fees and other expenses in obtaining a patent were required to be capitalized even though research



costs were deductible. That distinction has now been eliminated so that the legal department expenses and the expenses of outside attorneys employed for this purpose will be deductible currently unless the entire project has been capitalized.

A very real problem under the research provision occurs with respect to pilot plants and new machinery. The question is this: At what point does new machinery cease to be research or development and become a production item? If it is a production item, the cost must be capitalized and deducted over the life of the equipment.

The dividing line between a prototype and a production model is frequently a difficult one. Sometimes a unit which was built as a prototype turns out to be a production model. The determination as to whether the item qualifies for the research deduction must be done on a case-by-case basis. It would seem, however, that if at the time the project was undertaken there was substantial doubt as to its use or practicability, it should be treated as an experimental cost which is deductible when incurred, even though subsequently it may be possible to use the particular item of equipment or machinery for production purposes.

An interesting aspect of the research deduction relates to the deductibility of expenditures which are paid to outside organizations. There are many outstanding research concerns, some of which are commercial, and some of which are non-profit. To what extent may one deduct payments made to these companies in a lump sum or in a series of payments for research services?

The principal seems now to be established that payments made to such organizations for research are fully deductible. Even though some portion of the payment is used to acquire capital goods, such as land or buildings, the cost of which would not be deductible if made by the company itself, the full amount of the payment may be deducted if the paying company does not acquire any interest in the land or physical facilities.

To illustrate, suppose a company plans to set up a new research center. A major part of its initial expenditures would be for land, buildings, office facilities and testing equipment. No deduction other than annual depreciation would be permitted for such acquisitions. On the other hand, if the company contracts with a research organization and the research organization constructs the necessary facilities, etc., the company may be able to obtain a deduction for the entire payment provided it acquires no interest in any of the facilities or equipment.

The Treasury apparently was willing to allow the deduction to the payor with the thought that the payee would be required to include the payment in income. However, many of these research organizations, such as universities and research foundations, are of a non-profit nature. As a consequence their receipts may be non-taxable.

The question has been raised whether a company may treat its research expenses differently for tax purposes and for its annual reports. Most companies prefer to deduct their research and experimental costs annually to reduce taxes and thereby make more money available for general corporate purposes. Some of these companies may be reluctant to show a reduction in earnings equal to the amount of their investment in research and experimental projects. They frequently prefer to amortize the cost of new projects over a period of years.

I have seen several annual reports of public companies in which the company amortizes research costs over a period of three to five years for profit and loss purposes while claiming the entire sum as a tax deduction in one year. The company maintains a favorable earnings record and has the benefit of an immediate tax deduction.

Is there any danger that the deduction may be disallowed under these circumstances? There is nothing specific in section 174 regarding coordination of tax and accounting records. It seems to me that it does not conflict with the tax provisions if the company defers or amortizes part of its research costs for accounting or public reporting purposes. Where Congress has wished to impose such a requirement, it has done so expressly.

I have tried to point out in this discussion some of the problems involved in the application of the Federal tax laws to the patent and research fields. There are many other problems. As the taxation project develops, it is our hope that some of these areas can be set forth with more particularity.

The research project on the taxation of patents is just beginning. It is still in an exploratory stage. Questionnaires will be distributed widely with a view to obtaining additional information. We hope that all of you who are interested in the subject of taxation and the financial management of patents will give us the benefit of your experience.

Thank you. [Applause]

MR. DODDS: Thank you, Mr. Driscoll.

In order to conduct a discussion of the papers which you have just heard in an orderly manner, two experts in this field are going to give their comments and views.

First, I would like to call on Mr. Slowinski.

#### DISCUSSION

MR. WALTER A. SLOWINSKI:<sup>2</sup> Thank you, Mr. Dodds.

Gentlemen, I would like to make only a few very brief remarks and stay within my 10-minute allocation of time so that we can have as many written questions as possible later.

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<sup>2</sup>This presentation includes certain changes and additions.

First, let me say that the two presentations this morning are certainly indicative of the high caliber of the interim reports of the co-investigators on Project 7a.

My few comments involve five minutes on the problems of the individual inventors which Mr. Driscoll has mentioned this morning and then five minutes in the foreign base company area.

The Congress at the present time has before it H. R. 8381 and that bill is designed to eliminate "unintended benefits" to the taxpayer.

I would like to use the term "unintended entrapments" to the inventors for just a second, because since January 1st of this year, in the last five months, if you have watched the Tax Court or the District Court decisions, you will have seen a beehive of judicial activity. Some of us would prefer to call it a hornet's nest of judicial activity. And the victims in most cases are individual inventors.

This leads us to the urgent need for both tax lawyers and patent lawyers within corporations and in private practice giving freely of our time to these individual inventors, the "garret inventors" as Mr. Driscoll calls them, to see to it that they get the fairness intended in the statute and to see to it that when they engage in activities with a corporation to which they are going to transfer all substantial rights they receive capital gains treatment.

Some of the hard cases which emphasize Mr. Driscoll's point on "all substantial rights" I think are illustrated in these five cases, on which I will spend only a few minutes. All of these have been decided within the last five months.

1. One is *Arthur M. Young*, 29 T. C. \_\_\_\_\_, No. 92, decided by the Tax Court on February 17th of this year. Here an inventor had a few patents in the helicopter area. He assigned these patents to a helicopter company. However, since he was concerned that the assignee might not put his invention to the best and most practical use and therefore lose to him, the inventor, the benefits of all his work up to that point, a clause among other clauses was inserted in this contract which said, "After two years either party has the right to terminate on the giving of 30 days' notice."

The Tax Court decided there would be no capital gains treatment for the inventor because either party had the right to terminate.

This was not a "condition subsequent," such as was present in the *Myers* case where the happening of a future event such as the failure to make payments of royalties would terminate the conveyance.

2. In *Bannister, et ux. v. United States*, 58-1 U.S.T.C. ¶ 9427, decided February 28th by a United States District Court in Texas, the taxpayers there were denied capital gains treatment because they failed to grant the

transferee the right to *use* a patented device for the taking of cores or samples from oil wells while the bit and the pipe were in place during the drilling process.

In this case, the transferee never really intended to use the taxpayers' device because it considered its own device superior. However, it made the purchase of the rights here only to forestall any claim by the taxpayers for patent infringement.

3. Last week a U. S. District Court in Connecticut decided *Arras, et al. v. United States*, 58-2 U.S.T.C. ¶ 9582, in which the taxpayer inventor tried to retain perhaps too much.

In *Arras*, the things he retained as inventor were paper title, a veto over any sub-licensing, royalties and the right to check the licensee's books to see that he was getting the right royalties, an option to cancel the agreement if the patent was shelved, and a right to terminate for breach.

The District Court held here that the taxpayer had transferred "substantially all" his rights in the invention and that, therefore, he was entitled to capital gains treatment. But this may not be the final word. The case may be appealed.

However, compare the decision in *Watkins, et al. v. United States*, 252 F.2d 722 (2d Cir. 1958), *cert. denied*, June 30, 1958. In *Watkins*, the Circuit Court of Appeals decided on similar facts against the taxpayer. In that case he retained the right to royalties, the power to terminate in the event of the transferee's failure to obtain funds for certain patent litigation, a right to approve all sub-licensees, and certain rights to manufacture, sell and sub-license.

4. The fourth individual inventor case, *Curt A. Claus*, 17 T.C.M. 313, was decided by the Tax Court April 16, 1958. There the taxpayer assisted his brother in the development of a rotary soil tiller and in return he took a 20% interest in the *income* from the invention. However, he waived any right, title or interest in the invention itself. This was enough to change capital gain into ordinary income.

I mention these examples only to show how all of us in the taxation and patent legal areas should give as much help as possible to the individual inventor who, for lack of proper advice, may stumble into one of these unfortunate tax situations. A comprehensive article on these problems was presented by Andrew Bailey in 15 N.Y.U. Inst. on Federal Taxation Proceedings at p. 285.

5. Individual inventors have not been the only victims in this area. In *National Bread Wrapping Machine Co.*, decided last week by the Tax Court, 30 T. C. \_\_\_\_\_, No. 52, a corporate taxpayer lost capital gains treatment on the "sale" of a patent because the rights granted a foreign company were *only to manufacture and sell* and were not shown to have been *exclusive rights* in any specified territory.

A few words about foreign patents and the sale of U. S. patents abroad.

In the December 1957 interim report of the Co-Principal Investigators at pages 245 and 258 in the *Journal*, and again in Dr. Bangs' report this morning, reference was made to the desirability of base company operations in the patent licensing field abroad to defer the payment of U. S. corporate taxes until these licensing funds are actually returned to the U. S. via the dividend route. Since your last annual conference, Harvard University has published a base-country study which can only be referred to briefly here. It is entitled "Tax Factors in Basing International Business Abroad" by William J. Gibbons, and it explains in detail the base country operations referred to in the interim report. Briefly, a base country is one which imposes only negligible income or capital taxes, or no taxes at all, on income of its domestic corporations derived from sources outside the base country.

As noted on page 258 of the interim report, base companies (1) permit the accumulation of profits abroad to be used in further expansion of the corporation's international operations and in the acquisition of foreign patents and know-how, (2) they facilitate tax-free transfers of funds between foreign subsidiaries, (3) they permit a U. S. parent corporation to offset losses in one foreign country against profits in another, and (4) they provide a method of averaging foreign tax rates under the per country limitation of Section 902.

Such a base company can purchase patents or know-how in the United States from its parent and sell or license them in international trade. (The purchase from the parent can be on an installment basis permitting any gain to be taxed as capital gain over the period of the installments.) The base company can in turn purchase patents or know-how in Europe and elsewhere abroad from other companies and sell or license the same to the U. S. parent corporation or unrelated third parties. Flow-back arrangements involving exchanges of know-how can be facilitated. The world-wide potential of this technological data is best exploited through this corporate vehicle.

The base company can serve as a banker to the foreign subsidiaries, furnishing capital, equity, or loans to such entities. It can also act as a holding company, owning the shares of stock of the foreign subsidiaries.

Although no one country is ideal for base company operations, several of them are most attractive. Switzerland, for example, has an extensive system of bilateral tax treaties which puts a Swiss company in a proven position vis-a-vis the withdrawal of royalties and license fees free of tax at source in many countries. And, for example, Switzerland will tax non-holding company income such as royalties and fees at a maximum rate of approximately 8%.

Switzerland also has numerous bilateral trade agreements, but yet it has no exchange controls. It is also very proud of its sound and respected currency.

The discussion of patents and their foreign utilization via base company operations could occupy the remainder of our morning, and I shall therefore mention it no further. However, in November we plan to cover this subject in some detail at the New York University Federal Tax Institute in New York City, and you are certainly invited. Management wants to know how its patent department is spending (or saving) tax dollars at home and abroad, as you well know, and this Foundation project may lead to some very helpful recommendations in the area. Dr. Bangs, Professor Driscoll, and Mr. Harris are to be congratulated, and warmly supported in their future studies.

MR. DODDS: Thank you, Mr. Slowinski, for a very helpful and illuminating discussion.

I now call on Mr. Seghers.

MR. PAUL D. SEGHERS: I think all three of the preceding speakers are greatly to be congratulated on their ability to deliver such interesting as well as valuable talks, because I have never seen an audience remain so concentrated as this. They say the ability to concentrate is limited by the ability of the seat to endure. [Laughter]

Next time I am on the same program with my friend, Mr. Slowinski, I'm going to insist on tossing a coin to see who speaks first, because so much of what he has said I intended to say.

I have been called a lot of names, but the first time I got labeled as a "discussant" is today. [Laughter] So, being so labeled, I'm going to do just that. I have no prepared paper, although I have notes on points that I would like to discuss.

I don't know how many minutes I'll be allowed to get away with, but I know the notes that I have, prompted by what I read in the two papers that were furnished me and what I heard said by the two speakers and by Mr. Slowinski, would take up a good day.

As the other speakers have emphasized the individual viewpoint, especially the 1954 Act changes for the benefit of the individual, I will speak principally from the corporate viewpoint.

I would have liked to have said practically everything that Mr. Slowinski said about base country operations. Writers on this subject have been looking around for some less invidious name than a "haven." A "haven" is a good place for a ship to put in, but it usually is from a storm, and they don't like to imply you're getting away from a storm.

So then someone thought up "tax sanctuaries," and they said, "Well, a sanctuary is where bloody-handed murderers used to hide out in the old days." So now they're using the "base" name. Well, that has implications also. [Laughter]

I'm going to touch on some things that Mr. Slowinski didn't mention, although he did discuss the most important features of foreign operations.

Since many here are interested in the problems of individuals, however, I will wave a red flag as to some dangers in that field.

The matter of research institutions and their tax status and the status of contributions to them is extremely interesting and offers great possibilities. It offers the ideal situation of getting a current deduction for a permanent benefit. But it also probably presents some difficulties, because the Treasury may object if there is too much control by the contributor over the contributee.

The fact that there have been over a hundred cases on the question of whether there is a sale or a license of patents is important.

Incidentally, I am surprised that no one used the expression "bundle of rights." That's what the court always insists upon if it's a sale—that the "bundle of rights" pass from the seller to the new owner. If the original owner retains some of that bundle, it may be held to be only a license. And that is the keystone, the touchstone, those are the key words, in determining whether you have made a sale or a license.

And that's still important wherever a corporation is the seller, because it gets no benefit from these new provisions of the 1954 Code. And it's important wherever the individual cannot qualify under the special provisions of Section 1235 and seeks to qualify under the general provisions. And I would say that even under Section 1235, the individual gets the benefit only if it is a sale. He is protected against the Treasury's attack on the question of holding period, and he is protected against any attack by the Treasury on the ground that the payments are in installments or in the form of what is very often erroneously referred to as royalties, although the courts have been kind in holding that designating a payment as a royalty does not make the agreement a license if, as I said, the entire bundle of rights passes to the buyer.

But the fact that there have been a hundred cases arouses my anger—and I don't mean any other word. I don't call that administration of the tax law. I call that persecution of the taxpayer. Certainly the Treasury could have learned what was the law without causing at least a hundred hapless taxpayers and inventors to go into the courts to protect their rights.

And that sort of thing, the very provisions of the 1954 Act, illustrate something which I hope will be fought, and that is attempts by members of administrative bodies to nullify legislation in this connection. I have great respect for the Internal Revenue Service as a whole, but I have great contempt for the actions of certain people within the Service who continue to prosecute, to persecute taxpayers when they think that Congress has

been too liberal. That isn't their job. It isn't an honest job. Their job is to administer the law as it's written. If they want to change it, they should do the same as all of us, as citizens, have the right to do—go to Congress and ask for a change in the law.

But when the administration will persecute a hundred different taxpayers and Congress finally has to come to their rescue I say there's something wrong with the system of administration.

One thing that all of us should work for is some Congressional control over the manner in which our tax laws are administered so that the Internal Revenue Service will be forced—and they won't do it unless they're forced—to obey the law as it's enacted and not to seek to obtain what they think should be the tax. [Applause]

Now, I can give plenty of examples.

In the second world war, in connection with amortization, the whole scheme of amortization was sabotaged for a year, and it wasn't till Hitler attacked Russia that that sabotage stopped. You can draw your own conclusion.

As to the remarks about the changes in the form of agreement, especially on sale of patents, I think those were very valuable suggestions, and I'm sure that many of us will find occasion to make use of them.

The corporation still theoretically has the problem, although I have never seen it raised, as to whether a sale by it constitutes a sale as a professional or as an amateur. That was one of the big difficulties of the individual. As I say, I have never heard of, and I don't recall, any case where it has ever been raised as to a sale of a patent by a corporation. Do you?

DR. BANGS: No.

MR. SEGHERS: But with the distinction now made between the individual seller and the corporate seller, the corporations may have to confront that. If they make too many sales of patents they may be in trouble. Therefore, it might indicate the desirability of passing down patents into a multiplicity of companies under the parent company so that the parent will never be in the position of selling too many patents.

The Treasury and the courts have always recognized that the same invention may give rise to a number of different bundles of rights, each of which bundles can be dealt with separately. By that I mean that you may have a United States patent and a dozen or several dozen foreign patents, and the patent rights in each country, if considered a separate bundle, can be dealt with separately, yet there is only one invention.<sup>3</sup>

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<sup>3</sup>Broderick, *Coll. v. Neale*, 201 F. 2d 621 (CA, 10th Cir., 1953) in which the court held that retention by the "transferor" (licensor) of the right to use, kept the transaction



But there is another form of procedure seldom thought of, and yet the courts have recognized it. Sometimes it may require only a change in language. There are relatively few cases in which it has been involved. It offers possibilities of solution of some problems. It has not been much used, and yet it has been successful in Tax Court cases.

There was the *Parke-Davis* case, about which I always wondered. There it was held that you could sell an undivided interest in a patent and have a sale and not a license. There are peculiar points of patent law in that case. It's quite an old one—31 B.T.A. 427.

There is another approach—to limit geographically a single United States patent. Apparently it can be maintained that, having a bundle of rights, you can break that bundle up into different short lengths, one for, say, the Western territory, the Central territory, and the Eastern territory [of the United States]. This position has been sustained.<sup>4</sup>

Third, and this is very unusual, you may make a sale of all your rights to make, use and sell, as the courts say, an invention (actually what the courts mean is the product of the invention) in a particular industry and retain all other rights and still have a sale.<sup>5</sup>

These are important and unusual points in regard to the distinction between a sale and licensing.

You have court authority for all three of these procedures.

The suggestion was made that invention might be encouraged by lower capital gain rates. Well, of course, we know the sort of opposition that would confront any proposal to lower capital gain rates in general below the present 25%. It can be spoken of as of great benefit to speculators in securities, and so forth.

Today we have only one capital gain rate. You pay 25% or you don't have a capital gain benefit. That hasn't always been the case. We have had, in the past, quite a range of rates, depending on the length of holding period.

It has occurred to me that if Congress really wants to encourage invention it might prescribe at least two rates, depending on the nature of the asset. If the asset is a patent, for example, Congress might be satisfied to charge an individual inventor a capital gain rate of, say, only 10%, whereas capital gains on sales of securities and other property of that kind might pay the customary 25%. There is something which this Foundation might work for.

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from being a transfer of "the exclusive right to make, use and sell," and was, therefore, a licensing. Cf. *Franklin S. Speicher et ux.*, 28 T. C. 938 (1957), in which the court found that the transferor had parted with all rights.

<sup>4</sup>*Vincent A. Marco*, 25 T. C. 544 (1955); *United States v. Carruthers*, 219 F. 2d 1955 (9 Cir., 1955), both citing and relying upon *Waterman v. MacKenzie*, 138 U. S. 252 (1891).

<sup>5</sup>*United States v. Carruthers*, 219 F. 2d 1955 (9 Cir., 1955).

I think that one of the things that the Foundation can do, should do, is to make public appearances at the hearings of the Ways and Means Committee, the Senate Finance Committee, the Joint Committee on Internal Revenue Taxation. That is not lobbying. It's permitted. It's exercising the right of every citizen to appeal publicly to Congress to present his views or the organization's views as to what is good legislation. I think the Foundation could do a great deal in the field of taxation of patents and related subjects.

The tax treatment of research expenditures under the prior law illustrates the difference between law and practice. If a case came to Washington, it had to go to court, and the taxpayer would invariably lose in court on the capitalization of research expenses. And yet the Internal Revenue Service brought relatively few such cases to court. It was allowing research expense to be deducted currently in the majority of cases. No agent or agent-in-charge insisted on denying the deduction. But whenever the question got into court, the taxpayer lost.

Now, it is always a bad situation where the law of the land is declared by the courts to be different from the administrative practice. In this instance, I feel that the administration should have followed the law, even though it was harsh, and sought a change. I am not in favor of harsh administration, but it's a bad condition when a few are being penalized, and others getting by. No one ever knew his rights as to research expenses. Now, that uncertainty is removed by the change in the 1954 Code.<sup>6</sup>

There is another field of uncertainty with which Mr. Slowinski is very much concerned, as well as I, and that is the question of what is the source of income on the sale of goods abroad, whether you can print papers in such a way that income from a sale otherwise made in the United States is said to arise somewhere on the high sea or in the ether and not be subject to tax in the United States.

In practice this triangular method of creating foreign income out of domestic income is allowed in the majority of cases, but no one has yet been able successfully to defend such a case in court.

We have the *East Coast Oil* case<sup>7</sup> and the *Ronrico* case,<sup>8</sup> which held that the place of passage of title was controlling in determining the source of income. And the *Balanovski* case<sup>9</sup> which likewise held that the place of passage of title was controlling.

I call to the attention of this audience and anyone interested in the determination of foreign income that no court in a United States tax case has

<sup>6</sup>1954 I.R.C. Sec. 174.

<sup>7</sup>*Commissioner v. East Coast Oil Co., S. A.*, 85 F. 2d 322 (5 Cir., 1936).

<sup>8</sup>*Ronrico Corporation v. Commissioner*, 44 B.T.A. 1130 (1941). *Commissioner's App. Dcmd* (5 Cir., 1942).

<sup>9</sup>*United States v. Balanovski*, 131 F. Supp. 898 (D.C. N.Y. 1955); *aff'd in part, rev'd and remanded in part* 236 F. 2d 298 (2 Cir., 1956) *cert. denied*, 352 U. S. 968.

ever held that income from the sale of goods originated in any place other than the place from which the goods were shipped. No court ever held that where the goods were shipped from Country A, the income arose in Country B. The courts have used language which would justify that conclusion, but they have never so decided.

There is an unusual feature in regard to patents, and I'm surprised that it wasn't brought up. I don't know whether any of you remember the *Associated Patentees* case.<sup>10</sup> It's a rather old case, but it's an unusual one, and even today it could be used by a seller to point out to a buyer, usually a corporation, the advantage that the buyer may obtain through an installment payment arrangement.

It's one of the few cases where both the seller and the buyer get an advantage, each taking a different position. The seller may be held to be a seller although making a sale on an installment sale basis, and the buyer is allowed to deduct the cost of the purchase currently as he makes the payments.

Now, that's never been held in regard to any asset other than a patent, and if I can have a minute or two to describe it, I will do so.

Howe P. Cochran, a Washington attorney, insisted that the buyer corporation was paying royalties which it was entitled to deduct. He lost. The Tax Court said, "No, it's a purchase. You cannot deduct the payments. You have to capitalize all payments and write them off over the life of the patent."

Cochran sought a rehearing from the Tax Court. He went back to the Tax Court and said, "You're right. It was a purchase. It wasn't a license. But look how this thing works out." And he showed the ridiculous result produced by capitalizing these annual expenditures. In the first year the amount paid would be capitalized and spread over 17 years. The next payment would be capitalized and written off over 16 years, the next year over 15 years, and so forth. He submitted to the court a tabulation that showed how ridiculous it was.

The Tax Court said, "It's a purchase. You cannot deduct the purchase price. But the only correct amount to deduct as annual depreciation is the amount you pay."

Thus, the annual depreciation of a patent bought on an installment basis is the amount of the installment payment.

We have many cases of the opposite kind, where the seller is taxed in full at the time of sale and the buyer is forced to write off the cost over a period of years.

Anyone who is either selling or buying a patent should be familiar with the second decision in *Associated Patentees*. The first was vacated.

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<sup>10</sup>*Associated Patentees, Inc.*, 4 T. C. 979 (1945).

There is another thing that the Foundation should work for, and that is to allow patents to have the benefit of the same accelerated depreciation provisions, at least as favorable depreciation deductions, as are allowed with respect to machinery.

Today, in the case of a purchase of a patent which doesn't qualify under the installment method, the purchaser is denied the benefit of Sec. 167(b), the so-called 200% depreciation method, or the sum-of-the-digits method. The Code specifically provides that these accelerated methods will not be allowed with respect to intangible assets, which includes patents.

And yet I know that in the past, movie producers have been allowed to use a sum-of-the-digits method in deducting the cost of production of movies over a relatively short life and thereby get the major amount of the cost as a depreciation allowance in the early years. That has not been allowed in the case of patents.

I think that under the general terms of the statute you might claim, and might even successfully claim, depreciation of patents over such a shorter period, or, rather, accelerate the deductions so that you would get a larger percentage of the cost in the earlier years, using the declining balance method, on general principles, but the statute specifically excludes intangibles from the specific allowance of such methods under Sec. 167(b).

I think the statute should be amended to allow, in the case of patents, the benefit of the sum of the digits, as a matter of right and not as a matter of favor, the same as is allowed under Sec. 167(b) in the case of other assets, similar to what has been allowed informally with respect to the cost of movie films.

Now, I'd like to take a mild exception to what has been said in the papers heretofore presented with respect to research equipment. I think the result is pretty much the same, but in my opinion any equipment having a life of over one year purchased for research purposes cannot be deducted until it has been abandoned or disposed of. I think that you may claim a very high rate of depreciation, and if it reaches the end of its useful life it may be abandoned. I don't care whether it is a prototype or whether it's purely experimental equipment—it must be capitalized.

I don't think under the statute—maybe under practice—you can deduct the full cost of equipment used by the company in conducting the research. I'm not speaking of working through so-called charitable organizations and getting your land deduction as a charitable contribution, but I mean the company conducting the research that purchases machinery—say a pilot-plant machine. Maybe it will never be used in actual production. Maybe it will. But perhaps just because of that uncertainty, it or any other asset that has a normal life, but cannot be estimated as being not more than one year, must be capitalized. But it can be depreciated at a rapid rate, as justified by the circumstances. I don't think, however, that

you can automatically deduct, under the research provisions, the cost of an asset having a life of more than one year. On this point I may have an argument with my colleagues.

As to the use of foreign corporations, I'm a hundred per cent with Mr. Slowinski as to their desirability for use by any form of taxpayer, whether corporate or individual, in any foreign business activity. However, when I say "business," I'm using it just as a short phrase. I mean any corporation that produces income which is not foreign personal holding company income.

However, as you know, royalties are personal holding company income, and foreign personal holding company income, and if, for example, you have a parent company, a manufacturing company, and it sets up a foreign subsidiary to hold these foreign patents, and if ownership of the parent company happens to be closely held, so that it would be a personal holding company if it didn't have business income, the royalties received by its subsidiary may be taxable currently to the stockholders of the parent company under the foreign personal holding company provisions.

Hence, this is a point that you need to watch out for. Beware of setting up a foreign corporation for the purpose of holding patents and receiving royalties if the equitable ownership through the stockholders of the parent is in a small group of stockholders. Check to see whether you would run into the foreign personal holding company trap.

Here, again, is a situation where the Foundation might seek legislation.

Rents are excluded from personal holding company income unless they equal 50% or more of the corporation's income. And oil royalties are excluded from personal holding company if they equal or exceed 50% of the company's income and at least 15% of that income is used for certain expenses. However, patent royalties are not excluded, even though the royalties may represent 100% of the holding company income.

If patent royalties were given the same treatment as rents, for personal holding and foreign personal holding company purposes, then it would be feasible for you to use the foreign corporate device. The encouragement of inventors and inventions for national defense has been discussed, and I mention again the deliberate sabotaging of measures having that objective back in the days of World War II amortization allowance.

Just to refresh your memories—many companies were waiting until the law became final and they could see how it would be administered. In order to get amortization of defense facilities, you then had to produce a certificate of non-reimbursement. And the bright boys thought this one up: "If the company made any profit, it was really being reimbursed by the United States Government for part of the cost of its equipment, and therefore it couldn't get a certificate of non-reimbursement. If they didn't show any profit, they didn't need any deduction." [Laughter]

And that condition lasted for a year. In that year there were not half a dozen certificates granted, because it was sabotaged by the boys, a small, tight group that had control of these non-reimbursement certificates.

A problem you may run into in connection with any foreign operations is, as Mr. Slowinski mentioned, that you may not be able to get a clearance under Sec. 367. That is to say, the Treasury may say that if you transfer patents to a subsidiary in exchange for the stock of that subsidiary and the subsidiary is a foreign corporation, it will not be treated as a corporation. In other words, the parent will be taxed on the transfer of the patents to the subsidiary for stock. For that reason, Section 367 prevents many reshuffles of properties owned by United States companies or by foreign subsidiaries of United States companies.

The pending Boggs Bill, H.R. 12,368, proposes to remove that roadblock, as it would permit a reshuffle of working assets in foreign commerce. [Note: not enacted.]

It has been published that Sears Roebuck has been denied by the Internal Revenue Service permission to set up an intervening holding company in Venezuela to operate some 37 operations in Latin American countries. The Boggs Bill would clear the road in such a case.

I mention here Sears Roebuck, Ford, and a very big Texas case, all three involving foreign operations. Only one of them has any relation to patents except for this point: They are three very big companies. The Texas case runs in the millions. Sears involved big money. Ford has just lost its case in the Tax Court.

Those are big companies and supposedly had excellent advice. They didn't heed the danger signals, and all three of them are in trouble. Whether they will get out eventually, I don't know. But the point is that you can't just figure, "Well, it doesn't really mean that or it doesn't mean me." There are three big companies who found out that the law has teeth in it with regard to what you can do and what you can't do in foreign operations. All three were foreign cases, Western Hemisphere trade cases.

Now, I think I have completed the remarks that are appropriate to discussants, and I hope that we will have a lot of questions.

Thank you. [Applause]

MR. DODDS: Thank you, Mr. Seghers.

We have a number of questions here. We are running a bit behind schedule I'm sorry to say. Some of the questions which I have received were explicitly answered by Mr. Seghers in his talk, so to conserve time I won't refer to those.

I hope that the questions and the answers on these various points can be made brief and succinct so that we will not get farther behind in our schedule.

The first question I have here is: "Can capital gains treatment on royalty income from an exclusive license be preserved for the heirs of the patentee? And just what safeguards are suggested?"

Mr. Seghers, would you like to answer that question?

MR. SEGHERS: If there has been a sale and you can't get capital gain treatment otherwise, your next question involves disposition of installment sale obligations, as to which there are special provisions in the Code which, frankly, at the moment I cannot fully recall. You have to deal with that problem in the case of inheritance of installment sale obligations.

I only say that it is no different from the treatment of the disposition of installment sale obligations from a sale of realty or a casual sale of any other property. I wouldn't dare to answer this question from memory because it is one which arises only as an income tax problem of a beneficiary of a decedent.

There are no different problems by reason of the property sold being a patent. That's my opinion. I don't know whether any of my colleagues would differ.

MR. DRISCOLL: I agree with Mr. Seghers. I would just like to add in connection with Section 1235 that that provision does not apply expressly to the heirs. Unfortunately, there is a gap in the statute, and an heir or donee, who had received an interest in a patent, could not make a transfer which would qualify under Section 1235. However, if the decedent had made a transfer of all substantial rights under a patent under Section 1235, the subsequent payments would probably be treated as income in respect of a decedent and qualify as capital gains in the hands of the heirs.

MR. DODDS: The next question is addressed to you, Mr. Driscoll.

I'm sorry. Did you have something, Mr. Seghers?

MR. SEGHERS: I would just like to say that I am speaking of the benefit which is represented by the receipt of the installment obligations, not the benefit of Sec. 1235 as to the sale of the patent. But, the decedent having sold it, what the beneficiaries inherit are installment obligations, and I think that they still come under the rule for installment obligations, which does not, I believe, permit you to go back and redetermine the nature of the sale but merely how the disposition of installment obligation is going to be taxed.

MR. DRISCOLL: The impact of these provisions on the heirs should be fully considered. I think it's a worthwhile matter for further consideration by the research project.

MR. DODDS: The next question is addressed to you specifically, Mr. Driscoll, and it is: "Can special patent awards to inventors by a corporation because of outstanding importance of the invention be treated by the employees as a capital gain where the inventor has previously assigned the invention under the patent agreement?"

MR. DRISCOLL: That is one of four questions on the subject of corporate employees. I think we have stirred up a hornet's nest as to how employees of corporations can qualify for capital gains treatment.

I will read one of the other questions here because it emphasizes a particularly difficult aspect of the problem. The question is this: "Where a corporation has an established employee agreement relative to the transfer of patent rights and such rights are therein declared to be the property of the corporation, does that establish a base upon which a capital gain could be allowed?"

The matter of capital gains for payments made to corporate employees is still in the development stage.

Initially, it is a matter of policy for the company. Many companies do not find it feasible to make separate awards or payments to employees for the creation of patents. But others do. Perhaps there will be an increasing tendency to make payments of this sort both to benefit the individual and because of the indirect advantages that may flow to the corporation.

It seems to me that Section 1235, and the case law permit the corporate employee to qualify for capital gains treatment under certain conditions. The payment must be made as consideration for the transfer of the patent and not as compensation for services. If the employee has already transferred the patent, it may be difficult to justify a payment made subsequent to the transfer as being made for the transfer of the patent.

However, I think a method could be worked out in an agreement between the employee and the corporation whereby the patent awards would qualify for capital gains treatment even though transfer of the patent is mandatory.

To do this, the consideration must clearly fall outside the scope of compensation. The payment must not be in lieu of salary. If the employee's salary is otherwise adjusted or if bonuses which are generally paid to that employee are otherwise adjusted, then the payment is in reality compensation for services and taxable as ordinary income.

Capital gains should be allowed where the patent agreement provides that payment for the patent shall be made in an amount determined by the corporation, or determined by a committee set up by the company. If the payment made under these circumstances is a flat sum, it seems to me that it should qualify for capital gains treatment. If the payment is based upon the use of the patent, it should clearly qualify. If the payment, for example,



is in terms of a percentage of the selling price or is an amount paid over the life of the patent, it should be treated as a sale of a patent right notwithstanding the mandatory character of the transfer.

There are implications to that effect in the regulations, and I believe it could be worked out in rulings with the Revenue Service.

MR. DODDS: Thank you.

The next question that I have I am going to address to Mr. Slowinski: "How can a company having unexpired but unused patents obtain maximum benefits under the present Revenue Act for the remainder of life of such unused patents?"

MR. SLOWINSKI: I think perhaps there are four steps. One would be a very full analysis of the patent itself. Put the patent on the agenda for a meeting. Bring the experts within your company in and say, "What is it and what can we do with it? Is there any application within our company? If there isn't, then is there any other application within our industry?"

And if there isn't within the industry, then is there any possibility of taking this patent and using it somewhere outside the United States?

If it has no use in the United States, you and your wife might take a trip around the world and see where it might be used elsewhere.

MR. DODDS: This question is addressed to Mr. Seghers, and this has to do with the *Associated Patentees* case to which you referred. The question is: "Is the approach of that case available for the purchase of exclusive rights to unpatented know-how—technical drawings, technical information, and so forth—for royalty-type payments over a fixed period of years?"

MR. SEGHERS: I'd just like to comment on that idea of the trip around the world. That's fine, but you can't sell a United States patent for use in any foreign country. If you haven't already got a patent in the foreign country you have nothing to sell there, and presumably by that same—

MR. SLOWINSKI: On the contrary, you have know-how to sell.

MR. SEGHERS: I didn't talk about that. I didn't talk about that, and neither did you.

This theory of write-off as to know-how—which immediately is defined here in this question as drawings, process specifications, et cetera—raises a question as to really what is know-how. I have been trying for several years to find out. We finally dug up a few citations that would give some indication of what is know-how.

But know-how seems to range all the way from personal skill to elaborate pieces of personal property such as a book. A book is certainly personal

property. And many of these books of specifications and procedures are just as much a piece of personal property as a textbook that you would buy somewhere.

So that it's a question in connection with know-how: To what extent is it property at all? And if it's property, is it tangible or intangible property?

I have some 41 pages of a manuscript on that subject which I haven't yet finished.

Can you get the deduction for the payments as you make them or must you capitalize the cost of this know-how, which may, as they say, include some tangible property and certainly include some intangible property and may and usually does include some personal services?

Certainly if you pay for certain personal services and use them currently in your business you can deduct that portion of the cost.

In other words, I'm saying that this may not be the cost of one asset. It may be one payment each year and you get for that one payment three different things. In the first year you get some personal property represented by blueprints and specifications and so on.

I'm afraid if you segregate that item you could not say that it could be written off over any shorter life than its anticipated useful life as a depreciable asset.

If you get services, whatever you pay for the services you receive that year you should be able to deduct as long as it doesn't create for you an asset of permanent value—and we'll presume it doesn't. We will presume it merely helps you in your production.

To the extent that it consists in the imparting of knowledge of a secret process so that the purchaser of that right to the secret process legally has the right to keep it secret, I'm afraid he has bought an asset with no determinable life, so that it can't be written off until the secret process ceases to have value.

All that is the theoretical answer. The practical answer is you're going to write it off and you're going to explain that it's a cost of operation, and then you're going to fight it out with the agent. I don't think that you can tell what the result is going to be.

But, theoretically, the question is: What are you buying for that money? And if you really analyze it you will find you have a mixture of three things—current services, personal property, and intangible rights. And if those intangible rights have no determinable useful life you know the answer as well as I do. You can't write off the cost of an intangible asset until it has ceased to have value if it has no future determinable life.

MR. DODDS: There's just one comment I would like to make. Mr. Seghers has suggested a number of respects in which he felt the Foundation might

urge amendment of the revenue laws which seemed to discriminate against owners of patent property. I think, as many of you know, it has been the policy of the Patent Foundation to try to retain complete objectiveness and to refrain from controversial subjects and anything which might be construed as either proposing or opposing or influencing legislation.

Now, I think at this time we might have a five-minute break to stretch our legs, and we will reconvene promptly in five minutes.

[Whereupon, a short recess was taken.]

MR. DODDS: May I have your attention? In the interests of time, shall we reconvene and continue the program?

Gentlemen, the next item on our program today comprises a series of progress reports on certain of the projects undertaken by the research staff of the Foundation.

I want to call first for Project 3a—"The Role of Patents in the Creation and Growth of Small Industrial Units."

The report on this project is going to be made by Dr. Irving H. Siegel, principal consultant.

Dr. Siegel is a director of research of the American Technology Study for the Twentieth Century Fund and a member of the staff of the President's Council of Economic Advisers. He is also an author and a lecturer on economic and technological subjects.

In addition to many papers, he has written books on concepts and measurement of production and productivity and on production, employment and productivity in a number of American manufacturing industries.

Dr. Siegel.

## The Role of Patents in the Creation and Growth of Small Industrial Units (Project 3a)

COMPLETED STUDIES: CUSTOM HEAT TREATING; BOSTON AREA  
ELECTRONICS INDUSTRY; NEW STEEL TECHNOLOGY

DR. IRVING H. SIEGEL: Thank you, Mr. Chairman. This is about the only time I think that I almost failed to get a word in edgewise—and that is by being almost frozen out of the program. But I will not try to get back on the conference schedule exactly. I know how impossible this is when you are trying to make up for time which doesn't even exist. It's impossible no

matter how fast you run. I do hope, however, that my remarks will for this particular circumstance have greater scarcity value, for I will not be able to deliver them in full.

I should like to call your attention to the fact that what my talk is about is largely already published in some form in the Foundation's *Journal*, so that if you will please purchase the December 1957 and the June 1957 and the June 1958 issues, I think you will have a good bit of the material that I intended to present.

Now I shall try to run as fast as I can in order to make the most of the minutes still available.

First, I should like to point out that the matter Mr. Seghers referred to—namely, a suitable definition of know-how—troubled us a bit in connection with our own studies of the role of patents and other factors in the creation and development of small industrial units. We recognized rather early in the game that patents merely represent part of the whole spectrum of knowledge of a usable kind, and we were quite interested in setting up something like a boundary line between one type of proprietary knowledge and other types of proprietary knowledge. Of course, there also are non-proprietary types of knowledge which are important in industry.

For practical purposes, we adopted the definition of know-how laid down in *Mycalex Corporation v. Pemco*. The citation is 64 F. Supp. 425, year 1956, D.C.-Maryland. Know-how is defined there as follows:

Know-how: Factual knowledge not capable of precise separate descriptions but which, when used in an accumulated form after being acquired as the result of trial and error, gives to the one acquiring it an ability to produce something which he otherwise would not have known how to produce with the same accuracy or precision found necessary for commercial success.

This definition does not include some of the things which were suggested by Mr. Seghers, like books; but, of course, there are other definitions which one might want to follow. Since there is an incomplete 41-page manuscript on the subject, maybe this citation will still add a little bit to it.

Now I should like to get to the main body of my talk. I am the consultant on a project which endeavors to ascertain the role of patents among other factors in the creation and development of small industrial units. What I attempt to do in this role is engage other people who are interested in these subjects to work along with us, to take on studies of particular industries; and we hope, after a number of investigations of this sort, to be able to derive certain inductive conclusions, certain generalizations, which could be subjected to further test. We might call these generalizations hypotheses.

Now, we have completed the first trio of studies. These are the ones that I am going to say something about today—I might say, a trio without music.

One of these studies dealt with the custom heat-treating industry. A second dealt with the electronics industry in the Boston area. And the

third dealt not really with an industry but with the gleam of one or more new industries based on the new technology emerging in the iron and steel industry.

I should like to say something about how we picked these three industries for study and how we picked others which you will hear about tomorrow.

Our object was not to pick industries which we know in advance to be important from the standpoint of patents but, rather, to pick industries which provide opportunities for small business. Then we investigate the role of the patent—among other factors, because we believe that the problem is a contextual one. No one can ascertain just what the role of the patent per se is. We aren't attempting to isolate this influence.

Our focus of interest is not on attempting to say just what an industry does because of, or would do without the patent system or patents. Obviously, there would be industrial activity even if there were no patent system or patents. We're not trying to evaluate the system as it now operates, although from our studies there may emerge a number of suggestions for improvements.

Now, I should like to say something about the findings of these three studies. I shall try to be very brief.

First, with respect to the custom heat-treating industry, which is an industry made up of firms that lie between the primary metal producers and the producers of metal goods. The firms in this industry are generally small. There are other types of heat-treating establishments, captive heat-treating establishments, which are associated with user industries. Those, however, were excluded from the scope of our study.

A number of these small firms indicated an interest in patent ownership and licensing, and a number of them had experience in these respects. However, the interesting thing that emerged from this study was that great store was set by know-how and unpatented but allegedly patentable inventions which were regarded as essential ingredients of the security of the surveyed firms.

One reason for this emphasis is that there is considerable art involved in these industries. The important patents seem to relate to equipment, but most of those patents have expired. There are certain improvement patents. But most of the patentable material arising in such an industry proper would relate to uses, and use patents, as Mr. Morton observed at last year's conference, are notoriously difficult to enforce.

The fact that you also have small market areas, geographically speaking, permits a few firms to arise near consumers and, by virtue of the special abilities and skills acquired through experience and over time, these companies may be able to maintain a viable position.

We also were struck with the fact that the trademark, about which we have not yet heard much at this conference, was considered important, especially from the standpoint of suppliers of materials and accessories.

Now I'd like to say something about the electronics industry in the Boston area. The reason we were interested in this industry was that many of the small businesses require considerable intellectual capital. We wondered if the patent played any special role in the establishment and growth of such industries.

Now, we found that in many of the firms, particularly those with scientific leadership, there isn't much business interest in patents per se. But, as some of these firms get closer to opportunities for commercial exploitation of ideas through large-scale production (rather than, say, Government research contracts), the interest in the patent becomes much more active. Eventually, a patent policy, or at least a positive attitude toward patents, emerges, to replace the negative or unformed attitude with which such firms may start.

Now I'd like to go on to the steel industry, which is commonly considered a monopoloid behemoth, if I may mix two images. At this point you may wonder just what the new technology has to do with small business in the steel industry. Well, many writers have longingly looked forward to the development of new technology permitting small-scale efforts to be economically pursued—in the reduction of iron ore, in the production of metal, and also in the continuous casting of the metal and in other processes which go on toward finishing.

Recently, it looked as though, with the development of the oxygen converter process, we had arrived at the point at which it would be possible to change the character of the steel industry through dilution—that many new centers of economic initiative would arise in the steel industry proper. From the investigations that have been made by Professor Weidenhammer of the University of Pittsburgh and some supplementary investigations of my own, it appears that this hope may remain only a hope. Right now, I am rather skeptical, and so is Professor Weidenhammer, that the character of the steel industry, with respect to ownership and control, will actually be changed by the new technology, as it makes its way in the next 50 or more years.

One reason for skepticism is a rather simple one: The new technology is available to established firms as well as to people who have not yet entered the industry, a point which is often overlooked. Even though geographic decentralization becomes easier when you have small-scale technological opportunities, existing large companies can set up small-scale processing stations throughout the country too. Geographic and ownership decentralization need not go hand in hand.

Then, also, there is another disturbing fact—that the threshold of investment remains quite high. For a viable small steel company it's important

not only to be able to reduce ore and make steel, but it's also desirable to have some finishing operations that serve local markets, that is, vertical integration seems inescapable, and it is a rather costly process.

Now I'd like to say something about the oxygen converter. The oxygen converter has been found a very practical alternative to the open hearth for making steel—steel of good quality, of low nitrogen content, for many of the volume uses which are now familiar to us. A number of companies have already shown interest in adopting this equipment. McLouth Steel Company, the pioneer in our country, set up oxygen facilities in 1954. Kaiser Steel and Jones & Laughlin have followed, and a number of other companies, like Armco, are experimenting with the idea. All the steel companies are watching technical developments rather carefully.

Evidence of the potential economic importance of oxygen steelmaking exists in the shape of patent litigation as well as patent activity. The first law case that has developed involves Kaiser Engineers and McLouth Steel—a suit and a counter-suit.

McLouth started operations in this country without reference to any interests that Kaiser Engineers have acquired through purchase of licensing rights from a European group. McLouth now seeks declaratory judgment that the Kaiser patents are invalid, and, in turn, Kaiser Engineers seeks to prove infringement on the part of McLouth.

Before I turn to other new processes that seem important, I would like to say to those of you who may be interested in the details of licensing agreements that we did not try to get such information from the companies. But, as often happens, trade publications do report various details.

For example, a recent issue of *Iron Age* (February 6, 1958, p. 57) points out that, under the license that Jones & Laughlin took from Kaiser Engineers with respect to oxygen steel-making, 20 cents per ton is paid in royalties, in a lump sum or on a running basis.

Now, I should like to say something about other aspects of the new technology. Not only does it involve the conversion of metal—raw metal, hot metal—into steel, but also the reduction of iron ore to iron. There are also techniques like continuous casting, in which Koppers Company is interested.

As for the direct reduction of iron ore, one of the companies that has a patented process near commercial introduction is Republic Steel. This company and National Lead Company have collaborated in developing the "R-N" process.

Continuous casting has been tried out by companies like Allegheny Ludlum and several others. Sooner or later those processes too will come into being.

Well, what about the role of small business in all of this? It did not seem to us that there are real opportunities emerging for small business in steel

ingot production, in reduction of iron ore, or in continuous casting. Nevertheless, our studies did suggest that opportunities of a supplementary or ancillary kind will arise for small businesses in other fields related to iron and steel making.

For example, at our conference last year we had a spokesman for Air Products Company tell about how it has been growing side by side with the steel industry. This particular company is one of several supplying oxygen or oxygen generators for use by steel companies—not only in the oxygen converter but also in the open hearth and blast furnace.

The technology of oxygen production on a large scale has improved considerably in the last 15 years, largely because of the needs for oxygen during and since World War II for military purposes. Accordingly, the cost of oxygen has gone down considerably. In 1949 if oxygen were used in the quantities now common for steel-making, a ton of steel would have probably cost \$2 more than otherwise.

So you see the importance here of a supplementary development that facilitates a more spectacular development of a new technology. Even though the new steel-making technology, in its most dramatic specific forms, may not hold promise for small business, these supplementary side developments may prove very considerable.

There are other things that I could go on to speak about. As you know, when you are engaged in these studies which lie on the frontiers of law, economics, politics, and policy, the temptation to engage in what is called “serendipity” is very great. And there are studies we would like to pursue that go a little beyond our present framework.

One of these studies deals with the question of the technological sluggishness of the steel industry. I am reminded about this particularly because Professor Carl Kaysen, of Harvard, is going to be on the program this afternoon. He and I were classmates at Columbia some years ago, and yesterday, while cleaning out some files, I ran across term papers he and I wrote on the steel industry in 1941. On looking over my paper again, I noticed that what I had said then about steel technology still seems applicable today—not because I was a seer but because I had succeeded in achieving conceptual completeness by virtue of a sufficient degree of generalization. The things that I said could hardly fail to be true. I talked of the importance of improvements in processes already existing rather than the introduction of radical changes. I also pointed out that materials-handling and other auxiliary operations would be mechanized. I noted that automatic controls were already introduced and that instrumentation would become important.

Notice that the steel industry, which often is considered to be technologically unimaginative, was interested in automatic technology two decades ago. The steel industry was already interested in so-called “automation,” a word which came into being in 1947 according to one claimant, in 1951 or



so according to another claimant who says he didn't know how to spell "automatization." [Laughter] So it's quite clear that the steel industry has had some vision with respect to certain types of developments.

I have to save for another occasion any comments I ought to make on the larger question of the comparative receptiveness of the steel industry to new technology, and the role of patents in that connection. Meanwhile, I hope you will eat something much less solid but something much more substantial than an ingot for your lunch.

Thank you. [Applause]

MR. DODDS: Thank you, Dr. Siegel.

We will now adjourn to lunch and save until after lunch the next progress report which was scheduled on the morning's program. The luncheon is in the Continental Room, which is right down the hall on this floor. We will reconvene here for the afternoon session at one-thirty.

[Whereupon, at 12:30 P.M., the Conference was adjourned, to be reconvened at 1:30 P.M., this date.]

## THURSDAY AFTERNOON SESSION

June 19, 1958

1:35 P.M.

MR. DODDS: Since we are still behind schedule, perhaps we can proceed without further delay.

As you probably know, there was one item on this morning's agenda which we did not reach, and we are going to handle that first this afternoon. This is Project 6a, "Public Attitudes Toward Patents, Trademarks, and Copyrights."

As in the earlier investigations on which you have heard reports this morning, this involves certain scientific and statistical methods, or, as I am told, a question of methodology.

Now, you heard Mr. Ellison say this morning that the validity of the results of an investigation was dependent, among other things, upon the original objectives, and I am informed that it's also dependent upon the methodology, whatever that may mean. It sounds to me like an example of what Mr. Harris termed this morning a "specialese," a sort of jargon created by any given profession to keep their trade secrets to themselves.

Now, Professor James N. Mosel is going to report on this project—a preliminary report on his investigation. Professor Mosel is associate professor of industrial psychology at George Washington University. He has been and is a consultant in various governmental agencies both here and abroad and did extensive research for the United States Information Service in Thailand.

He is now the recipient of a Ford Foundation grant for further work in Thailand.

Professor Mosel.

## Public Attitudes Toward Patents, Trademarks, and Copyrights (Project 6a)

### RESEARCH PROJECT REPORT

PROFESSOR JAMES N. MOSEL: Thank you very much.

I think the main results of our research can be summarized somewhat along these lines: If people don't have any information, they won't have any attitudes.

This project—public attitudes toward the patent system—was originally conceived to provide the Foundation data for public guidance for possible educational and information programs, to provide us with a knowledge of the ignorances and biases and misconceptions in the public's attitudes and thinking on patents.

So far, rather intensive data has been collected on about 250 students who are reasonably sophisticated. Some are engineers or technologists going to school part-time.

In addition to that, about 30 interviews with a small cross-section of ordinary laymen have been done, and I am still in a quandary as to whether to have this continued or not because the results are so disappointing. It's like looking for iron ore in the midst of the Sahara Desert.

What I'm going to report today is very preliminary, and it's based primarily upon the more sophisticated groups which we have interviewed.

Not too long ago I was in New York City. Coming out of the theater I met a man who also had been out for the evening, but not to the theater. He staggered up to me, and he said, "Buddy, where am I?"

I looked up at the sign, and I said, "You're at 52nd Street and Broadway."

And he said, "Skip the details. Just tell me what city I'm in." [Laughter]

So I'm going to skip the details and tell you what city you're in.

The first and most obvious thing about the attitudes of even reasonably sophisticated students is that they don't have any—nothing that we would technically call an "attitude." There are exceptions, of course, but on the whole there is nothing which to a social psychologist's criteria would pass muster as an attitude. Rather, there are what we might call predispositions to accepting attitudes.

By saying there are no sharply formed attitudes, I mean our respondents do not have pre-formulated ways of thinking about the patent system, integrated, consistent ways of thinking about it. They do not have a clear "stand."

If you ask a question, they will generate an opinion as of that moment, but this is not something which was in their head before you interviewed them.

If I asked you, for instance, "What do you think about putting an embargo upon lion skins in Uganda?" probably some of you would be foolish enough to give me an opinion. And if we wrote that down and reported this statistically, we would be doing a very stupid thing.

However, if we were to go to the lion-skin traders in Uganda and ask them, we would get opinions which meant something to them.

And that's the distinction I'm getting at here. Our respondents have predispositions to accept attitudes. For instance, in interviewing I had to be

very careful. My interviewers were unconsciously suggesting attitudes. And the reason they did this was because the respondents were so anxious to have somebody suggest what they ought to think.

Our respondents had certain leanings; they were on the *qui vive* in certain directions, but they had no formulated thinking. As we would say, their attitudes were unstructured and uncrystallized. But there were predispositions to accept attitudes. There was no doubt about this.

Part of this lack of clarity in attitudes is evidenced by the fact very few people are capable of making a generalization about the patent system. One of the things which you usually find in the case of attitudes is that they are generalizations. You have an attitude about large corporations, for instance, and you tend to generalize on that basis.

Here we don't find it very much. We find a lot of very fragmentary, inconsistent, discrete, unrelated judgments. The "all depends" type of answer was very common here, indicating lack of sureness. Replies were very unstable, easily changed. The slightest verbal pushing by an interviewer would make respondents flipflop their opinions. They seemed to be asking for information which would tell them what they should say.

This means that the research task is a very delicate one. You cannot use a lot of standardized procedures with check lists and pre-formulated answers which are merely checked. You can't use the "yes - no" type of questions.

You have to use open-ended questions—that is, essay-type response questions—which are very awkward to handle and are not subject to easy "statistification," (to coin a word). How do you like that word? [Laughter] I like it a lot, personally.

It means that you have to be very careful of interviewer bias. And, as far as I'm concerned, it means that I had to do most of the work.

But, even so, we have some rather interesting generalizations which I'm going to make, and skip the details, as I have told you. The details will be made available later; you can read about them in the *Journal*.

One thing that stands out is that many people accept the myths, the platitudinous stereotypes that we might expect people to have about the patent system. One of these, for instance, is that it protects the inventor and guarantees him a good financial return.

These are things which everybody, almost without exception, held to in one way or another. I'm not giving you per cents here because these results have a hundred per cent in front of them. You will also find this one: "Yes, by Jove, large corporations do skin inventors, and the patent system could be strengthened in this regard."

On one hand, people will say the inventor is guaranteed under the patent system of a nice return. And on the other hand, they will tell you that, "By

gosh, you've got to watch out for these large corporations because they'll cheat you." You see the discrepancy, the inconsistency. They're not too sure how these things fit together, but they believe in some way they do fit together.

The second thing is that there is a tendency to be very philosophical about the patent system. On the whole, people approve of it. They think it's pretty good. But when you begin to probe, as we call it, which means you stick the needle into them and then record the nature of the yell, they will begin to think of instances where there were malfeasances of justice and inequities, and they will say, "Well, this is all part of the cost. This is what you have to put up with. Nothing is ever perfect. I'm not too excited about it. It probably was due to the inventor's stupidity or his impracticality." And sometimes they will say, "Well, maybe he even had it coming to him." And, depending upon the person, "Onward and upward big business."

In other words, there is a very tolerant note here which in more technical terms we would say is simply a lack of involvement in the issue of the attitude. People aren't too interested. They have a low degree of intensity on this issue. Whatever vague beliefs they hold are held very lightly. That's why they can be so philosophical about it. Nobody ever raises his voice. Few speak earnestly—indicating a very low emotional attachment to the issue.

Another and extremely important point is that people in general have very low information support for their attitudes. They have very fragmentary and haphazard information, and it comes primarily from other people, not from literature or from things they read. Mostly from acquaintances.

It tends to be the "dramatic instance" type of information. "I have a great uncle who invented a cannon ball." Or, "My father-in-law, or the man who lives down the street, he knows an inventor who has a friend who is an inventor, and this is what happened to him."

This is the basis for this fragmentary personal-acquaintance type of information.

This means that a large portion of the informational foundation for whatever attitudes exist comes from social happenstance. It has no guaranteed source of delivery, no systematic reliability.

This is an important point because the purpose of this investigation, of course, is to tell us something about how to carry out an information program. On the whole, this low information support indicates that almost anything you do would make some sort of an impression. As I am fond of saying here, the *tabula* is mighty *rasa* on the patent system. Some *tabulae*, of course, are more *rasae* than others. But on the whole, this is a fairly clean blackboard on which you can write. There is very little warp to it. There are no strong counter-attitudes to fight against.

Interestingly enough, one of the main motivations to learn about the patent system is a very casual interest arising mainly out of curiosity over nov-

elties and new products. Much of the motivation to learn about the patent system comes from the respondent as a consumer. That is, he wants to know about it insofar as it relates to him as a user and buyer of products. And most of the information which people have, other than that which they receive from friends, simply relates to unusual interesting products, novelties—instant wine and things like that—which catch the eye and make good luncheon conversation, as was the case at my luncheon table today.

Information received about inventors primarily relates to stories about inventors who were cheated. We don't get many cases of the "get rich" type of inventor.

Now, I don't know which type of inventor is more frequent, but I can certainly say that there is a bias in which one is being talked about. Most everybody could tell you about somebody they heard of who was skinned. Not so many could tell you of anybody that had gotten rich from an invention, although they had heard this was possible. They often didn't know of any instance of it.

It seems like the critical, negative type of information flows a little more easily than the positive.

The other type of information, other than simply concern with novelty and being cheated, I'm sure will interest you. Almost without exception everybody was aware of at least one patent suppression story. And there was one that was particularly popular, and that was about a carburetor. [Laughter]

Another was Shelvador and its miraculous door.

And then there were a number of rather vaguely reported, the "something about" kind of story—automobile gasoline.

With respect to the specific information points, most everybody was vaguely aware of licensing. They understood that rights could be licensed. They had a vague understanding of Patent Office procedure, of patent search, and it's amazing how many people realized it didn't cost very much money.

Amazingly, many realized there was something to do with 17 years in holding on to patent rights. They weren't certain about all the circumstances that surrounded this, but that figure of 17 years came up many times.

Well, these are the main, specific information points.

Now, when you examine these predispositions that I speak of, it's very interesting in that many of a person's answers could be accounted for in terms of three main factors about him. These factors you might think of as the determinants are the predispositions to accept attitudes about the patent system.

The first of these was his frame of reference with respect to society versus the individual. Some people are, you might say, socialistic in their personalities. Others are individualistic. This is important. This is kind of mass society versus individualism. This would determine his replies to such issues as patent monopolies, the price paid to the inventor. For instance, if a person were of the mass society value type he would say, "Well, the inventor must submit himself to society. He must work for society. If he gets cheated now and then and it's to society's good, that's all right." The idea was that he was a servant of society; his ideas belonged to society.

If he was the individualistic value type, we had the opposite: "By gosh, we've got to protect him from being cheated. We must guarantee higher return on invention. And let's get after these big corporations."

This was the first thing.

The second was his mental picture of the inventor and of big business. There were some other stereotypes, but these were the two most important. People tended on the whole to have a firm stereotype on these two subjects. They differed, of course, but they had one.

The stereotype of the inventor, typically speaking, is that of a person with a lot of ability, a touch of genius maybe. He's rather long-haired and abstract, what you would call idealistic and altruistic. He works for the greater good and is not too concerned with money, although when he doesn't get it he squawks. [Laughter] But what he's really interested in is just inventing because he loves to invent. He gets a deep personal and artistic satisfaction out of inventing. He has to invent. And whether he gets paid a lot for it or not, he's still going to invent.

The third thing which determined a person's predispositions to believe about the patent system was whom he identifies with—at least at the time we were asking the questions. There are several possibilities here.

He could identify with the consumer. Most nontechnical people—that is, the laymen that I interviewed personally—identified with the consumer, and they tended to view the patent system in terms of its effects upon the consumer. What does it mean for me in terms of cheap products, good products, new ones?

If he was a technical man, however, he very often tended to identify with the inventor. That is, more rewards and protection.

If he were nontechnical and by occupation and education the type which is more identified with big business, then he would view everything in terms of the effects upon big business in terms of profits, in terms of investment, and so forth.

These are the three basic types of identification—consumer, inventor, or with big business. And some people would shift their identification through-

out the interview depending upon the issue. Apparently a few people really don't know who they themselves are anyway—consumer, capitalist or inventor. [Laughter] It depends upon the question.

With respect to the patent system itself, let me wrap up a few general comments about views on this. These points were held by most everybody.

First, it's mighty complicated. It inevitably involves delay and red tape. This was a negative element.

A very positive element is on the whole it's pretty fair, that it's doing a good job.

Thirdly, that on the whole it protects the inventor fairly well. Yes, he's skinned every once in a while, but mostly it's because he lets himself get skinned. He doesn't realize the value of his invention.

Interestingly enough, in most all of the instances where people thought that the inventor would be skinned they would explain this by saying, "Well, he doesn't realize the value of his invention, because otherwise, you see, he could hold out and get a bigger price." In other words, they pinned the responsibility on the inventor.

Another aspect of the patent system's image was that it certainly does help industry by providing rights and profits. This was a positively-mentioned point. On the whole they approved. No specific criticisms. Only broad, general, vague criticisms like, "It ought to give the inventor more protection."

With respect to whom the patent system benefits, respondents felt it benefits the public most. People are not sure why, but they figure that because it's a good thing, it must be good for the public. And if you try to pin them down, the one thing that most everybody mentions is that it brings us bigger and better products at lower prices.

You ask why, and if you push them in one way they will say because it builds monopolies, and if you push them the other way they say it builds competition. [Laughter]

The next beneficiary of the patent system was industry. Industry profits most after the general public.

And the last is the inventor. He profits least by it. But most people were philosophical. They said, "Well, he probably doesn't know the difference anyway."

Our replies to this kind of question were very, very conditional. People tended to say, "But it all depends on the invention." They didn't want to generalize, you see. Very careful and unsure.

As I said, they would very easily change their mind.



Their answers contained questionable information, questionable logic. And, as I said, they were very inconsistent.

Well, let me just point out one or two things which a public information program could certainly help people to know more about. These are themes which people did have ignorance on and wanted to know about. I will state them very generally just to give you the feel of them.

How are the patent laws made? Who influences legislation? Respondents felt big business and industry did most of the influencing. They felt patent attorneys could but probably didn't. They didn't think the inventor could do much at all.

They want to know more about this—who makes these patent laws.

Second, what is the story on an inventor's financial return? Do inventors make any money or not? What's the average income of an inventor? They were very curious on this.

And what's the story on patent suppression? How often does this happen? In our sample we found there were two kinds of people. There's a bimodal distribution, as we say. Two extremes. Those who said it happens very rarely, and those who didn't answer that way said it happens very often. Very little in between.

They also particularly were interested in how the patent system affects—favors—the consumer. What does it mean for me as a buyer of products?

And, lastly, what are inventors like? Who are they? How do they earn a living? What kind of people are they?

And there was a weak question implied in many of the interviews on, "How the devil do you get a patent? I've got an invention myself." [Laughter]

But most everybody was interested in the hazards which face the inventor.

And, lastly, curiously enough, and something which is certainly implementable: How do you find out about the patent system? Where do you go to get information about it? This is a point of great curiosity simply because apparently Americans like to store away not facts but reminders on where they can get facts.

It looks to me, in view of the fragile attitudes and the poor foundation of information, that there is a great opportunity for the Foundation to implement the words "education and information" in its credo.

Thank you very much. [Applause]

MR. DODDS: Thank you, Professor Mosel.

Now we come to an important part of this afternoon's session, and that is the report on the project "Effects of Certain Antitrust Decrees Involving Patents as a Major Factor."

A report on this subject has been prepared and will be presented by Mr. George E. Frost, a member of the law firm of Frost and Verhoeven of Chicago.

Mr. Frost was a member of the Attorney General's National Committee to Study the Antitrust Laws. He has been teaching patent and trademark law at John Marshall Law School in Chicago.

As in this morning's session, in order to facilitate an orderly discussion, we have invited Mr. H. Thomas Austern to discuss Mr. Frost's paper. Mr. Austern originally was trained as a patent lawyer and then strayed into the antitrust field. He was also a member of the Attorney General's National Committee to Study the Antitrust Laws. He is at the present time a partner in Covington and Burling, a law firm here in Washington, and is adjunct professor of law at New York University Law School.

So at this time we will call on Mr. Frost.

## Effects of Certain Antitrust Decrees Involving Patents as a Major Factor (Project 4a)

### RESEARCH PROJECT INTERIM REPORT

MR. GEORGE E. FROST: Thank you, Mr. Dodds.

The main item of discussion this afternoon, so far as the antitrust project is concerned, will be the study that has been made on the *Vehicular Parking* case.<sup>1</sup>

We are all familiar with the parking meter.

The pioneer in the parking meter field was a gentleman named Carl W. Magee. Magee was a newspaperman in Oklahoma City. He became interested in the parking meter idea in 1932.

By 1935 a major installation had been made accompanied by publicity of the kind that only a newspaperman can produce. However, the rudiments of the parking meter idea went many years back. Every coin-operated gas meter, every coin-operated hotel radio, and every coin-operated washing machine, included what amounted to a parking meter. You put the money in and it operated for a predetermined period.

In the 1920's there were various proposals to adopt a similar device for parking-meter use. A number of patents were applied for in 1930 and before.

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<sup>1</sup>United States v. Vehicular Parking Ltd., 54 F. Supp. 823 (D. Del., 1944).

One of those patents was a patent to a man named Doyle. The Doyle patent became of considerable importance later on. It showed a structure quite dissimilar to the modern parking meter, but it did have claims that as a matter of language seemed to read on a commercial parking meter.

The parking meter industry had its initial development in the years between 1935 and 1941. Aggregate sales by the time the war interrupted production were in the neighborhood of 150,000 meters. The concern called Dual Parking Meter Company was the leading concern. It was formed by Magee, and he worked on that company with a number of other persons who later became of considerable importance to the industry.

The second concern was Duncan Parking Meter Company, which entered the field after Magee had pioneered. Duncan entered because it was connected with a concern called Miller Meters that was making meters for other uses.

M. H. Rhodes of Connecticut was in the business of making timers—timers are used in the parking meters—and it was a natural thing for Rhodes to enter the field.

A concern called Karpark Corporation in Ohio was an outgrowth of the interest of a clock company in the business. It later merged with another concern, Parkright.

And then Mi-Co, the last of the major prewar outfits, was in the business of making ornamental bronze work sold to municipalities, and parking meters were apparently an interesting and logical field for them to enter into.

That was the status of the industry before the war. Dual was selling about 43% of the total number of meters sold, Duncan 17, Rhodes 15, Karpark 13, and Mi-Co 11%.

Vehicular Parking was formed as a patent-holding corporation prior to the war. The Doyle patent which Vehicular acquired at a fairly early stage was its principal early reliance so far as its patent assets were concerned.

The first Vehicular agreement involved Karpark Corporation. In 1939 Mi-Co took a license conditioned on patent licenses being taken by other concerns. Rhodes made a similar agreement except that in the case of Rhodes it was specific that Dual would have to join up before Rhodes' license became effective. Duncan made a very similar agreement shortly thereafter.

Magee of Dual resisted the patent license program. In June of 1940 Magee lost control of Dual, and shortly thereafter Dual took a license, thereby bringing into effect the contingent licenses taken by the other concerns.

Now, what about these licenses? What did they consist of? In the first place there was considerable evidence in the antitrust proceeding that from

the start the idea was that only a limited number of licenses would be granted—five or so—and no more.

Secondly, the licenses included price-fixing provisions. Those price-fixing provisions were not confined to the subject matter of the patents. They included unpatented items and went far beyond the scope of the patents.

The agreements further related to other subjects—agreement not to manufacture certain types of meters upon which there were no patents, agreement with respect to discounts, agreement with respect to patent infringement guarantees, and a whole list of provisions which had nothing whatsoever to do with the patents.

Now, I might just digress to this extent at this time. I think that if you will read the *Standard Sanitary* case<sup>2</sup> carefully, you will find that that case alone was quite decisive on the legality of these agreements and you don't need much more by way of law to support the Justice action.

The Department of Justice brought its civil action under Section 4 of the Sherman Act against Vehicular Parking and the various licensees. On March 28, 1944, Judge Leahy entered decision in favor of the Government. He held the agreements null and void. He enjoined suits for patent infringement and collection of royalties.

At that time the *Hartford-Empire* case was currently before the Supreme Court. After the *Hartford-Empire* case was decided Judge Leahy entered a final decree which provided for compulsory licensing at reasonable royalties. He rejected the effort of the Government to obtain royalty-free licensing.

Now, what has happened to the parking meter industry since Judge Leahy's decrees?

In the first place, we cannot determine precisely the effect of the decree because the resumption of postwar parking meter production and the decree occurred almost simultaneously.

Secondly, the big development in the industry subsequent to the decree is the entrance of Magee-Hale into the industry. The company was organized in 1945 by Carl Magee and three others, all of them concerned with the old Dual Company. They invested no more than approximately \$70,000 in the enterprise. The profits of the enterprise in 1947, according to their books, were \$105,000, in 1948 \$173,000, in 1949 \$164,000, and all of those figures are after deduction of payments to the owners of the business, which in 1949 were \$190,000. It was a tremendously profitable enterprise.

Magee-Hale produced a meter which was designed by Gerald Hale. He had designed the original Dual meters. He knew of the Vehicular patents. He decided he was just going to face them. And the meter was later charged as an infringement. The work started prior to 1945 on a personal basis before the corporation was organized.

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<sup>2</sup>*Standard Sanitary Mfg. Co. v. United States*, 226 U. S. 20 (1912).

Magee-Hale subsequently sought a compulsory license from Vehicular. Magee-Hale took a rather cavalier attitude towards the whole proceeding. One of their main contentions was that the reasonable royalty ought to be zero and they shouldn't have to pay anything.

The matter was referred to Arthur Connolly, a special master. He took testimony and ultimately entered a preliminary report which provided for a 3% royalty. That compares, incidentally, with the 4% royalty that Vehicular was charging under its patents.

The Magee-Hale stockholders then purchased the Vehicular patents and paid about \$95,000 for the patents. This brought the matter to an end so far as Magee-Hale and Vehicular were concerned.

One additional thing about Magee-Hale. At one time it looked like Magee-Hale was heading for a very dominant position in the industry. Subsequently, things have changed and that is not so. But it's rather interesting that we have this new company, highly successful in a dollars-and-cents way, and at one stage at least it looked like it was heading for a very, very strong market position.

The other interesting point is the entry into the industry of International Meters. Now, International Meters took an approach quite different from that of Magee-Hale. The company was formed in 1945 by American LaFrance Foamite Corporation, maker of fire engines and other products sold to municipalities. The meter put out by American LaFrance and International was designed around the patents owned by Vehicular.

We have carefully reviewed the meter, and we don't see how there could be any legitimate charge of patent infringement in that meter construction.

The meter, unhappily, was unsuccessful. We are fortunate in the fact that we have managed to get hold of some reports by municipalities with respect to the performance of the meters, and we know that the criticisms of the performance of the meters were on reliability items—water leakage and things of that kind, which could have no possible bearing on the patent aspects of the situation.

International sold the total of about 4,000 meters, and in 1952 the business was sold to Mi-Co Company, which has since made the International meter.

Currently the line-up in the industry is about this:

Duncan, which was one of the major prewar concerns, is making about a third of the meters, probably somewhat more than a third.

Magee-Hale is making about a third of the meters.

Dual, which was making 43% before the war, is now making around 10%.

Mi-Co is making around 10%.

Karpark and Rhodes are each selling considerably under 10%.

Now, what conclusions can we draw from all this? Where does this lead us?

In the first place, there is no reason whatsoever to believe that the decree has been less than effective so far as ridding the industry of the price-fixing agreements and the related matters. Nothing has come to our attention at all that sheds any doubt on that.

Secondly, in terms of putting new concerns into the industry, it seems that the decree has had very little effect. International designed around the patents owned by Vehicular. Therefore, those patents couldn't have had any significant effect there. Magee-Hale was prepared to fight on the patents. It could fight on the patents. It did fight on the patents. And in the case of both International and Magee-Hale their real activity started well before the decree and at a time when it was anybody's guess as to what the decree would ultimately contain.

What has been the effect of the decree in terms of research and innovation? This particular industry we're dealing with is an industry that is characterized by application engineering. Patents are rarely of key importance. For that reason, from the start, there was probably not much prospect that the decree would greatly reduce the stimulus to innovate. There wasn't much to begin with.

The only significant innovation in the postwar years has been the Duncan automaton meter.

Now, those of you who are familiar with parking meters know there are really two basic types. One is the kind you put the coin in and turn the handle to wind it up. The other is the kind where you put the coin in and it sets itself automatically. The latter type, the so-called automatic meter, requires a maintenance man to go around and wind the meters every week.

The Duncan Automaton meter was based on the principal that the operation of inserting the coin would wind up the meter as necessary to make it work for the predetermined time. The sales of that meter have been anything but impressive. Perhaps Duncan could have pushed this meter harder, but in any event the sales are not likely to encourage innovation by others. And this experience has nothing whatsoever to do with patents.

Now, what about royalty-free licensing? What has been the effect of Judge Leahy's refusal to grant the royalty-free licensing? I think in this instance the major point is one of convenience. It would have been convenient perhaps for Magee-Hale not to have become involved in the proceeding it was later involved in. I must say though that in view of the record of that company, the proceeding was peanuts compared to all the other aspects of the business operation.

Now, finally, just a few caveats. First, we're dealing with an application engineering industry. Secondly, we're dealing with an industry which had

an extreme case of anti-competitive activity in the agreements. And, thirdly, we're dealing with an industry here where there never was an opportunity for any really basic patent coverage.

And, subject to those caveats, we have here an industry that I think it's fair to say the decree didn't greatly influence people to enter. It's a decree that has had no demonstrable effect at least in influencing innovation and change.

With that I'll stop for the moment. If we have a few minutes later on, I'd like to tell you just a very little bit about a study we're conducting on the *Technicolor* case.

MR. DODDS: Thank you, Mr. Frost.

As in the morning session, before we have a discussion of Mr. Frost's presentation, perhaps during Mr. Austern's discussion, if you gentlemen would write out any questions which you may wish to submit either to Mr. Frost or to Mr. Austern, it will expedite the proceedings after Mr. Austern's discussion.

With that, I should like to call on Mr. Austern.

#### DISCUSSION

MR. H. THOMAS AUSTERN: Thank you, Mr. Dodds.

Professor Mosel has illuminated my basic difficulty in this field. I'm somewhat in the position of the old lady who once observed, "How do I know what I think until I hear myself saying it?" [Laughter]

Even though this report that Mr. Frost has summarized for us is but an interim report of the Foundation on the effect of the compulsory licensing provision in the parking meter judgment, anyone who is privileged to examine it will readily agree that it follows the splendid pattern of the first Foundation study on the concrete block making machine industry.

What you will find is a penetrating and detailed factual study that is thoroughly documented. And, in general, I suggest to you that no one can disagree with the value judgments that have been reached by Mr. Frost and the other authors of the study.

Nevertheless, I find myself wearing a badge with a horrible word on it called "Discussant." I don't know what that means, but I suppose it requires that I discuss the report even though I can't say "Vehicular." [Laughter]

Perhaps the first generalization that one may make is that no generalizations are possible as to the utility of compulsory patent licensing provisions in antitrust decrees or as to their effect in restoring or creating competition in an industry that has been fettered by illegal conduct.

As the Supreme Court suggested in the *National Lead* case, both the necessity for those provisions or their probable efficacy turn entirely on the specific facts of a particular industry and its antitrust history.

The key fact is the importance of patents in the industry, whether they are product or process patents, and, cardinally, in an antitrust case, whether the patents were the basic mechanism of the antitrust violation or whether they were simply verbal clothing for illegal arrangements independently developed and that might have occurred wholly apart from the patents.

In other words, gentlemen, were the patents what the Attorney General's Committee termed "integral" to the antitrust violation?

Moreover, as Mr. Frost has suggested, in any economic analysis of the post-judgment developments in an industry, particularly where a war period intervenes, it is often very difficult to isolate a single factor as responsible for any major change in the industry structure.

The complexity and variety of development in any industry make that kind of oversimplification very hazardous indeed.

Now, I shall avoid the temptation to rehearse with you the violent debate that occurred in the Attorney General's Committee's deliberations as to whether there is any judicial power, or whether it is constitutionally proper, ever to require compulsory royalty-free licensing in an antitrust judgment. We might have very heated and perhaps provocative arguments as to whether a patent is a conditional grant or a species of property, and the bearing of all of that thinking on antitrust violation consequences. And, therefore, I am going to avoid the issue, if only in deference to Professor Oppenheim's "until death do I stand" feeling about it.

But I did find a faint echo of it in Judge Leahy's final determination in the parking meter case. He said that under the *Hartford-Empire* decision he had no power to decree royalty-free compulsory licensing.

Next, I suggest to you that it is very difficult to escape the feeling that in many instances the Government lawyers in the Antitrust Division exaggerate the importance of patents where there is an antitrust violation. And there is very little basis, I suggest, for its view that compulsory licensing of patents would be a material factor in creating more vigorous competition in any industry.

Indeed, as most of you know, there are numerous situations, not yet made the subject of a study by the Foundation, which on their face might suggest to you that the importance of patents in antitrust judgments has been over-emphasized.

In one well-known litigation where the Government strongly stressed the existence of both process and product patents and where reasonable royalty licensing was required, there have steadily been new entrants into the field



who have never bothered to ask for a license, and, indeed, the two principal defendants very shortly abandoned their own respective cross-license agreements.

Moreover, as has been pointed out here today, where process patents and not mechanical or engineering product patents are concerned, as for example in the chemical or in the food industry, it's rather doubtful whether compulsory licensing alone without know-how provisions would be at all meaningful. Without know-how, many process patents, even when required to be licensed, would not pry open competition.

In that sense the present study, unfortunately, was limited because in the parking meter case, there was no necessity for know-how provisions and no judgment requirements as to future licenses of future patents or pending applications.

Now, for me, gentlemen, one of the intriguing parts of the present study which is to be published was the master's determination of what is a reasonable royalty. As Mr. Frost suggested, he rejected what the illegal combination had been charging as a royalty, and, quite properly, disregarded a non-arm's-length transaction within the industry in the Magee-Hale Company. What he really did, I think, was to pull a reasonable royalty rate right out of the air. And in doing so he said:

It might be noted in passing that a meticulous calculation of a fair-patent royalty is, for all practical purposes, a physical impossibility. The field of economics is not subject to the uncanny precision of mathematical sciences such as astronomy and electronics, since, unfortunately, businessmen do not behave like heavenly bodies or charged particles. To strive for such precision would serve only to defeat the purpose of this reference.

Of course, that is neither sound astronomy nor knowledgeable physics. In astronomy, the factors may run plus or minus thousands of light years; and in quantum mathematics there is a rather ubiquitous principle of uncertainty. But it's very good law—particularly since, as Mr. Frost told you, the master concluded that a royalty of 1% for any one of the four patents would be fair, and that the rate should include a quantity discount of a 3% royalty for all four patents as a package.

In my view, the number of post-judgment proceedings to determine a reasonable royalty under one of these antitrust judgment provisions has been surprisingly few. That situation not only possibly reflects the practical unimportance of these compulsory licensing provisions, but it may also be attributed to the administrative difficulties encountered in fixing reasonable royalties, about which you gentlemen know far more than I ever shall.

Perhaps some day there may be an intriguing case, in which we shall find Mr. Frost, in which the question will be argued whether the term "reasonable royalty" in an antitrust judgment is to have the same meaning and application that that term will by then have developed under Section 284 of

the 1952 Patent Act for infringement cases. That delicate and intriguing question was very gently tilted at in the Attorney General's Committee's report.

It remains, for me, a very nice question whether in fixing a reasonable royalty under an antitrust judgment provision the basic antitrust objectives may not properly be echoed in a lower royalty.

Next, buried in the parking meter litigation is another oddity that Mr. Frost did not mention and that I shall take the liberty of noting.

As he told you, one of the new entrants into the business, after the antitrust judgment, Magee-Hale, was threatened with an infringement suit. It walked into the antitrust court, intervened, and asked the court to determine a reasonable royalty. But at the same time the intervenor asked leave to reject the license if it did not like the royalty that the court would fix.

Well, that was too much for the judge. He ruled that if a reasonable royalty was going to be determined, the applicant would have to take the license. And, moreover, in referring the royalty issue to the master, he foreclosed any inquiry into the validity of the patents.

As a final observation, if you will indulge me, on the antitrust bar and the patent bar—I gather that Professor Oppenheim does not recognize any special discipline in either—antitrust lawyers, in working out an antitrust consent judgment, very frequently throw in a lot of patents because they know that the Department of Justice thinks getting them is a great achievement. [Laughter] Doing that, obviously with the consent of the client's management, often pains members of the patent bar. Many patent lawyers seem to have an abiding affection for any issued patent. Antitrust lawyers, I have found, are far less enamored of something called a patent, possibly because we are more pragmatic; and if we have on occasion pained you, I hope you'll be indulgent. [Applause]

MR. DODDS: Thank you, Mr. Austern.

Now, may we collect any questions which any of the group here have made out, and we will refer them to the people who have discussed this subject.

While we are collecting the questions, Mr. Frost says he has an afterthought.

MR. FROST: I would just like to make a few comments on some of the things that our good friend, Tommy Austern, has touched upon.

First, with respect to the matter of validity, the court certainly had no patience with people coming in asking for license and at the same time asking to contest validity. I think really the point is rather academic. I don't really expect it will ever come up again, for this reason:

In the first place, there is no reason on the face of the earth why an applicant couldn't apply for a license and then at some later date simply cancel the license.

Also, in the more recent antitrust judgments the Department has put in provisions, or the courts have put them in, which have enabled the recipients of licenses to have an unquestioned right to contest validity.

So that for those two reasons it's doubtful that this situation will repeat itself.

Now, I just wanted to add a couple of comments on this question of what is a reasonable royalty. As Tommy points out, there is a provision in the Patent Code with respect to damages for patent infringement—not less than a reasonable royalty. So we have the word right in there. And the question arises with respect to whether or not in an antitrust proceeding the “reasonable royalty” would be the same thing as the reasonable royalty in the case of a patent infringement proceeding.

The matter comes up in the tax cases. It came up in the *Magee-Hale* tax case. The Commissioner disallowed the deduction to the corporation of the \$4 per meter which was paid to the principles in the corporation. Why? On the ground that it was unreasonable as a royalty.

And, incidentally, the Tax Court held that the sum was reasonable.

Thirdly, the matter comes up in the Atomic Energy Commission.

And, fourthly, in the Court of Claims, the decisions are fundamentally, when it comes to the matter of dollar value, turning on reasonable royalty.

So we have reasonable royalty coming up in a variety of atmospheres.

Now, it is true that you can get a rather critical attitude in an antitrust proceeding. I have particularly in mind a case which I know of where a litigant had been held to have violated the antitrust laws. The case was then referred to a master for accounting. The master never got it out of his head that, “Here you have been held the violator. You are a criminal offender. I'm not going to waste much time on you.” And, of course, that is hardly a very good atmosphere in which to be establishing a reasonable royalty.

And I think that was what Mr. Austern perhaps had in mind—that type of situation.

It hasn't happened in every case. In the *Magee-Hale* case, specifically, Mr. Connolly in his preliminary report certainly didn't prejudge anything, as near as can be determined by reading it. He refused to accept the arguments that because there had been a violation of the antitrust law and because this was an industry where supposedly profits were very low that the license rates ought to be very low. He took more of a conventional approach.

He noted the fact that the Magee-Hale people had not introduced the patent file wrappers, had not introduced evidence as to the conduct of the proceedings on the patent before the Patent Office.

Now, that sounds like a conventional infringement proceeding, does it not?

It seems to me that at least in this instance there is a good deal to be said for the proposition that Mr. Connolly took an approach that made reasonable royalty under the antitrust proceedings somewhat similar, not identical, to—

MR. AUSTERN: Is he a patent lawyer?

MR. FROST: He is a patent lawyer. Maybe that's the answer. Maybe that's what this all proves—that we shouldn't ever let an antitrust lawyer be a master in a case of this kind.

But, in any event, he did end up following what at least I would call conventional patent infringement tests of reasonable royalty.

MR. AUSTERN: I wonder if I might underscore something? I thought I was going to get an argument out of Mr. Frost, but I got full agreement so I think I'll go on and agree with his observations.

This question of what happens in post-judgment proceedings in major antitrust litigation is somewhat psychological. The only way I can illustrate the psychology that you encounter, as delineated by Mr. Frost, is to mention a case where the antitrust judgment required the sale of machinery at reasonable prices. One fellow didn't like the price he was asked to pay, and he asked leave to intervene in the antitrust case. Both the defendant and the Department of Justice opposed the intervention. You may be assured that I was somewhat startled in court to hear the judge say to this man, "I'm inclined to deny your motion to intervene, but I'll tell you what to do. You frame a couple of issues and we'll try them to determine what the machine is worth."

Shakespeare once observed that he bears no scars who has never felt a wound. And only those people who have been beaten and bloodied by an antitrust indictment and trial and conviction and subsequent civil judgment may quite appreciate the antitrust atmosphere.

Therefore, I think that the ultimate point that emerges from this agreement, rather than debate, is that if any of your clients are subjected to one of these "reasonable royalty" provisions, a certain degree of restraint and discretion and willingness in fixing a reasonable royalty is probably better than going into court and having it out in Fourth of July speeches before a judge who has previously found you guilty.

MR. DODDS: Thank you, Mr. Austern.

I seem to have a bashful audience. I have only one written question, which I will direct to Mr. Frost.

"Is there any implication in the *Vehicular Parking* decision that a separate royalty must be placed on each patent in a license agreement involving more than one patent?"

MR. FROST: Well, I hope that Mr. Austern here will add to my remarks on this. I would certainly say this: That what actually happened in the case was this: That a license was offered to Magee-Hale, and the license was a package license, and they refused to break it down into individual licenses. Then Mr. Connolly in the proceeding on the reasonable royalty held, as Mr. Austern has indicated, that the royalty should be 1% for each of the patents except that we have this quantity discount of 3% for four of them.

Now, it seems to me that cuts both ways, does it not? In the first place, as a practical matter, it indicates that, yes, we can think in terms of at least a lower royalty for the group than for the sum of the total parts. On the other hand, it is consistent I should think with the idea that they must be willing to license under any one patent at the 1% royalty figure.

So it seems to me that in the *Vehicular Parking* case you can look at it either way and that what Mr. Connolly was really doing was striking a compromise, and I'm not so sure that it's a compromise that some of us as a practical matter wouldn't find ourselves in agreement with.

It seems to me that what was going on in his mind must have been that surely it's easier, practically, to have a license under four patents than to have four licenses separately under the four patents and that that ought to be reflected in royalty rates.

And so, to that extent, it seems to me that we can't read the decision as requiring individual licensing on a proportional basis. On the other hand, the decision speaks for itself on the proposition that there must be willingness to grant the licenses separately.

Now, again, just apart from the *Vehicular Parking* case, I'm sure that we will not find any antitrust decisions that have gone to judgment in favor of the Government where people will be able to insist on package licensing.

Tommy, would you like to add something to that?

MR. AUSTERN: I think I had better stick to the rule that we do not discuss pending cases. On this point, however, I think perhaps two things might be said. I would rather stick with the *Vehicular Parking* record. You did not have a judge there; instead you had a master. We have identified what Professor Mosel would call the basic attitudes of the master. He did seem to believe that it's cheaper by the dozen. [Laughter] And he did seem to indulge in the notion that "a patent is a patent is a patent"—[Laughter]—and individual patents are not to be regarded.

I do suggest to you, however, that this problem, if it is going to be put into the hands of a judge, namely, the problem of determining what is a reasonable royalty where the company is required compulsorily to license on a "reasonable royalty" basis, may get a good bit stickier, because the usual antitrust pattern is not only to require reasonable-royalty licensing of existing patents but, very frequently, and almost universally in consent judgments, also to require licensing of all patents obtained within some future period, such as five years or ten years.

You may, therefore, have some difficult problems as to whether your patent package is an open-ended package. And if you have licensed a group of patents as a package and then later you have an additional patent or two to talk about, where are you going? I simply do not know the answer.

MR. DODDS: We seem to be in the unusual and happy situation of being now a little bit ahead of our schedule. If anybody has any questions they would like to propose from the floor, I am sure Mr. Frost would be glad to field them.

Mr. Asbury?

MR. ASBURY:<sup>3</sup> Suppose that one of these four patents had been the very best patent of them all. Does George feel that you could have charged 3% or 4% for that one patent?

MR. FROST: Well, certainly as far as Mr. Connolly is concerned, I think he would say absolutely yes. But let's not forget the record before him. He had the patents before him. He had certain parking meters before him. And that was almost the end of it. He had a very fragmentary record. And I think we must not overlook that fact in relation to this proceeding. And I'm sure that the answer to your question would be yes, with the record difference.

MR. GARY:<sup>4</sup> Mr. Chairman, would Mr. Frost discuss the difference, if any, in the selling prices of meters prior to 1941 and currently as compared with a normal increase as a result of the inflation we have had?

Can you discuss that, George?

MR. FROST: I'm sorry, Mr. Gary. I can't add much to that—and I'll tell you why. It seems to me that that is very clearly one of the areas where the intervention of the war and other economic events, particularly the inflation, would render any figures quite unrealistic.

That there are very large profits in the industry, at least for the successful concerns, we do know. Magee-Hale's experience is of that kind.

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<sup>3</sup>Willard C. Asbury, Esso Research & Engineering Company, Linden, New Jersey.

<sup>4</sup>Lee J. Gary, patent attorney, Chicago.

Prior to the war there are figures, if my memory is correct, of between \$35 and \$45 for meters. Subsequent to the war, in let's say 1947 and 1948, the figure of \$50 or \$60 per meter would be a fairly comparable figure. But, as I say, I don't think it means too much because too many things happened, and I'm afraid that with respect to that subject we have to go to a different case than this one.<sup>5</sup>

MR. DODDS: If there are no further questions, we will take a five-minute break before the next session of the afternoon.

[Whereupon, a short recess was taken].

MR. DODDS: Gentlemen, may we come to order?

Now we come to the second session of this afternoon's conference which is devoted to a discussion of current issues. This session is going to be moderated by Mr. John Green, consultant to the Foundation, Director of the Office of Technical Services and Executive Director of the National Inventors Council, both of the Department of Commerce.

Mr. Green.

## Special Session Devoted to Discussion of Current Issues

MR. JOHN C. GREEN: Gentlemen, I invite your attention to the program where it says, "Special Session Devoted to Discussion of Current Issues," and then, and most important, "This session will be so organized as to encourage maximum participation from the floor."

Now, the staff of the Foundation, when they prepared the agenda, decided that the way to encourage maximum participation from the floor was to seek out a panel of intelligent, articulate, informed people who had ideas and who had opinions and who weren't afraid to voice them.

Well, frankly, they were unusually successful. They got together two eminent patent attorneys, both of whom are well known to this group. They got together a representative of that I'm afraid vanishing breed, a successful private inventor. And they got an economist with a national reputation, a professor of economics at a leading university.

These gentlemen have assured me that they are going to be concise, provocative, controversial.

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<sup>5</sup>A more detailed discussion of comparative prices is included in the final report on the Parking Meter judgment. The current meter prices are somewhat less than would be expected from the prices in the Vehicular licenses and declining dollar values. It is not felt, however, that the difference can be definitely attributed to the antitrust judgment in view of other events, especially the maturity of the industry.

This means that the audience will have much to chew on.

Before beginning, I'd like to say that we are going to vary the program slightly. Instead of asking for written questions at the end of the four direct presentations, there will be a floating microphone and I will invite questions from the floor.

If you don't mind, in order to assist the man operating the mike, I will identify the person, and if that person then will give his name and his question, we hope we will have a lively discussion.

Now, to lead off, I would like to introduce Mr. Theodore Kenyon, who has been a partner in the firm of Kenyon and Kenyon for nearly 40 years. He is a past president of the New York Patent Law Association, all in all one of the most distinguished and able members of the patent bar.

Mr. Kenyon. [Applause]

MR. THEODORE S. KENYON: Well, I have been given 12 minutes, and I am putting my watch here, and I won't waste time with preliminaries.

My purpose in coming here is to present what I think would be the most important and useful contribution to the improvement of the patent system.

There are many suggestions that have been made. There are bills before Congress. There are studies. But there is one which has seemed to me for many years to be the most fruitful.

It is not my original idea. It was a part of the Bryson Bill from which the Patent Act of 1952 developed. But it was eliminated because there were some objectors, and the purpose at that time was to present a bill which was not controversial.

Briefly, this proposal has the purpose of permitting the publication of pending applications at any time during their prosecution and then giving to the published application the same force and effect as an issued patent in carrying back the inventor's date of invention to the filing date of that application.

The reason why I think that this is the most important way in which the patent law can be improved is because, on good authority, it is likely to reduce by 25% the number of marginal applications and patents with which the patent system is burdened today.

I believe the most serious difficulty existing in the Patent Office itself arises from the tremendous mass of applications which are descending upon the examiners and the workload which each examiner is required to cover. If they had fewer applications to process they could do a better job.

The result of the present overload, despite the great ability of the examining corps, is that "scarecrow" patents do issue, and they are one of the great problems and sources of criticism of the patent system.



Now, this proposal can be effected very simply by incorporating in the law sections 102(e) and 121 of the Bryson Bill, H.R. 9133, which read as follows:

§102. A person shall be entitled to a patent unless—

(e) the invention was described in an application for patent by another filed in the United States before the invention thereof by the applicant for patent, which first-mentioned application issued as a patent or was published in accordance with Section 121.

§121. Pending applications for patents may be printed and published by the Commissioner at the request and at the expense of the applicant or owner. Such publication shall have the same effect as an issued patent for the purposes of Section 102(e) of this bill.

The combined effect of those two changes would be to permit the publication of an application at any stage in its prosecution. The owner of the application would then have evidence of constructive reduction to practice at the time of the filing of that application, just the same as if he had gotten a patent. But, of course, he would have no monopoly.

One other suggestion that I think should go with this is a new paragraph in Section 41 relating to fees, and that would be a paragraph providing that on the publication of an application the fee shall be a certain number of dollars per page of specifications or drawings. I would make that \$25 or \$30 per page in order to discourage the publication of useless things and to limit this practice to those applications which the owners feel are of sufficient importance to justify payment of such a fee.

The plan would not require any other change in the law nor otherwise affect the applicant's rights. He could go ahead and prosecute his application, if for any reason he felt that somebody else might get a patent if he didn't, the only difference being that he would be prosecuting in public and his opponent would presumably be prosecuting in private. He would not lose his right to get a patent if he wanted. But it would mean that he did not have to get a patent in order to have the benefit of his filing date as proof of reduction to practice.

I may add that Mr. Frost in his study No. 2<sup>5a</sup> has discussed and I think approved this proposal at pages 62 and 63, and it was in reading that that I got revived hope that such a change might be made in the patent law.

Now, what would be the effects of this proposal? It would apply primarily to applications which are called "defensive applications"—those which are filed in order to protect the manufacturing rights of the applicant

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<sup>5a</sup>*The Patent System and the Modern Economy*. Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, 85th Cong., 1st Sess., 1956.

where he is not so much concerned with getting a monopoly as he is with having the continued right to make the thing which he has invented.

Mr. Frost has estimated—I don't know where he got his data but I'm glad to accept it—that something like one-quarter to one-third of the total number of pending applications are of that character. And these include the cases which in many instances are prosecuted with the utmost determination by the applicants because the owners of those applications realize that if they cannot obtain allowance of at least a single claim in that application it has to be abandoned. All the time and expense of that application will be lost. Worse than that, as an abandoned application it may throw some cloud upon the sufficiency of the proofs which the applicant may some day have to present if it ever becomes necessary for him to establish the date of completion of his invention from his own records, drawings, data, and corroborating witnesses.

Because of the pressure which is applied to the Patent Office in cases of this character, patents are too often granted which are not worth the paper they are printed on, and they become a distinct disadvantage to the rights of the public generally.

So I think it is fair to say that the following advantages would arise from the adoption of this proposal:

In the first place, the applicant would be relieved of the difficult task of proving the date of completion of his invention from records and witnesses. The application itself would be incontrovertible proof for all to see that as early as the filing date he had constructively reduced to practice exactly what the application discloses.

Second, and most important to the Patent Office, the proposal would relieve it of the enormous workload involved in acting on a great number of applications in this marginal category.

Third, the public would be relieved of the issuance of these scarecrow patents.

And, finally, and perhaps most important of all, the public domain would be enriched by the acquisition of the disclosures contained in these applications.

May I have one minute more? Perhaps one will say that the applications I am talking about are of little interest to the public because what they contain is already in the prior art. But these applications may show it in much more practical and useful form, and as public applications they will be filed and classified with patents where they will be readily available for search.

I have never heard any reason opposed to this proposal which seemed to me of much consequence. And because the Patent Office does need help and we all of us are interested in avoiding the issuance of scarecrow patents, I think this simple proposal ought to be put before Congress and pressed forward.

There is a pending bill, S. 2277, which I think misses the point entirely. It is only applicable to cases which have been rejected in their entirety and which disclose an embodiment of an invention. If you have to meet those two requirements, the whole problem is still before you.

I think that the quoted provisions from the Bryson Bill are exactly what we ought to have today. [Applause]

MR. GREEN: Thank you, Mr. Kenyon.

If you would be kind enough to make a mental or personal note of your questions for Mr. Kenyon, in the interest of staying on schedule we will move ahead.

Our next speaker is Mr. Floyd Crews. We sought to match the competence and reputation of Mr. Kenyon for successful practice. He is also a representative of a firm of similar name. In the first case it was Kenyon and Kenyon, and in this it's Darby and Darby.

He is at present a trustee of Lynchburg College and has been a lecturer at the Practicing Law Institute in New York for at least 10 years. He is a very well known and able representative of the patent bar.

Mr. Floyd Crews. [Applause]

MR. FLOYD H. CREWS: Thank you very much.

I am able to do some things but not to keep hold of my own briefcase. It looks just like that one that was apparently left in its place. But if any of you here have it, I'd sure like to have it. It has in it the notes from which I was planning to speak.

I have jotted down what I could remember while Mr. Kenyon has been talking, and I will try to give you what I was planning to give you.

Among the issues that have agitated the patent bar in recent years, there are the questions of the backlog in the Patent Office, the long-pending applications, the 20-year bill, the publication of applications that Mr. Kenyon spoke of, the delays and complications and expense in interferences, the question of oppositions, the delays in the Board of Appeals, more money for the Board of Appeals, petty patents. And I know that I had on my list 10, and that comes out only to nine, so there is one I have forgotten.

About two years ago I sent to Senator O'Mahoney's committee a proposal for a change in the patent laws which I hoped would be an improvement, with the thought that if it proved to be good enough to survive initial study it might be worth public discussion. Mark Hollabaugh has remarked about the plan several times with considerable approval, both publicly and privately. He is now gone from the committee, and I suspect that it has been lost in the shuffle.

So I thought perhaps I would take advantage of this opportunity to bring it out in the open.

My plan, if adopted, would affect every one of the issues or problems that I mentioned. So, in talking about it, instead of any one particular issue, I hope to kill, or at least severely injure, 10 birds with one stone.

Now, this plan that I have in mind may be stated in its basic elements very briefly and simply. It is that there would be only two office actions on the merits in the Patent Office on an application, following which the patent would be issued with allowed claims and also with unallowed claims. The unallowed claims would appear provided you took an appeal. And the term of the patent would start to run. You would take your appeal after the patent issued. If you got further claims allowed on appeal, you would get a certificate of further allowance. If another appeal was necessary, you would get a further certificate, another certificate of further allowance, and your claims would be effective as patented claims upon the issuance of those certificates.

That raises immediately the question of whether or not those claims would have retroactive effect. I think that they should not, for several reasons which I will discuss later.

But whether they were retroactive to the time the patent originally issued or not, all the claims would expire at the same time.

Now, this plan has, in the first place, one obvious advantage—that it would get patents issued promptly. It has the advantage of publication that Mr. Kenyon has suggested for the scheme he proposes, which I think is excellent and also should be adopted. This is not inconsistent with that scheme. In fact, you could incorporate that scheme into this one by simply providing that a man need not make any claims at all.

So in the case of this 25% or 33% of defensive patents where the man doesn't really want to enforce his patent, he could simply have it published immediately with a statement, "I make no claims."

We have now the problem of long-pending applications, and in connection with that problem the problem of claims which are presented and sometimes allowed five years, 10 years, 15 years after an application is filed. They are drawn for the purpose of covering what has developed in the art since the application was filed, and in some cases cover subject matter that the applicant never invented at all.

These long-pending patents, at best, are a hidden menace. When they do issue with claims of that kind, they are much worse.

That would be eliminated under this plan.

On the question of interferences, I think it would be highly desirable as a part of this plan to eliminate interferences between pending applications.

That would be necessary to get the patents issued promptly. You could still, if you wanted to, have interferences between issued patents. If you did, those interferences would be simple and short compared to the present ones.

At the present time, when an interference is declared, if a large company is involved with many pending applications, the first thing they do is make a search through all of them and find out from whose application these claims can be transferred with a motion to substitute and make a search for what additional applications they have. They can make claims that will cover the man with whom they are in interference with a motion to add counts. The man who thinks he's going to lose immediately brings a motion to dissolve. He finds new art. He does an about-face. And these claims that he had been yelling to get allowed he now says are unpatentable. And you have those motions.

If you had interference between issued patents of the type I mentioned, the issues would be all framed before the interference started. There would be no motions to add or substitute or dissolve. There would be no motions. Testimony could start within 30 days after the preliminary statements were opened. The preliminary statements could be opened promptly, and the interference could be terminated promptly.

So far as the 20-year bill is concerned—some perhaps do not know about it—there is a bill before Congress to make all patents terminate 17 years after issue but in no case more than—to last not more than—20 years from the date of application.

Now, that plan is obviously unjust to some patentees. So the bill contains an exception—that the term is not shortened in the case of delays not chargeable to the applicant.

That plan would not accomplish its purpose at all, because there are today in the Patent Office no significant delays that are chargeable to the applicant. You have a statutory right of six months to respond to an office action. You cannot be charged with delay for taking your full six months. You have a statutory right of appeal. You cannot be charged with delay for taking an appeal. The Patent Office is required by statute to set up interferences. You cannot be charged with delay for participating in an interference.

The only delays that occur in the Patent Office today for which an applicant can be charged are those that occur in interferences and on appeals where he requests a postponement of time which is granted and the postponement results in a delay in the ultimate decision of the case. And those are miniscule.

So that the 20-year bill would accomplish nothing.

This plan would accomplish what the 20-year plan seeks to accomplish.

Now, I said that I would not make these claims later allowed retroactive. There are several reasons for that. In the first place, I think that under this

plan there would be more of an incentive to appeal than there is at present. At the present time you sometimes or frequently do not appeal because you don't want the delay in getting your patent issued. You sometimes do not appeal because the prosecution before the examiner is a species of bargain. Although it may not be expressed, you come to a deal with the examiner—if you'll give me this I'll give up that—so you do not take an appeal.

Those incentives not to take an appeal would be removed under this plan.

You would also have an incentive to appeal under this plan just for the sake of drawing a broad claim which would worry your competitors, and, of course, always with the hope that the day that case came up for decision the judge would have a mental aberration and allow the claim. You have nothing to lose because your patent is already issued.

Another thing is that these claims that were later allowed were claims of such doubtful patentability that the primary examiner in the first place thought they were not patentable at all. So the hardship, while it would exist, would perhaps not be too severe in giving those claims a shorter term.

If you had to take a second appeal, those would be claims which both the primary examiner and the Board of Appeals thought were not patentable at all.

So there is some justification for giving the reduced term to those claims.

Now, I have said that I think there would be much greater incentives to appeal under this plan than under what we have now. I think probably if it were adopted it would be desirable to make an appeal fee—X dollars plus X dollars for each claim appealed—in order partly to provide some discouragement for appeals.

Of course, you could take your appeals under this plan concurrently with your interference if you got in an interference between the issued patents.

Now, at the present time, in the case of interferences, you run into a situation—and it is not too awfully uncommon—such as actually occurred in the case of the superhetrodyne invention. A patent issued to Alexanderson with a claim to superhetrodyne. After it issued it was copied by Armstrong, who won an interference from Alexanderson, and an identical claim appeared in the Armstrong patent. After that issued, the claim was copied by Levy. The interference was won by Levy, and the identical claim appeared in the Levy patent. So that identical claim was outstanding for 27 years, and all three patents came into a common ownership.

Now, I think this plan would result in a very great efficiency in the Patent Office. In the first place, it would cut down the work enormously, not only for the reasons Mr. Kenyon says but for other reasons. You would have better applications and better claims because the man would know, the applicant would know, that he had only so many tries before the primary examiner.

The examiner would make better office actions because he would know that this was not going to be an endless proceeding but two office actions and he was through. And he would do all he could to help the applicant.

I think that the saving in manpower in the Patent Office would be very great—so much so that the eight-year plan would be accelerated considerably.

I remember that I had some other remarks that I wanted to make about this scheme but I don't remember what they are, so perhaps I might wind up by reminding you of what the cannibal mother taught her little boy about airplanes.

The little boy said, "Mommy, what is an airplane?"

And she said, "An airplane is very much like lobster. There's an awful lot you have to throw away, but the insides are delicious." [Laughter]

I hope that in this plan of mine there is at least one delicious little nugget that will be worth saving after you patent lawyers get through tearing it apart. [Applause]

MR. GREEN: Thank you, Mr. Crews.

Our next speaker is professor of economics at Harvard University. He is a member of the faculty of the Harvard School of Public Administration. He has written widely in the antitrust field, and he is known also for his work in market organization and function.

I had heard of him as a man of national reputation before, but I was most impressed this morning to hear Mr. Siegel speak of him with respect, because Mr. Siegel does not speak with respect very lightly. This is an indication of the stature of our next speaker, Professor Carl Kaysen. [Applause]

PROFESSOR CARL KAYSEN: Thank you, Mr. Green.

I think I had better spend a few of my 12 minutes on some preliminaries.

You have been edified—at least I was certainly edified—by two very knowledgeable, learned, experienced men in the field who took two quite important problems aptly described as "current" and talked about what might or should be done about them. I can do no such things. I don't have the same kind of detailed technical knowledge. I want to talk about something that is a current problem in a quite different sense—in the sense that it is a continuing, persistent, fundamental problem in thinking about the patent system and how well it works. I want to talk to the point in a broad, general way, rather in the language of economists than in the language of patent lawyers.

The question which I wish to raise and say a little about—and certainly won't answer today and probably not any other time either in any finished

way—is this: Does the patent system as it is now organized and as it now functions work to give to the patentees too much in aggregate, just enough in aggregate, or too little in aggregate?

Before I try to say what I mean by the phrases “too much,” “too little,” “just enough,” I wish to emphasize the difference in my viewpoint here from the viewpoint that is customary and appropriate to a great many discussions of the patent system. I am looking at the system as a whole. I am not asking such questions as: Does this fellow get his rights? Does this fellow get less than his rights? Is this bird unfairly treated? Is that one given some undeserved gravy?

These questions are extremely important; I wouldn't want to minimize them in any way. They are the most important questions, quite naturally and appropriately, to the people concerned with the system practically in its everyday function, to the patent lawyers, to the inventors, to the companies which employ inventors and researchers. They are, however, not the questions which it seems to me are most important if we turn from the practical view to the more fundamental, if I may say so, academic view of what the system is all about. And here I wish to urge the importance of the aggregative question. Does the system as a whole pan out to yield the right or wrong rewards?

Well, now, what do I mean by right or wrong rewards? What can I mean?

The patent is a property institution. The whole function of property institutions in an economy organized like ours is to see that those who use property pay for it what it is worth to the owners. And it is the nature of a market economy, if it functions well, that what things are worth to their owners are equated in a rough way, but still in a fairly good way, with what they are worth to society.

Markets only work well when property institutions are appropriate. If they are not, then a market which pays property owners, including owners of such intangible property as labor power and ideas for the use of this property what that use is worth to the owners does not necessarily pay what that use is worth to society.

The question I raise is this: If we say, here is a supply of a valuable activity, an activity which for short I will call “invention plus innovation,” are we paying more for this activity than we have to pay to get as much of it as we now get? Or are we paying too little for it so that by paying more we would get more than we want? Or, are we paying just about enough?

I think consideration of this question is fundamental in any examination of how the patent system functions. What we think of as patent reforms, the kind of proposals that Mr. Kenyon and Mr. Crews, for example, suggested, all have as a consequence—sometimes unintended, sometimes intended—changing the aggregate reward which patentees tend to receive.



As a context for examination of these and other proposals, we should have some notion of which way we would like to change the aggregate reward of patentees. Should it be increased? Should it be decreased?

Having posed this question, I am tempted to answer it. I'll try in the few remaining minutes left to me to avoid this temptation. But I will suggest certain considerations that are relevant to an answer.

The first consideration is the fact that the patent, of course, is a very peculiar kind of property institution, and the reward to innovation and invention is a very peculiar kind of reward. We never say to a worker, "Now, you take this job. Work hard. We won't pay you, but we'll pay the next fellow who takes it." We don't say this because, by and large, we would expect to get no work. Yet this is essentially what we say to the inventor and to the innovator: "You play this game. You take this gamble. Maybe you'll get paid, and maybe you won't. But somebody will get paid out of some gamble, and that's why you should get in the game." Thus this reward is in the nature of a ticket in a lottery. Now, it is characteristic of a lottery that the average prize has little to do with people's participation. If the lottery is a fair lottery, with no "profit" for the "house," the average prize is, of course, zero. It is the size of the maximum prize, or the few big prizes in relation to the ticket cost that determine participation. Thus we cannot conclude that the supply of invention and innovation, like the supply of labor or capital, will be reduced if the average reward is reduced. We may be able to reduce the average reward substantially without affecting supply. Notice, the verb is "may" and not "can."

So much for the first point; let me pass to another. The purpose of the patent is not, of course, to reward inventors. We know that inventors don't need any rewards—leaving aside the question of whether they deserve them. The purpose of the patent is to protect capitalists. It is to stimulate the important process of investment in turning an invention into an innovation, in turning an idea into a usable process or a marketable good. Now, as our economic structure develops, more and more those who are important in this process of innovation have many nonpatent protections against too swift competition, too swift copying, which robs the innovator of the reward of his innovation. This is especially true for the large corporation, as inventor and innovator. The question thus arises: Are patents as important, as appropriate, as necessary to at least large and significant classes of innovators as they were perhaps once thought to be?

Again, I will not answer that question.

Finally, we can look at a bit of quasi-evidence—to describe this in somewhat stronger terms than it deserves. If we look at what the courts have been doing to patents, at what our friends in the Antitrust Division and their assistants on the other side of the table, the antitrust lawyers, have been doing to the rights of patentees in litigation under the antitrust laws;

if we look at the kind of actions or terms of license, let us say, which are viewed as legitimate now, and compare them with what were viewed as legitimate in the palmy days of *Bement v. National Harrow*,<sup>5b</sup> we see a trend. It is strong, steady, and in one direction: we are narrowing the rights of the patentee. Presumably, although we do not know, we have been correspondingly diminishing the rewards he can get. Certainly a pool of patents is worth more when they can form the basis of a price-fixing agreement than when they cannot legally do so. And so forth.

Yet, it would be hard to find evidence that suggests this narrowing of the rights of the patentee and the probable—but not established—diminishing of his rewards in the aggregate has, in fact, diminished the aggregate supply of invention and innovation.

Here are three reasons for guessing that if we must pick one of the three answers to our fundamental question within the next minute it should be “too big” rather than “too small” or “just right.” But, of course, we don’t have to pick one of three answers on the basis of this kind of evidence in the next minute. Rather, I raise this question in order to indicate that in my judgment it is continuously current, important to all research and analysis in this area, and one which those who are doing the research should always bear in mind.

Thank you. [Applause]

MR. GREEN: I promised you this session was going to be controversial.

Incidentally, Professor Kaysen raised this question at lunch and his fellow panel members were all ready to start the debate right there.

Our next speaker for many years was affiliated with the same branch of Government that I am—the Department of Commerce. He was with the National Bureau of Standards. He was known perhaps as the most creative engineer in the federal government. At one time he was written up in a national magazine as “Uncle Sam’s Bargain Inventor.” I think he must have read the article, because he decided if he was such a bargain he’d go in business for himself. So he left the Government and he went out and started Rabinow Engineering Company, and he is well on his way to being—maybe a millionaire inventor. I don’t know. But he’s highly successful. He’s highly versatile. He’s highly articulate.

Over his 20 years’ experience in invention he has acquired 33 patents. He has 60 patent applications pending. Among his many awards he has the President’s Certificate for Merit, a very rare and unusual decoration. One of his early inventions which has reached commercial success was the magnetic-fluid clutch. I read in the paper a couple of weeks ago about his work on the automatic mail-sorting equipment for the Post Office.

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<sup>5b</sup>186 U. S. 70, 46 L. Ed. 1058, 22 S. C. T. 747.

I think Mr. Rabinow will be in a position to give you some very interesting, provocative comments from the point of view of the independent inventor.

Mr. Rabinow. [Applause]

MR. JACOB RABINOW: I'd feel much happier if I were here talking about some of my gadgets. This is not exactly my field.

I was asked to make comments on three things, which I will do in 12 minutes.

MR. GREEN: I'll give you 13.

MR. RABINOW: I don't know how to divide 13 by 3.

During the last 20 years that I have lived in Washington I've been in close contact with the Patent Office as an inventor and have occasionally prosecuted my own patents. I have imposed on the examiners' time. I have visited them many times and became friendly with many examiners with whom I fought.

Our friendship is quite formal. We do not exchange gifts. [Laughter]

I have fought with them often. I'm glad they have never been too angry with me or I with them. I have helped my attorneys, who are very good, to fight with them too. And we very often find that a personal interview saves an awful lot of application paper-work.

I have a complaint to make. I have such great respect for the Patent Office that I'm sure that nothing that I say here now will prejudice any of the 50 or so cases left before it. The number of patents issued now is 38.

MR. GREEN: Excuse me.

MR. RABINOW: That is all right. I count them. It's a kind of an index of how I'm doing. Incidentally, I did not leave the Government to make money. I was kicked out of the Bureau of Standards into the War Department because my Division was moved. I did not want to move into the War Department, so I moved out. I'm now a consultant to the War Department. [Laughter]

My complaint about the Patent Office is that, thinking back over the 20 years, it looks to me—and I admit that this information cannot be defended too well in court—that the work is getting "sloppier."

I think that the "First Action" is getting to be a joke. I have gotten first actions which I couldn't understand. I'm willing to concede differences of opinion, but when the patents cited have nothing to do with me, I'm bothered. I think it's a waste of my time and their time. My attorney and I go in and

find out that the examiner had to get an action out that Friday and he picked the first thing off the shelf, knowing it wouldn't really make much difference in the long run, and that it will be corrected later.

I read the *Patent Gazette* every week, all except the chemical ones. I'm an electrical engineer who once got the wrong job in the Government as a mechanical engineer, and I've been a mechanical engineer ever since. I understand electronics pretty well. I know a little about radar, and I've worked with proximity fuses and guided missiles. I read the *Gazette* just because I enjoy it.

And occasionally I find patents abstracted there which cannot work. I check very carefully when I suspect that some of the patents are impossible physically. So I call my friends in the Patent Office. They check. They call me names because I bother them, but they call back and say, "You're right. This one is impossible. We should have caught it."

I don't mind occasional slips like a "keyhole finder." [Laughter]

I see other people have noticed it too.

I rather enjoyed that. I'm glad the Patent Office has a broad point of view.

But I don't like an "Infinitely Variable Gearbox" which cannot be made. I've been looking for one all my life and suspect that there can be no such animal. And patents like that shouldn't be issued.

I think that with the "piecework" under which the Patent Office works and has worked in the past, where a man has a real or imaginary quota to fill, the situation is deplorable.

I think that the Patent Office should have dignity. They're a judicial body. I think the examiners should get much more money than they now receive. They're finally getting a raise when the rest of the economy is going down. The Government always lags about 10 years. Unfortunately, a great deal of the damage has already been done, and many good men have left. Some of them are my attorneys, as it happens. [Laughter]

It is not fair for people outside to get better salaries.

Unfortunately, I think that the new higher salaries are going to perpetuate an evil. The bad people will stay in. Of course, eventually the higher salaries will help, and they must be raised still more. The office must have more examiners. The examiners should have more time.

The arts are getting more difficult to search. There are more cross-references.

And I'm annoyed by the fact patents are issued in one art on devices which have exact analogies in another art. My magnetic fluid clutch is exactly analogous to the electrostatic clutch, and I could argue it's not really an

invention. I never thought much of it, myself, even though my brother, who helped me financially, and I made a hundred thousand dollars on it. There are inventions of mine that I like much more—inventions which nobody wants.

I think that the Patent Office should have given its staff air-conditioning. I understand they are finally getting around to it.

I think the examiners should have dignity as they do in some European countries. I think they should have high salaries. I think they should be at least as competent—not necessarily as brilliant as this group but at least like the rest of the patent attorneys.

I believe that it's just as difficult in its own way, to search as to invent patents. It is not easy to see the subtle differences, to recognize that the magnetic fluid clutch has something to do with a coherer, or that a particular pulley has something to do with a battery, or that the flow diagram in one art is like the flow diagram in another art. This sort of thing requires broad knowledge, interest in many fields. And this you must get by paying people at least as well as some inventors get paid.

I think it's a shame that the Patent Office has been permitted to run down. I think it's basically the fault of Congress. I think Congress should be spurred by industry, and I think industry hasn't done its share in reprimanding Congress for letting the Patent Office find itself in its present difficulties.

The second subject I'd like to touch is the business of selling inventions to industry. I have a great deal of experience in this—of not selling inventions. [Laughter]

Some of my inventions are pretty good—not because I think so, but because they are now successful. And I'd like to give you a typical case history.

In 1945 I invented an automatic clock regulator—actually for my wrist-watch. What it does is that when you set the hands forward it speeds up the watch. If you set the hands back, because the watch is fast, the device slows the watch down. There are also certain safeties. If you change zones, or forget to wind the watch, this is taken care of without any attention on your part.

The patent was issued by the man who is now head of the division. No trouble. I prosecuted the patent myself. He rejected it—all the claims—at first. I came in for an interview and I said, "Mr. Strezack, tell me, do I have an invention or don't I?"

He said, "It's one of the best things I've seen in 20 years in the Patent Office."

So I said, "This is a rare compliment."

He said, "You don't know how to write claims." He helped me, and I received the patent.

For 10 years I tried to sell this invention. I got no place. I wrote to all the clock companies. I met the president of one of the largest watch companies in the world, and he said, "It's a wonderful idea."—I had a model, by the way.—"The reason we can't sell it is we already advertise a perfect watch. How can we advertise anything better?" [Laughter]

I said, "Mr. X, Cadillac does this every year. Every year the Cadillac is so good it can't be made better. But next year they forget everything they said last year and start over again. I don't see why you can't make an even more intelligent watch."

But it didn't sell.

I finally proposed it to one of the automobile companies. This is Chrysler. The reason I mention them specifically is because, as you will see, they did me a great service.

I sent a description of the invention to the committee with the usual release—that I do not hold them responsible, that I won't sue them, that I'll let them take my mother-in-law as hostage, etc. [Laughter]

And I received this letter after all the paper stuff was studied:

We have studied the suggestions submitted in agreement dated July 7 . . . It does not appear from my investigation and consideration of your suggestion that there is anything of value to us in your suggestion. I appreciate your having written to us on the subject and regret that I have to report that we are not interested. . . .

This is from the Engineering Improvement Committee. This was in 1949.

Years later I had dinner with one of their clutch engineers, and I told him about my clock regulator. He said, "You know, Mr. Kent, who is head electrical engineer of Chrysler, hates automobile clocks. He says they're no good. I'll tell him about this."

Mr. Kent liked the idea. He asked the clock industry to give him some Rabinow regulators. Every clock in the United States now in every automobile is equipped with my regulator. It seems that two-thirds of the people who manufacture them don't agree with me yet. We have some interference with six parties, and all six now argue this was no invention, that the idea was perfectly obvious.

Anyway, the main point is that apparently it is difficult to "sell" ideas to industry. There are several reasons. Some of them are honest and real.

First, they already have too many of their own inventions. One of the vice presidents of General Electric told me their problem is not which things

to make, but which things not to make. Their people invent faster than GE can possibly put products into use.

Eastman Kodak, I believe, comes out with a new product every day or so. They certainly cannot introduce many more new products. I'm sure the Eastman people invent more than one device or product a day.

Therefore, when an outside inventor comes in with new ideas, there's no particular reason to take it unless it's a world-shaking idea, or unless it will save them a great deal of money, or unless it's something they can't do without.

So the result is the outsider has statistically a very bad chance.

The second point to make about it, of course, are the risks involved. Even if the patent is issued and an invention works as a model, the engineering costs, development costs, the sales costs are very, very high.

There are a great many other pitfalls. Customers may not like the product, or the sales departments may not like it, and so on and on.

On top of this there are the unholy and unnatural objections. For instance, inside people hate outside inventors because they make them look bad. I have met this "N.I.H." factor—"Not Invented Here." You come in, you try to meet the boss and you get to the president of the company—because the prestige of the Bureau was very high I could get to the presidents—the president of the company sees you and sends you to the chief engineer. You immediately meet a very negative attitude that "this guy is trying to show us up and we know the business better than he does"—which they always do—"and why does he come and tell us how to run our business?"

Another thing that bothers people is that you upset the status quo. For example, you come into an industry that has made watches for 100 years, and has made magnificent watches, and has made 17-jewel movements for four and a half dollars. And you come in and try to tell them how to redesign a watch. And what do you know?

I say, "Nothing. I just know how to make a watch a little better, perhaps."

They say, "You can't do it in a watch."

So I have a watchmaker make one for me.

They say, "You can't make it any cheaper."

Then you make it cheaper.

Then the sales department says, "We don't want to sell it." [Laughter]

These are actual conversations.

In the case of one of the big watchmakers in the United States, I built two models, at the actual cost of two and a half thousand dollars each. I

would like to pay them for the models to get them back. They won't let me. They like the watches. But they won't make them.

I invented a headlight dimmer which scans the field of view. It appears to be like any other dimmer except that mine looks for bright spots. It works in daylight, it works at dusk, and it works in snow. I demonstrated it to RCA—after signing a million agreements. They liked it very much. They sent me to one of our largest auto makers. The chief electrical engineer of the particular department of this company drove his own car with my dimmer in it.

At about eleven o'clock five of us, including the very brilliant chief engineer, pulled up, and I said, "What do you think, Mr. X?"

He said, "It's the best thing we've ever been shown."

I said, "Will you buy it?"

He said, "No."

I said, "Why not?"

He said, "Because we want something cheaper, not better."

And if I had something cheaper I think they would have wanted it better. [Laughter]

Another of the auto makers liked my dimmer very much. I showed it to their chief engineer—who has since retired. This company was good enough to change their specs. They want my dimmer. They would like to have a dimmer that sees only bright spots and sees further the darker it gets, one that is less sensitive to internal variations, has less adjustments. But they would like it also for less money, and then I can't meet this spec. The difference is only a dollar in factory cost, but a dollar to the automobile industry is pretty important. For 50 cents they'll cut your throat. [Laughter]

I still hope to sell it. I have spent a lot of money on it. I make enough money on the watch now and a few other things so I can afford to push it. As long as I gamble carefully I hope to be all right.

Someone of you said invention is a lottery. I think it's more like a horse race. There's one element of skill. I don't know where it is, but it must be there somewhere. [Laughter]

This is the way I sell inventions to industry. I don't know what can be done to improve this business. I have no solutions. I am lucky in that I had a lot of publicity and it's easier for me, and I have trouble. What a poor, unknown inventor does I don't know. I think he starves to death.

I would like to talk now about something else. This is the subject of Government patents. The Government owns a great many patents developed by people who work for it. I was granted quite a few particularly in fields like ordnance.



The policy is very, very ragged. Some agencies, like the military, give the inventor complete commercial rights.

The Bureau of Standards takes a very narrow point of view. It serves industry. Therefore, all patents are assigned to the public, except foreign patents. That's how I got into fights with John. That is how I happened to know him. There is now supposedly a common policy set up by the President in 1951. It doesn't work very evenly.

I think something should be done to correct the faults of the system. For example, the Government gets patents on computers. The first digital computer is getting a Government patent where the commercial rights were left with Eckert and Mauchley, who are now part of Remington Rand.

This policy treats a patent for a can opener just like a patent for a computer machine that takes a million dollars to develop. I think this should be changed. There should be a committee that should have power to administer a more flexible policy to fit each particular case.

I do not think the inventor should have any commercial rights. When I worked for the Bureau of Standards, I think it was not right to put me in the position where I had to be a double-headed monster.

I didn't mean to say this quite this way. I want to be a single-headed monster. [Laughter]

I think that the man who's doing inventing, who does research, has enough to do without having to run a business on the side. With my brother, I tried to handle 42 patents in 22 countries for five years. This took all our spare time and energy.

I think there should be something done to reward inventors better. Perhaps better salaries are indicated. Perhaps we should have a reward system based, like that of the British, on the history of each recipient—not on any one-shot invention.

To repeat, I'd like to see bigger rewards given to the inventor. But I don't want him to be in business for himself when he works for the Government. Just like I don't want my engineers to be in business for themselves when they work for me.

And I think something should be done by people interested in this to see that the patents—10,000 now? 50,000 now?—owned by the Government be exploited wisely by the Government. Those patents that have to be assigned to some manufacturer under an exclusive license should be so assigned, particularly where development costs are high. Basic, simple inventions should be licensed to anyone. In all cases I think the inventor should be kept out of this but he should get something for it.

Thank you very much. [Applause]

MR. GREEN: Thank you, Mr. Rabinow.

I want to apologize to the members of the panel for being such a stern taskmaster with respect to time, but I did it to enable you who have been sitting listening all day to have the time to voice your views, voice your opinions, to send some questions up here to this panel.

Now, where is the gentleman or lady with the floating mike?

If you would be kind enough to raise your hand, I'll steer the young lady toward you, and then, if you would, give your name, indicate whom you have the question for, and give your question.

First question, please—this gentleman right here in the middle.

MR. LANG:<sup>6</sup> I'd like to ask Mr. Kenyon this question: In connection with the publication of applications, is it your thought that the burden on another applicant who wanted to go in interference with this published application would be the same as if the patent had already issued?

MR. KENYON: Well, I should think it would be. I haven't thought the question out. But my feeling would be that the owner of the published application would have the same right to his date of filing as evidence of constructive reduction to practice as if he had gotten a patent, the only difference being that the applicant would have no monopoly. The patentee would.

MR. LANG: I don't think you quite understood my question. It's the other party to the interference. If he went into interference with a patent or he filed an application after a patent had issued, he'd have the burden to prove his case beyond a reasonable doubt. Now, if a person filed a patent application after one of these applications issued, would he have the same burden of proof?

MR. KENYON: I think so.

MR. LANG: Could I ask you one other question before you sit down? In the case of a published application which was later abandoned, would an interfering applicant be able to file an affidavit to swear back of that application, or would he have to go into interference with it?

MR. KENYON: No interference, because there wouldn't be any patent for this published application.

MR. LANG: Would he be able to just file an affidavit although the applicant may have been able to claim the same application—

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<sup>6</sup>Edward H. Lang, The Pure Oil Company, Chicago.

MR. KENYON: I should think it would be treated just like a reference that had been published on that. If he swore back of it he could carry on the prosecution of the application.

MR. LANG: That would be true even in the case Mr. Crews talked about where the applications were published without any claim at all?

MR. KENYON: Yes, I'd put it in the same category.

MR. GREEN: The nearest gentleman first.

MR. JACKSON:<sup>7</sup> I'd like to ask Mr. Crews this question. What do you mean when you refer—

MR. CREWS: Excuse me. He just told me my bag has been found. Would you start over?

MR. JACKSON: I'd like to ask, Floyd, what do you mean by two actions? At the present time, if you extensively amend your claims and give the thing a different cast, the examiner makes a new search, he cites new art on the next action, and you have the problem then of avoiding that new art. Do you contemplate that the examiner is to make only one examination and the attorney will not face new art in the second action? Or are there to be references cited both in the first action and also in the second action, and does the attorney then have only one opportunity to respond to the new art which appears in the second action?

MR. CREWS: The latter part of your question states what I would favor. I would let the examiner cite new art in the second action. I would let the applicant completely revise his claims after the first office action and also after the second office action.

Now, you could couple with this, if you want to, a form of informal opposition. You could let the patent be published and the examiner hold the file for three months and let the public, any member who was interested, call to the examiner's attention any art he wanted to, and you could let the examiner, if you wanted to, cite this new art and even indicate before the Board of Appeals that claims he had previously allowed should not be allowed.

I think that would be going too far, but you could let him cite new art against claims on appeal that he had not even passed on before if you wanted to go that far, and I think I would be in favor of going that far on it.

MR. GREEN: The gentleman in the back who had his hand up last time, please.

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<sup>7</sup>Joseph Gray Jackson, patent attorney, Philadelphia.

MR. PATTY:<sup>8</sup> Mr. Crews, how would you contemplate handling the continuation, continuation in part, and divisional aspects under your proposal?

MR. CREWS: Let's take divisions first. Your original patent would issue after two office actions. You would file your division before your first patent issued, put the divisional subject matter in it, and it would be prosecuted before the examiner exactly as the first application was but with the different claims. So I do not see that the question of divisions would present any problem.

Now, as far as continuations in part are concerned, I would think the same thing would be true. You would have the same situation you have in the case of divisions except you have some added subject matter. As to the added subject matter your earliest date would be your date of filing your continuation in part application. And so you'd go through just as before.

Of course, I might add this to what I said before with respect to interferences. This scheme would contemplate, as I said—not necessarily but I think it would be better—no interferences between pending applications. But you would issue a patent to the first applicant and permit later patents to issue to later applicants who could establish a *prima facie* case of completing the invention before the earlier applicant's filing date.

Now, at the present time, you might get a second application filed copying claims five years or 10 years after the original patent was filed in the Patent Office. Under this plan you would never get any such lapse of time. All of your applications would be filed reasonably soon because the first patent would issue promptly.

Not only that. There are some later applications, later applicants, who are now barred from filing an application and copying claims because there has been a public use during the five years that an application was pending in the Patent Office. There would be fewer of those under the new scheme.

MR. PATTY: You would not permit one to abandon an original application in favor of a continuation or a continuation in part application as is frequently done now?

MR. CREWS: Any scheme, I think, that is going to effect change of patent laws should be subjected to very careful consideration and public discussion. I haven't thought about that angle of it. I would think yes, as an offhand answer, that it could be done.

MR. GREEN: The gentleman on your right hand there in the last row.

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<sup>8</sup>C. R. Patty, Jr., Corning Glass Works, Corning, New York.

DR. JOSEPH ROSSMAN:<sup>9</sup> Mr. Kenyon again. I'd like to make a couple of comments which will lead to my final question, if I may, on the proposal to publish applications.

Since no patent is to be issued, the Patent Office will be put into the publishing of technical information in competition with the existing private publishing activities.

Second, giving the published application the legal rights flowing from the presently existing rights inherent in constructive reduction to practice, based on the filing date, amounts to creating potent legal rights in mere published technical literature.

Third, the fact that no patent issues on a published application indicates that the subject matter contains no substantial novelty of any technical value. We are already swamped by the tremendous flood of technical literature which is becoming impossible to retrieve when needed. The proposed publication procedure would make this situation even worse.

Fourth, if we must have such publication to relieve the workload in the Patent Office, I would suggest that, at best, such published applications should have no legal effect except as a mere publication as of the date of publication and no more.

Now, coming to my question: Would not this proposal of publication by the Patent Office lead to the publication of science fiction and pervert the patent profession into a body of science fiction writers? [Laughter]

MR. KENYON: Is that last question the only one you want me to answer? Because I don't agree with most of the assumptions that you made on the way up.

DR. ROSSMAN: I think the first four points I made are the more serious ones, but I am concerned with the last one too, because I believe that such proposal would lead to fantastic publications in the Patent Office which would not relieve its load.

MR. KENYON: Well, I see one merit in your comments, and that is that there might be a temptation to call for the publication of material which was not worth publishing. There are two ways in which I think that would be controlled.

The first is that the Commissioner of Patents today has the power to call for the elimination of parts of specifications which are immaterial or scandalous or irrelevant, and that power could be exercised, as it can be today.

In the second place, by imposing a substantial fee upon this right of publication, there would be enough difficulty and expense involved to prevent

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<sup>9</sup>Joseph Rossman, patent attorney, Philadelphia.

those who are simply interested in science fiction from using that method of publication.

But, seriously, these applications as they stand today do not warrant the time and expense that the Patent Office is required to put into them. They are primarily defensive for the purpose of protecting the right to manufacture. They are seriously filed to illustrate and disclose manufacturing expedients. And if the Patent Office can be relieved of the load of treating those things as applications for patents by granting this right of publication, the resulting advantages to the public in my judgment would greatly outweigh any possible unusual situations such as you suggest and which I think the Commissioner could and would effectively eliminate.

DR. ROSSMAN: Mr. Kenyon, I'm entirely in sympathy with the objectives you are striving for. However, I think that imposing this new load on the Patent Office as a publication agency is beyond the statutory objective of the Patent Office.

If a company really wants to publish technical information as a statutory bar against a later-comer there are many ways of doing it in this country. But if they really want something in the form of defensive patent rights, they can file an application, say, in Belgium and get a patent out in quite a hurry with all the legal benefits without putting this load on the Patent Office here.

Don't you think that would be one way out of the problem?

MR. KENYON: Yes, I remember one company that adopted the practice of applying for patents in Rumania or Turkey or India or something of that sort where nobody could read the language anyhow. Well, not of applying for patents, but of publishing—publishing in some remote place on the other side of the world so that they would have a date of publication anywhere that they could fall back upon.

But that obviously does not increase the knowledge within the public domain in this country.

And I think a great advantage of this scheme—which is not mine; it was in the Bryson Bill and repeated by Mr. Frost—is that it does make available to the public in this country these disclosures which I think we are justified in assuming would be serious disclosures of know-how and technical information of use to the industrial world here. Even though not disclosing a patentable invention over the prior art, it would be more accessible. Even if it's only cumulative it may be better and therefore serve a useful purpose.

I know I haven't completely answered your question, because I think there may be abuses of this system. But as far as loading a publishing business on the Government is concerned, I would make the fee so high as to

discourage that and make this system serve the real purpose for which it's intended.

MR. GREEN: The gentleman down in the fifth row has had his hand up for some time.

MR. COLMAN:<sup>10</sup> I'd like to ask this question of Dr. Kaysen: What, in your opinion, is the significance, if any, of the increasing proportion of industrial research and development costs which is financed by Government contracts as this trend relates to the role of patents as incentives for research and invention?

PROFESSOR KAYSEN: My offhand answer—and I can give only an offhand answer, since there are a great many questions involved here—would be that there is some tendency to diminish the importance of patents. But to the extent that there is a significant gap between the technology, in some cases the science, that's created for the Government on Government money in the industrial laboratory and the nonmilitary application of this technology to other processes or other products, as I think is not infrequently the case, I think in that area you would still have many of the incentives that now work.

Clearly, if you look at the situation in those industries in which the principal market is the Government, in which the principal outlet for new technology is in products salable only to the Government, and in which Government policy with respect to defense procurement will for the most part determine the distribution of rights in inventions—there is a fairly large area, perhaps a growing one, in which incentives and market circumstances differ radically from the situation of incentives and market circumstances that are envisioned in the patent law. It is, I think, difficult to deny that there has been a parting of the ways, and that perhaps another set of instrumentalities would be more appropriate.

An important question that I certainly cannot answer is this: Are we to expect that technology of primarily military origin, and application will spread out very widely into other uses or not?

MR. GREEN: Mr. Rabinow, would you want to add a comment?

MR. RABINOW: I would like to make some comments about this business of inventions.

Being a professional inventor, I like the idea of people wanting more inventions, but I'm not sure, when I listen to this Government sponsorship or rewards for inventors, which is your field perhaps, whether we do need

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<sup>10</sup>William G. Colman, National Science Foundation, Washington, D. C.

more inventions. I'm not sure at all, honestly. I hope we do. But I'm not sure we do.

Every invention makes a great many things obsolete. The automation in the electronics industry has not been justified so far, by and large. More money was spent than will be recovered in the immediate future.

People might have been perfectly right when they laughed at Fulton. He might have been too far ahead of his time. Inventions generally are ahead of their time.

I'm not sure it would make any sense for this Government or this country to reward inventors in such a way as to double the number of inventions per week. I'm not sure at all this would be economically justified or be correct.

If competition forces General Electric to come out with a new item and throw out the tools for a refrigerator which is perfectly good just because the new refrigerator must beat the refrigerator Westinghouse is going to make next week, the question is: Is this good for the country? Is the country better off because they have a new refrigerator while the tools for the old one are still good?

I don't know.

It would be interesting to see how they work this in a controlled economy like Russia. I suspect they are more careful about obsolescence. I think their cars don't change every year. If they do, we'll win the next war.

It is quite likely they wait until the economics are correct. We don't. We throw out perfectly good stuff because fashion and competition dictate it. This is something sociology certainly should study.

But the Government is sponsoring a great deal of research. It's paying for much more than it's getting. By and large, a lot of it is very luxurious research, research which is not justified by pure economics.

Take the tape-controlled milling machines. It's very beautiful drilling a hole. A man can drill a hole for a lot less. Very seldom do you need tape-controlled milling machines. At M.I.T., or any laboratory, it's a wonderful thing to do, but it's not a good thing to do when the Government spends \$10 million for tape-controlled milling machines which industry would not have built on its own money.

I would like to leave this problem to you. Do you think that inventions are, per se, necessary and good and there's no limit to how many we want or should want? Or should we take a good look at the over-all picture and maybe decide enough is enough and maybe the present rate is good enough?

PROFESSOR KAYSEN: I think you have asked what is easily the most unanswerable question of the afternoon. [Laughter]



I do feel stimulated to say two more things. One is this: Earlier, I used a phrase from the economists' jargon, and I would like to emphasize it and expand on it a little. The phrase was "invention and innovation," by which I mean taking an idea or a technical accomplishment and turning it into marketable goods or an applicable process.

In some sense we perhaps do not need any more invention. I heard an eminent member of a large research department with a good reputation say that his company should fire all the researchers in his field and set somebody to reading 20 years of a certain German journal, because all the work being done now was done then, only we have just forgotten it.

This may be true in respect to a great many things; I don't know. But the key problem as I see it is not the supply-of-invention problem, because I think the patent system as such does very little here. I think here we have to look to our educational institutions, to the rewards of different kinds of careers, to what makes a young man want to be a manager rather than an engineer, or vice versa, and other things of this sort.

The patent system is important directly in terms of the supply of innovation, of investment of capital resources in trying to put a new product into the market or a new process into the production line. Indirectly, of course, it reacts back on these other matters.

Now, I think if you go from that to the questions Mr. Rabinow raised about military invention, the real problem there is the lack of the market standard. If management in General Electric or General Motors or RCA or Du Pont or some other large, well-managed, technically skillful and, we assume, rationally-operating corporation sees a new idea, if they are told by their engineers or their scientists, "We have developed this or that gadget," they can ask themselves this question: "Will enough people pay enough dollars for it so that we know whether we want to produce it?"

To be sure, there are many "ifs" and "buts" involved in the answer, but it is a clear question on the conceptual level.

However, if the Government, the Department of Defense, the Air Force, the NSC, has to ask itself the question, "How much is it worth to boost the thrust on this rocket engine from X to X plus A?" there is no conceptually clear question that they know how to ask which tells them the answer to it. They can't test this question by saying, "If so many people would be willing to buy an X plus A thrust engine instead of an X engine and pay so much for it, it pays to do it." Instead they have to use a very peculiar, infinitely-dimensional, rubber measure called security value or contribution to national defense. I suspect there is something inherently wasteful about this process in a certain sense, and I think we had better not become too concerned with the waste.

MR. GREEN: The gentleman back there.

MR. LOVE:<sup>11</sup> My question is for Mr. Crews. In considering your remarks, as I understand your proposal, it would really be keyed to the idea of the required publication, and I assume it would require publication if a fellow wanted claims anyway. He then takes any claims he has allowed. And it's also indicated on unallowed claims then, if he wants publication, it's published with the claims as unallowed and he takes his appeal. Without this, of course, he would really be deprived of property.

But the problem comes in as you indicated with respect to the retroactivity of the claims later allowed on appeal, and I would be interested in your further comments on that issue. If you were indicating that should the examiner say, "No, they're not allowable," and then the Board says, "No, they're not allowable," this is really establishing a very, very strong presumption that it's not an invention. That, of course, would be the inverse of what the law now is, if the Court of Customs and Patent Appeals allows them, after appeal. If the claims originally indicated unallowable are thus allowed, they are then in force, and they are not in force as of the time the patent originally published, depriving a person of certain rights which he was entitled to from the very beginning, and this is something which I sort of felt you were basing on a rather subjective, almost a "stomach" approach to justice. But it's sort of inconsistent with the approach we normally take. This eliminates, in other words, the concept that there can be clear, absolutely clear error on the part of the examiner, and this problem is what you really have to be faced with in adopting your proposal.

MR. CREWS: My plan does not require that you do not make the claims retroactive. You can if you want to have a plan and make the claims when they are allowed later retroactive to the time the patent was originally published.

You have your choice of either doing that or not doing it.

I don't think that the plan one way or the other stands or falls on which way you do it. I indicated that my preference would be for not doing it.

Now, you get injustice in any human system. At the present time you have a man who files an application and he gets an interference and his patent issues 10 years later. In the meantime his invention has become obsolete.

Under my plan, even if he had to take an appeal, he would get his claims allowed on appeal within say two years, or at the most three, before his invention became obsolete.

Somebody gets hurt in almost any scheme you use. If you adopt the plan of not making it retroactive, you're absolutely right, I think, that there would be some injustice in it.

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<sup>11</sup>Carl G. Love, patent attorney, Washington, D. C.

And the arguments that I see against it are that you would have a great incentive to people to ask for broad claims to take an appeal, which would be cheap and easy, and have outstanding against their competitors during the term of the appeal this threat which would act as a deterrent when they wouldn't actually get the claims allowed. I think that there would be too strong a weapon—the possibility of that claim ultimately becoming allowed and having retroactive effect. That's part of the reason why I would not make it retroactive.

But, as I say, the plan doesn't depend on either one. Whatever plan should be adopted, it can be done either way.

MR. GREEN: We haven't had any questions from this side of the house. Here's one right now.

MR. BEACH:<sup>12</sup> I'd like to ask Mr. Crews: I wonder if you are going to carry out *ex parte* appeals and interferences concurrently? Would you not be faced either with the possibility of having the interference issues be invalid claims or of having a conflict between the *ex parte* appeal and the interferences determining the patentability of the common subject matter?

MR. CREWS: I don't quite see how. You see, you would not have an interference under my plan until the claims were allowed. It would be only unallowed claims on which you would be appealing. There would be only allowed claims on which you would be having an interference.

MR. BEACH: Well, then, you would not require that the parties add claims that should be subject matter for the interference as you do now even though they are not allowed—

MR. CREWS: That's correct. The issues of interference would be framed in terms of the claims that were allowed. The patent issues with claims. Somebody else copies them and gets identical claims. The interference would be between identical claims of allowed patents. There would be no motions to add or substitute.

I think there would be none. That's the way, as far as I have gone in my thinking on it.

MR. BEACH: One other point. In that type of situation, is it my understanding that a person would be allowed to bring suit as soon as the patent issued even while additional claims were on appeal?

MR. CREWS: Yes, but not, of course, on the appealed claims. They would

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<sup>12</sup>Robert W. Beach, patent attorney, Seattle, Washington.

not be effective as patented claims. He could not do that, whether you made it retroactive or not.

MR. BEACH: Yes, but now what about a case of an interference where you have two parties making the same claim and it's allowed to both parties, presumably in both parties' patents? In that case which one could bring suit? Or both?

MR. CREWS: Both, just as they can today where you have the same claims standing issued in patents to as many as—three in the case of superhetrodyne.

MR. GREEN: The gentleman here.

MR. MULFORD:<sup>13</sup> My point is directed to Mr. Kenyon, and particularly with respect to this so-called defensive patent and publication thereof. I think if I had that case in the Office—and most of these cases are arguments over patentability—and I was not entirely convinced that the examiner was right that it was unpatentable, I would want to keep after that claim, going all the way to the Board of Appeals at least, perhaps further, because I'd want the opportunity of contesting priority if someone else had an application in the Patent Office.

And I suggest that to this extent it would not relieve the burden of the Patent Office.

MR. KENYON: Yes, I agree with you that if the application is one which the applicant desires to patent he would not take advantage of this procedure. But he could. He could do both if he wanted to. He could have it published and still prosecute it.

But my feeling is, based upon the statistics that Mr. Frost's study suggests, that there would be such a large percentage, 25 to 30%, of the total number of applications presently pending in the Patent Office to which this would apply that it would be very well worth a plan for relieving the Patent Office of this work and relieving the public of the resulting scarecrow patents.

But still you can prosecute it if you want to.

MR. GREEN: Mr. Crews has something he'd like to add to an earlier answer.

MR. CREWS: I want to say one more thing in answer to your question. I mentioned that my plan had something to do with the Board of Appeals

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<sup>13</sup>Kenneth E. Mulford, Atlas Powder Company, Wilmington, Delaware.

but I didn't develop that. If you do not make these claims retroactive, you're going to have a lot of patents outstanding with claims that are going to have shortened terms if they are ultimately allowed. I think the public clamor would be such to Congress that you would promptly get an increase in the membership of the Board of Appeals and probably get more money for them.

MR. GREEN: I believe there was a question over here.

MR. KRISTOFFERSON:<sup>14</sup> Mr. Kenyon, don't you believe that if the corporation were permitted to file an application in the name of the corporation rather than in the names of the individual inventors that would tend to reduce the backlog in the Patent Office and also result in better applications?

MR. KENYON: Why do you think it would have that result?

MR. KRISTOFFERSON: Because in many instances we have to divide cases because we don't have the same inventors.

MR. KENYON: Well, I recognize that difficulty. I don't know at the moment that it has anything to do with the plan that I'm suggesting. It seems to me a quite separate question.

My feeling is that the plan that was proposed in the Bryson Bill is a concrete suggestion in itself for elimination of a load on the Patent Office and scarecrow patents and to increase the sum of knowledge in the public domain, which I think is of value. But it would leave the rest of the patent law practically unaffected.

The question that you present is a difficult question, and it is not one that I think my plan would have anything to do with.

MR. GREEN: You fellows are neglecting Professor Kaysen and Mr. Rabinow.

Dr. Sanders, I see you have a question.

DR. SANDERS:<sup>15</sup> My question is addressed to Professor Kaysen and Mr. Rabinow. The question is that, which wisely Professor Kaysen did not answer but paused and which to some extent Mr. Rabinow attempted to answer in terms of his feelings, whether we had too many inventions.

MR. RABINOW: I didn't say this. I just asked the question.

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<sup>14</sup>Thomas E. Kristofferson, General Electric Company, Syracuse, New York.

<sup>15</sup>Barkev S. Sanders, U. S. Public Health Service, Washington, D. C.

DR. SANDERS: Yes. Now, could fundamental questions like this as well as some of the basic questions as to the wisdom of our patent system, what are its contributions to our economy, etc., be answered without much more knowledge as to what is the input and what is the output of this system? To answer these much more knowledge and understanding is needed than we have now on some tangible objective basis.

PROFESSOR KAYSEN: Well, just to have the first crack at the answer, I agree with the implication in Dr. Sanders' question—namely, that we don't now know enough to give an answer. But I also have the feeling, speaking now from the narrow view of my own knowledge and discipline and the kind of studies that have been made, that one of the reasons we don't have the knowledge is that we tend in our examination of how the patent system functions to walk away from rather than toward these questions. I think there are many understandable, good reasons for this. First of all, this is a complex, technical field in two senses. The economist who wants to study it or try to study it has to learn a little bit about the very difficult legal and administrative technicalities that are involved to begin to know what he is talking about. He must also try to learn a little bit about the technological subject matter of whatever it is he's studying to have some feeling for it. This makes great demands on people; it is hard to do; it takes a lot of time to get just that far, if, indeed, anybody does get that far. Perhaps no one does.

Then—how shall I put it?—the strategic, tactical aspects of the situation, as seen by the actors, are both intriguing and complicated. It is easy to get drawn into the discussion of what did A accomplish vis-a-vis B by the following deal, if you know something about the following deal.

Most of our public knowledge about patent practices and what in fact happens is a byproduct of antitrust suits; a smaller part, a byproduct of patent suits. Patent law, of course, is largely what my legal brethren call "file case law" and not case law. And file case law is unknown. It's not available as material for study.

The reason I thought it worthwhile to direct at you what, I fear, are not particularly novel remarks is that a good deal of the research does not direct itself to the essential questions. How much was paid out? How much came in? When did it come in? What connection, if any, was there between what was paid out and what came in? Here the problem is: Where do you get these numbers? Who tells you? And this turns into the deeper problem of: Who knows? I don't know the answer to these questions; but I have some strong suspicions. There are many gentlemen among the audience who have knowledge where I have only suspicions. My suspicions are that even if the file cases were unlocked we still would not have the answers; because this is not the way the problem is thought of generally.

MR. RABINOW: I'd like to make a comment. I hate to follow you because you're too good.

I'd like to say there are some things one can study. First of all, one could study foreign countries. There are comparisons between our patent system and the European. The number of patents per man is known. The income of the country is known. It is, nevertheless, very difficult to make as a valid comparison because there are so many other things that come in. Natural resources. Their history. Their laziness. Their climate. The waterfall. And whatever else you like. But there are things one can study.

We can see how the German patent system works.

And there is this business of publishing patents before they are issued, as is done in some of the countries. I am sure that many of you are quite familiar with how the foreign countries work.

The trouble with this whole subject of whether patents are good or bad is like all governmental things: today they're not susceptible, I believe, to precise study. Neither our computers—which are just calculators speeded up a little bit—nor our knowledge is good enough. Government isn't run as a science. People have to go by feel. And into this field goes all their human experience. And since the country grew big and prosperous with a certain patent system, we tend to perpetuate it.

I think that if our economy runs down and the patent system is changed, it will be changed too late. I think this is always the case with government and with big masses of people which have a sort of time-constant. Our  $L$  over  $R$  ratio is something like 20 years. So that anything that should be done will be done too late. This is true of our defense program. This is true of our economic system. This is true of unemployment compensation. I think this is always true.

I think there is no better way of studying the patent system than looking at foreign countries. I have talked to engineers from foreign countries. They like our system I think, generally speaking, better than their own. I think our inventors fare better, not only because we're a richer country but I think they fare better because the individual has a chance here. In some countries the patent isn't necessarily issued to the inventor. In Argentina anybody can get a patent on anything you may invent. Maybe that improves the economic level by giving the first entrepreneur a good income. I think it hurts the country because it certainly discourages the inventor. At least it makes him very secretive.

I think the Foundation certainly looks into some of these things. I hope they continue. And I hope they come up with the answer that inventors' income should be tripled or quadrupled. This is the answer I'd like to see.  
[Laughter]

MR. GREEN: Any other questions?

This gentleman right here.

MR. SCHNEIDER:<sup>16</sup> With regard to Mr. Kenyon's proposal, I have one addition to suggest, and that is this: I seriously question that the one-fourth or the one-third who file pedestrian inventions or who get scarecrow patents would take advantage of the publication system were they not compelled to do so. I would suggest that the examiner tell such people at the right stage, "Either you file an appeal or you publish, one or the other." Get some teeth into it whereby those things would be forced out into the open.

MR. KENYON: That's a question of policy. It might prevent some people from filing applications at all. I really question whether the Government would have the right to force disclosure on an applicant, although, of course, it could be imposed by law as a condition of even coming in to the Patent Office.

I don't think it is necessary to put teeth of that sort into this law. I want to make it simple. My interest, my deep interest, in this proposal is because it is a very simple change already suggested and highly recommended in many sources, and its immediate effect, it seems to me, would be greatly to improve the operations of the Patent Office and the reputation of the patent system.

I wanted to make one comment on a point that I wasn't questioned about. It seems to me these economists on my left have been questioning the advisability of inventions and progress.

About 200 years ago the founding fathers decided that there was something good in the promotion of the useful arts, and they gave Congress the power to establish a patent system for that purpose. There have been doubts in the meanwhile. I think I'm correct in saying that about a hundred years ago the Commissioner of Patents just before the Civil War decided that all the inventions that were ever going to be made had been made and the Patent Office might just as well be closed up.

Now, do you want things the way they are today, or would you prefer to have them the way they were before the Civil War or to go back to colonial times? That's a matter that I think each one of us can decide for himself. But the founding fathers thought that we wanted progress, and I'm inclined to think that most people agree with them. [Applause]

MR. GREEN: Perhaps we have time for one more question.

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<sup>16</sup>John H. Schneider, Abbott Laboratories, North Chicago.



MR. BARAFF:<sup>17</sup> I think we have spent a lot of time discussing piddling patents and very little thought and attention have been directed to those patents that dominate industries on the whole and which you could perhaps classify as patents valued financially in the millions.

Now, I think there is the center of investigation and it's certainly worth a lot of thought because on the possession of those patents the direction of industry depends.

MR. GREEN: To whom do you address your question?

MR. BARAFF: Anybody.

MR. RABINOW: May I take a crack at this? I do not want to set the clock back. When people talk against automation, I lived in China where we had three servants in the house, and I prefer the system in the United States where we have no servants in the house. I'd rather have the machines. I love machines, and I hope we can use many.

But I just raise the question whether increasing the number of patents should be encouraged or discouraged.

I think the basic patents are different. First of all, there's so much reward in inventing basic things that you don't have to worry about the exact remuneration to the inventor. I'm sure any inventor would give his ears to be able to develop something new and basic, and the reward will be big enough in any case. It may not be millions, but certainly very large.

I think maybe we could have two kinds of patents. I always felt that the Patent Office ought to split the patents into two kinds. On one hand, we can have the patent of the type we now have which is very difficult to get, which should relate to the basic ideas, and on the other hand we can have a patent which is easy to get, a patent on such a device as a different gearbox from the other fellow's gearbox. This last one could be issued as long as no gearbox is just like yours. This kind of patent would be something in between a mechanical patent and a purely design patent. Many of these "scarecrow" patents are not obviously basic inventions. Three clutches followed by three gears, and someone gets a patent on this. There are thousands of these.

If you want to help the basic stuff, I think the examiners will have to be, not the average run of examiners, but the best examiners. They may have to be a special, elite guard in the Patent Office. Maybe such patents should be more expensive to get. Maybe the applications should be handled differently. I don't know what you can do.

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<sup>17</sup>Charles Baraff, International Telephone and Telegraph Company, Nutley, New Jersey.

I would hate to make the decision on which invention is basic and which is not. I would hate to have an inventor come to me and say, "Which is this, basic or just improvement of an old gearbox?" Sometimes a small improvement is a very clever thing, a very brilliant thing.

But I think such a decision will have to be made some day, and I would certainly like to see a study made of not treating all the thousands of patents alike.

**PROFESSOR KAYSEN:** I'd like to comment just very briefly on what was just said.

To an economist, one of the most striking features of our patent system is how inflexible it is. Take the point that Mr. Rabinow was just making, that the patentee gets 17 years protection, more or less, whatever he has. This seems to me inevitably a deficiency, if we are looking for a system that will do something to attune reward to merit. And the suggestion that Mr. Rabinow made—which, to make it concrete, involved something that we might call a petty patent, lasting five years, that the examiner could grind out without worrying too much—might be quite important.

Let me mention another kind of flexibility that might be important. Many discussions of patent reform I think are sterile. On the one hand, there is a rather small minority group that says, "Let us have compulsory licensing. Everybody has access to every patent at reasonable royalty." This is neither widely-held opinion nor one held by the most knowledgeable, experienced people in the field. To be sure, that doesn't show that it is a wrong view. On the other side, you have the patent bar which generally says about this kind of proposal, "Horrors, no. It would undermine the whole system." It is possible at least to conceive of devices, and I don't want to bore you by spinning them out, that would make possible some modulation between all or nothing at all in the question of who has a right to license and under what terms, as well as some modulation between nothing and 17 years in the duration of the grant.

**MR. GREEN:** When this session started two hours ago, I promised you ideas, opinions, controversy. I think the panel has delivered magnificently.

Now, the bourbon hour is approaching, and before we close Admiral Colclough would like to make an announcement.

**DIRECTOR COLCLOUGH:** I want to express the Foundation's appreciation to the participants for the entire day, those who have just participated in this discussion and those that preceded them, and to the members of the research staff who have participated today.

I express our appreciation to all of you for having made this an interesting and productive discussion period.

I say that very feelingly, because one of the prime reasons, one of the two prime reasons, for these annual conferences is to afford the opportunity to interested individuals to come here and discuss these matters. The other is the great benefit we receive for our future work.

I need not belabor the fact that there have been many problems discussed and issues raised here this afternoon in which the Foundation has already declared itself interested and with which we intend to deal. We certainly have derived a great deal from the discussions. And when you remember that these proceedings are published, that they become a matter of record, I am sure you will agree that it has been a meaningful afternoon.

This evening, as your programs tell you, at six-thirty, there will be a reception, followed by dinner in the Continental Room where we had lunch.

It is our sincere hope that all of you will be here. If, perchance, there are any who cannot be here, then I call your attention to the fact that tomorrow's sessions start at nine-thirty rather than nine.

So, looking forward to seeing you this evening, we stand adjourned.

[Whereupon, at 5:00 P.M., the Conference was adjourned, to be reconvened at 9:30 A.M., Friday, June 20, 1958.]

# The Judicial Process in Unfair Competition Law

## A Perspective and a Focus

S. CHESTERFIELD OPPENHEIM

AN ADDRESS delivered by S. Chesterfield Oppenheim, Professor of Law, University of Michigan, at the award dinner of the Annual Public Conference of the Foundation on June 19, 1958. Professor Oppenheim received the Foundation's first "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education."

**T**HIS Patent, Trademark, and Copyright Foundation was established to explore through research and the empirical method the ramifications of legal systems for the protection of industrial and cultural creations. It is interesting to recall that among the names suggested for this undertaking was The Intellectual Property Foundation—a designation which would embrace all products of the mind the law might secure against unfair appropriation. This breadth of potential coverage is in fact recognized by the Foundation's Declaration of Trust which covers systems cognate to those pertaining to patents, trademarks, and copyright.

It therefore seems fitting on this occasion to place in perspective, and thereby perhaps bring into focus, some fundamental aspects of the private law of unfair competition as it evolved at common law and in courts of equity. Unfair competition is one area of law that is either pendent to the three systems mentioned or independently presents doctrinal aspects of great significance. In the accommodation of the judicial to the legislative process, what legal doctrines have marked out the boundaries of protection of the fruits of private enterprise in commercial and intellectual pursuits?

The premise of American private enterprise is that the discipline of competition is the generating force of a free society in keeping with our political, economic, and social traditions. We reject extensive authoritarian controls in order to preserve for individuals and business firms freedom to fashion their own destinies with the greatest scope the public interest allows. Two interrelated bodies of law limit this liberty. One is our antitrust policy designed to maintain competition by prohibiting its suppression or substantial lessening. The other is a policy against unfair competition designed to regulate the level of competition by insuring its fairness and honesty with resulting benefits to the consuming public.

Unfair competition law developed from the judicial process of the law of torts or civil wrongs. "Unfair" and "competition" are terms that defy precise definition or exact formulation. It is no oversimplification, however, to say that common law and equity sought to moderate the excesses of competition by redressing business wrongs arising from unprivileged inter-

ferences with existing and prospective business relations. Later, this was extended to safeguarding literary, artistic and similar types of intellectual creations. In a broad sense, fair competition is recognized as privileged conduct. Unfair competition is condemned as out-of-bounds tortious conduct. Some economists have constructed a game theory of competition from which analogies can be drawn. In popular parlance of sports, we use the terms "fair play" and "rules of the game" to characterize fair competition and expressions like "foul play," "hitting below the belt," or "dirty tricks" to condemn unfair competition.

We first turn to the common law to see in broad outline the theories of liability that evolved to distinguish between fair and foul competitive play in commercial relations. The story starts with the fascinating *Schoolmaster's Case* in 1410 in the English Court of Common Pleas. (Hilary Term. Y. B. Hen. J. V., f. 47, pl. 21)

Two masters of a grammar school in Gloucester brought an action on the case against the defendant who had the temerity to open a competitive school there. The plaintiffs sparred with all kinds of legal technicalities, including a claim of an exclusive franchise from the church. They were aggrieved because they lost pupils and fees and apparently the defendant was a fee cutter. The court held there was no cause of action.

Here is a foundation stone of the privilege to engage in a private business in good faith and to compete for customers. This privilege still prevails as a cardinal principle of the American common law of torts. We sometimes lose sight of the reasoning that a competitor must have freedom to inflict harm on his rivals so long as that injury results from constructive rather than destructive competition.

When the competitive market economy emerged in England, two theories of tort liability evolved which later found their way into the fabric of American unfair competition law. This dichotomy must be explained, for, in my view, it provides a key to an understanding of the present posture of judicial doctrine pertaining to protection of both commercial relations and intellectual productions. This is done only in broad outline and sweeping retrospect.

One common law theory of the cause of action for illegal competition stems from the concept that all actionable wrongs must fall within one of the so-called nominate torts. This simply means that the plaintiff must show he has been harmed by such traditional wrongful conduct as fraud or misrepresentation, negligence, libel and slander, including disparagement of business conduct, conspiracy and inducing breach of contract. This exemplifies the rigidity of the common law systems in denying a remedy where there was no specific writ. It has nevertheless not precluded the courts from liberalizing the requirements for redress. As we shall see, unfair competition also became a nominate tort but it has been expanded as a classification covering various kinds of unfair conduct.

A second common law theory relevant to unfair competition is that there is a general principle of tort liability. This might encompass conduct within the previously mentioned categories of wrongs, including unfair competition, but it is broader than, and independent of, such rigid classifications. It provides an element of flexibility. It vests in the courts wide judicial discretion in case-by-case adjudication of new private claims that press for recognition and legal security as the economic, technological, and cultural life of society progresses. It supplies to a considerable extent a unifying principle not hemmed in by predetermined types of legal and equitable remedies or a rigid property right concept.

While differing in basic concept, these two theories are not wholly antithetical. Both of them have been applied in the United States in federal and state courts in causes denominated unfair competition and in other actions designed to resolve similar issues under the more plastic general principle of tort liability. In helping to bring into focus contemporary doctrines in this field, a few pages of legal history remind us of fundamentals which are sometimes blurred by failure to re-examine them.

Among the early English cases *Keeble v. Hickeringill*, 11 East 574, 103 Eng. Rep. 1127 (Queens Bench, 1706), decided in 1706 is epochal. There the plaintiff owned a pond to which wild fowl were accustomed to come. The plaintiff invested capital in decoys and nets for enticing the game. The defendant, it was alleged, wilfully and maliciously fired guns which frightened the fowl and caused them to forsake the plaintiff's pond. Lord Holt sustained the plaintiff's action on the case for damages.

The great teaching of this case for the modern law is its doctrine that there is a common law right to conduct a lawful business for profit without unjustified interferences of others, whether they be competitors or noncompetitors. In 1706 private enterprise in Merrie England was on the march. The plaintiff may have been partly motivated by the love of the sport, but Lord Holt said he was seeking to supply the markets of England with wild game. This was in the public interest and so "He that hinders another in his trade or livelihood is liable to an action for so hindering him" by unprivileged behavior.

Is the general principle of tort liability formulated in the *Keeble* case living law today in unfair competition litigation? There are indications that the bar is not sufficiently aware of the impact *Keeble* has made upon the development of a similar doctrine in America under the strange designation of the prima facie tort. Its genesis is in the writings of Justice Holmes, Dean Wigmore, and Sir Frederick Pollock, who sought a rationale for unifying the law of torts by breaking away from the orthodox notion that all wrongful conduct must fall within one of the particular torts. The classic formulation of the prima facie tort concept first appeared in Justice Holmes' Supreme Court opinion in *Aikens v. Wisconsin*, 195 U.S. 194 (1904), in these words:

"It has been considered that, *prima facie*, the intentional infliction of temporal damages is a cause of action, which, as a matter of substantive law, whatever may be the form of pleading, requires a justification if the defendant is to escape."

Suggestive of this same breadth is Justice Brandeis' statement in another Supreme Court opinion that "The right to carry on business—be it called liberty or property—has value. To interfere with this right without just cause is unlawful." It is not so well known that this broad doctrine has been accepted in some of the federal and state courts and applied to unfair competition cases involving wrongful interference with business relations. We turn to some illustrative cases.

In *Original Ballet Russe, Ltd. v. Ballet Theatre*, 133 F.2d 187, in the federal Court of Appeals for the Second Circuit in 1943, the parties were competitors in producing ballet performances. The plaintiff sought damages alleging that defendant had deliberately set out to destroy the plaintiff's business by inducing dancers to break their contracts with plaintiff and by maliciously circulating false statements to injure plaintiff's reputation. The court held that the complaint stated a single cause of action for intentional destruction of the plaintiff's business without justifiable excuse. It expressly stated that this cause of action goes back at least to the early English case of *Keeble v. Hickeringill* and to the philosophy brilliantly expounded by Justice Holmes. The particular wrongful acts might independently have been deemed separate wrongs but here they were only parts of the over-all plan to ruin the plaintiff's enterprise.

In 1946 in *Advance Music Corporation v. American Tobacco Company*, 296 N. Y. 79, the New York Court of Appeals re-affirmed its adoption of this approach. In this case the defendant sponsored the "Hit Parade" radio program which purported to list and perform the leading song hits of the country reported by an independent survey. Plaintiff alleged that as a publisher of sheet music sold through distributors it was dependent upon the rating of its songs in promoting sales. The complaint further alleged that defendant intentionally omitted plaintiff's songs or devalued their ratings and this diminished plaintiff's revenues and impaired its business reputation and property rights. This was held to state a good cause of action for relief either at law or in equity with the caveat that defendant's justification must be one the law will recognize.

One more example is *Mackey v. Sears, Roebuck & Company*, 238 F.2d 86, decided in 1956 in the Seventh Circuit Court of Appeals. There Sears was charged by plaintiff with predatory price cutting, threats of boycott and other practices alleged to be intentionally aimed at driving the plaintiff out of business. The value of this case is underscored by the action of the Court in dismissing plaintiff's counts for violation of the federal Sherman and Clayton Acts, while sustaining a count based upon the *prima facie* tort of predatory price cutting beyond the bounds of justified competition.

These and other cases that could be cited are illustrative of the *prima facie* tort as the modern version of the historic tort remedy known as an action on the case which was used in the *Schoolmaster* and *Keeble* litigation, an alternative remedy which permits the courts to keep pace with changing economic and social values in case-by-case adjudication. The New Jersey Court of Equity as far back as 1902 in *Jersey Printing Company v. Cassidy*, 63 N. J. Eq. 759, summed up this approach in these prophetic words:

... A large part of what is most valuable in modern life seems to depend more or less directly upon "probable expectancies." When they fail, civilization as at present organized may go down. As social and industrial life develops and grows more complex, these "probable expectancies" are bound to increase. It would seem that courts of law, as our system of jurisprudence is evolved to meet the growing wants of an increasingly complex social order, will discover, define, and protect from undue interference more of these "probable expectancies."

At this point we sketch one more common law development as a means of redressing conduct deemed offensive to a fair and equitable rivalry for personal gain. Coexistent with the tort remedy of action on the case and the *prima facie* tort concept is the category that carries the specific label of unfair competition. There are thus three main common law headwaters from which relief for essentially the same generic type of wrong can flow.

In its narrow common law meaning, the nominate tort of "unfair competition" was confined to what is called the "passing off" practice. This was a species of misrepresentation first emerging in trademark infringement cases. A trademark is a symbol of identification to distinguish the particular source of one's goods from those of another. "Passing off" means that a person uses an identical or confusingly similar mark to palm off his goods as those coming from the owner of the goodwill of the mark. This deceit occurs whenever there is likelihood of confusion of prospective purchasers which tends to divert customers from the owner of the trade symbol. Similar passing off can be accomplished by imitation of the appearance of a product, its labeling or packaging, and other multifarious features. There are numerous doctrinal refinements not here relevant, since my purpose is simply to characterize the essence of this type of misrepresentation the law seeks to curb.

In 1918 in the classic *International News Service v. The Associated Press* case, 248 U.S. 215, the Supreme Court of the United States expanded the unfair competition concept to include situations where one misappropriates what equitably belongs to another. Instead of misrepresenting by selling his goods as coming from the plaintiff, the defendant tells the world that he is the creator of what he has appropriated from the plaintiff. This has been called inverse passing off.

The facts of the *Associated Press* case were these. International News Service was copying news items from the AP bulletin boards and early editions of AP member papers. As a result the newspapers on the West Coast subscribing to INS service were frequently able to scoop papers using AP



service. The Supreme Court condemned this practice as a misappropriation species of unfair competition. The Court did not decide whether there was a general property right in the news or whether the form of expression in the write-up of the news was protected by the Copyright's Law. It cut to the core of the wrong by characterizing the defendant's conduct as reaping where it had not sown. AP and INS were competitors in gathering and disseminating news. INS, without cost to itself, was appropriating for its profit the fruits of AP's labor, expenditures, skills, and money while the news still had commercial value as "fresh" or "hot" news. As one writer has aptly said, this introduced into the law of unfair competition a remedy against unjust enrichment of the defendant to the detriment of the plaintiff. This is deemed contrary to good conscience. It is not cricket.

The generality of this misappropriation doctrine is comparable to the prima facie tort and the plastic action on the case. The Supreme Court indicated as much in articulating a general proposition applicable to both competitive and non-competitive relationships.

... when the rights or privileges of the one are liable to conflict with those of the other,

Justice Pitney said,

each party is under a duty so to conduct its own business as not unnecessarily or unfairly to injure that of the other.

I shall return later to a summation of the extent of application of the misappropriation doctrine.

We have looked back at the development of three theories of liability and remedial processes. From this perspective I now venture suggestions which may be helpful in evaluating the contribution the judicial process, apart from the legislative process, is capable of making to unfair competition law.

This is a mixture of diagnosis and prognosis one can tremble to make. It brings into view the interactions of the judicial and legislative processes. It calls for recognition that in conceptual structure and operation the private law of unfair competition cannot be reduced to a unified rationalization. In this branch judicial and legislative law-making have manifested both progression and retrogression. There have been inconsistencies and contradictions. Another shortcoming has been lack of uniformity of doctrines which has been accentuated since the Supreme Court's decision in *Erie Railroad v. Tompkins*, 304 U.S. 64 (1938), required federal courts, in the absence of a relevant federal or state statute, to apply the decisions of the courts of the particular state as the applicable law in adjudication. This has tended to produce a checkerboard of conflicting decisions.

I do not overlook these deficiencies in setting forth some beliefs which may bring into sharper focus the considerations relevant to the means of giving greater coherence to the law of unfair competition.

The basic choice is between the judicial and legislative processes for resolving conflicting interests of claimants for legal protection of business and cultural values on the one hand, and for freedom of sharing those values on the other hand. The common law and equity general principles, we have sketched, place in the courts broad discretion in projecting the growth of private unfair competition law. In my view this capacity of the unwritten law should not be underestimated when weighing the alternative of relying upon extension of the legislative and administrative processes as others have advocated.

This is not an all or none choice, since obviously legislation is necessary in certain situations to supplement the unwritten law. The patent and copyright laws illustrate legislation indispensable to fulfillment of the constitutionally sanctioned purposes of these systems. Implementation of common law and equity in the Trade-Mark Act of 1946 to broaden protection is another example of salutary legislation. In federal public law proceedings, not directly relevant here, Section 5 of the Federal Trade Commission Act delegates to the Commission initial administrative and quasi-judicial authority to determine what constitutes unfair methods of competition and unfair or deceptive acts or practices. Other instances of needed regulation can be found in the confused mass of state legislation.

Without denying the need for legislation as a check and balance to fulfill purposes to which the judicial process is ill-adapted or which it has failed to achieve, I believe that doubts should be resolved in favor of primary reliance upon traditional Anglo-American lawmaking by judicial decision as against legislation in adjudicating unfair competition issues in adversary proceedings between private parties. I stress this as a preference. This does not mean that further study should not be given to proposals, for example, for a federal law of unfair competition applicable to private suits or for a uniform state unfair competition statute. I believe, however, that there has been a tendency to undervalue the potential progress that can still be made toward achieving a greater degree of coherence and uniformity of doctrine in this field by application of the general principles of common law and equity which we have previously described. The time lag in judicial response through unwritten law may be no greater or no more costly than the time lag in fulfilling declared legislative purposes. There is also risk that by either method desired objectives will be frustrated.

Two chief contentions favoring legislation are disclosed either in court opinions or in legal literature. One contention is that the legislature is better equipped than the courts to define and limit in uniform, comprehensive, and orderly fashion the interests worthy of protection and the scope of remedies in unfair competition law. The other contention is that, absent

such legislative guides, the courts may create judge-made monopolies incompatible with the goals of a free society. In particular situations, this concern is expressed when relief for unfair competition is sought for subject matter not covered by the patent and copyright laws or, if covered, where such protection has not been obtained. Here the fear is expressed that perpetual monopoly might be given judicial sanction instead of the limited time monopoly of the statutory patent or copyright. We shall briefly deal with each of these contentions.

It should be noted that in any given case the court of equity must find that the claimant has some interest of substance and value the law will protect. This may be a contract right, a trust or confidence, or other relational interest. In most unfair competition cases, however, the courts have applied the property concept and initially determined whether the interest sought to be secured has attributes of either an absolute or a qualified property. This property concept, however, can be expanded, and some courts have so stretched it to cover a conglomerate of intangible values. There is truth in the assertion that any value a court decides to protect can be labeled a property right. This makes property more a legal conclusion than a formulary description. It takes in all manifestation of business good will and literary, artistic or other intellectual productions.

Let us return to the misappropriation doctrine as a vehicle for demonstrating the conflicting judicial attitudes toward this problem. Some courts have applied the misappropriation doctrine with the conviction that they are capable of utilizing the method of a Rule of Reason in determining what constitutes unprivileged or unjustified conduct of competitors and parties that are not in a competitive relationship. They have sought to do this by resort to economic, ethical and social criteria of unfairness with due regard for the over-all public policy of maintaining effective competition. Here is a typical expression of this attitude in these words of a New York state court judge in *Dior v. Milton*, 155 N.Y.S.2d 443 at 451 (S. Ct. N. Y. 1956) :

In passing upon the question of the sufficiency of this complaint alleging unfair competition, it is helpful to bear in mind the origin and evolution of this branch of the law. It originated in the conscience, justice and equity of common-law judges. It developed within the framework of a society dedicated to the freest competition, to deal with business malpractices offensive to the ethics of that society. The theoretic basis is obscure, but the birth and growth of this branch of the law is clear. It is a persuasive example of the law's capacity for growth in response to the ethical, as well as the economic needs of society. As a result of this broad background, the legal concept of unfair competition has evolved as a broad and flexible doctrine with a capacity for further growth to meet changing conditions. There is no complete list of the activities which constitute unfair competition.

Courts that are hospitable to these postulates have not hesitated to apply the misappropriation doctrine of the *Associated Press* case to novel situations. Leaving to one side other issues frequently raised in the same case and problems of patent or copyright protection, let us cite a few examples of extensions of unfair competition.

In *Waring v. WDAS Broadcasting Station*, 327 Pa. 433 (1937), Waring's Pennsylvanians orchestra made licensed recordings of musical compositions it broadcast over the air. The records were sold at retail at 75 cents. The defendant broadcasting station purchased these records and broadcast them as part of its sustaining program. This conduct was enjoined. Recognizing that Waring had a common law property right in the particular artistic style of rendering the composition, the Supreme Court of Pennsylvania reasoned that the defendant had unfairly appropriated for its profit the product of the labor and talents of the musical artistry of Waring's orchestra. In the competition of furnishing entertainment to the public, defendant was diluting the value of the exclusivity of Waring's live broadcast for which the sponsor was paying substantial sums.

In the world of sports, *Pittsburgh Athletic Club v. KQV Broadcasting Company*, 24 F. Supp. 490 (W. D. Pa. 1938), furnishes another illustration. There the Pittsburgh Pirates contracted for the exclusive right to broadcast play-by-play descriptions of its ball games. Defendant stationed paid observers at vantage points outside the ball park and broadcast the game as it progressed. This was enjoined by a federal court as a misappropriation of the fruits of the plaintiff's enterprise and expense in maintaining an organization and originating a sporting contest where the essence of the commercial value was exclusivity in reporting the play-by-play descriptions. Defendant was privileged to report the news of the results of the game inning by inning. It was not legally justified in taking a "free ride" on the expenditures and the other composite of values attributable to the ball club, the advertising sponsor, and the broadcasting company. Under similar circumstances, unauthorized broadcast of blow-by-blow descriptions of a boxing match or the taking of motion pictures of the bout have been enjoined even though the appropriator was located outside the plaintiff's premises.

New York is a jurisdiction where the state courts have not faltered in balancing the interests of the parties by applying the general equitable principles of the misappropriation doctrine. One of the most recent is *Metropolitan Opera Association v. Wagner-Nichols Recording Company*, 101 N. Y. S.2d 483 (S. Ct. N. Y. 1950), *affirmed* 107 N. Y. S.2d 795 (App. Div. 1951). It was alleged that Metropolitan Opera had granted Columbia Records the exclusive right to make records of its operatic performances broadcast under exclusive rights sold by the Met to the American Broadcasting System. Defendant made an "off the air" master recording of certain Met performances and from this made and sold records in competition with those sold by Columbia. These allegations were held to state a cause of action for unfair competition. Applying the *Associated Press* doctrine, the court mentioned as factors relevant to misappropriation the income the Met derived from its contracts, its substantial investment in its organization, the employment of famous opera singers, an orchestra, chorus

and other creative intangible goodwill values involved in the Met performances and in maintaining their high quality and favorable reputation.

Some commentators have concluded that the misappropriation doctrine has been sparingly applied by the courts and does not offer the promise the *Associated Press* case portended. My review of the cases has led me to agree with writers who believe the doctrine has had considerable influence in the growth of this segment of the law.

We now turn to an examination of a judicial attitude which repudiates the breadth of the misappropriation doctrine of the cases just described. It can be traced in significant part to the prestige and impact of the opposing rationale articulated in the dissent of Justice Brandeis in the *Associated Press* case and in the opinions of Judge Learned Hand.

In his dissent Justice Brandeis recognized that the unwritten law possesses capacity for growth. He shied away, however, from enlarging the scope of unfair competition beyond conduct condemned by the traditional torts. He reasoned that to grant additional relief would require the making of a new rule of law rather than satisfying new demands for justice by invoking analogies or by applying an existing rule to new facts. In his view the legislature, and not the courts, is equipped to recognize a new private right and to define its boundaries when the complexities of conflicting claims need resolution in harmony with the overriding public interest. Justice Brandeis felt that the obvious injustice of giving a competitor a "free ride" could not be corrected by judicial action alone without opening the door to greater evils.

In similar vein Judge Hand declined to grant injunctive relief in a suit against a defendant who had copied a published popular design for silk fabrics created by the plaintiff. He rejected the contention that this inequitable conduct came within the reach of the majority opinion in the *Associated Press* case. He glossed the broad language of that opinion by interpreting its rationale as limited to substantially similar factual situations. Though he felt the plaintiff had suffered an injury for which there should be a remedy, he said there are larger issues at stake in correcting what he called "an hiatus in completed justice." This, he continued, judges cannot do when the subject has been entrusted to Congress for determination under the patent and copyright laws. Plaintiff might have secured a design patent, Judge Hand pointed out, and an amendment of the copyright law might be sought if it does not already cover the case. To create by judicial fiat a common law patent or copyright would give plaintiff a monopoly contrary to the limited time exclusiveness the Constitution allows only Congress to grant. Judge Hand further observed that since the court must judge on the limited record prepared by litigants, its vision is inevitably more contracted than that of the legislature which can view the whole horizon. In this he concurred with Justice Brandeis' conservative approach.

In *RCA v. Whitman*, 114 F.2d 86 (2d Cir. 1940), Judge Hand reiterated that the *Associated Press* case must be confined to its facts and denied there

was misappropriation in a situation virtually identical to that in the *Waring* orchestra case we have previously described.

We can now evaluate these conflicting approaches. In my view the Brandeis-Hand conclusion that the courts are not equipped to define and limit novel private rights seems unwarranted in theory and practice. The courts which have undertaken this judicial task have not set sail on entirely uncharted seas. It has not proved impossible to identify the tangible and intangible embodiments of such values as the talents and skills of performing artists, the investments and expenditures in organizations like the Associated Press, Metropolitan Opera, Waring's orchestra and the Pittsburgh Pirates, and other manifestations of subject matter that have the attributes of substance and value associated with property rights. Nor have the courts lacked perception in distinguishing and rejecting spurious claims of property in mere abstract ideas for which there is no legal protection once they are voluntarily disclosed without the safeguard of contract or confidential relationship.

I do not underrate the judicial burden of determining whether or not the defendant's conduct is privileged or justified, once the court has found the requisite protectible interest and that defendant has invaded that interest. There is ample precedent at law and equity for exercise of this broad discretion. There is a tendency to overlook the striking parallel in application of the Rule of Reason in public law areas such as our antitrust and trade regulation laws. The generality of the three fundamental concepts we have traced through the common law—the action on the case, the *prima facie* tort and unfair competition as one of the nominate torts—are comparable to the general standards in which enacted public laws are couched. A prime example is the Sherman Act's prohibition of unreasonable restraints of trade and monopolization. Chief Justice Hughes distilled the essence when he characterized the Sherman Act as "a charter of freedom" which "has a generality and adaptability comparable to that found to be desirable in constitutional provisions."

Resort to this legislation did not, and, in my view, could not provide a substitute for ultimate judicial resolution of licit and illicit conduct. It is well known that antitrust doctrines are judge-made. The Supreme Court in 1911 adopted the Rule of Reason as the master yardstick of judicial interpretation and in 1956 the Court categorically stated that it "has not receded from its position on the Rule." This standard has generated controversy and will continue to do so because of divergent views regarding its role and applications in varying factual situations. There is consensus, however, that the Rule of Reason vests discretion in the courts "to decide whether conduct is significantly and unreasonably anticompetitive in character and effect."

The general principles in unfair competition law we have sketched likewise rely upon the courts to decide whether the defendant's conduct is by

nature and effect significantly and unreasonably unfair in the context of a free economic and cultural society. Certain types of conduct can be quickly and positively adjudged unreasonable per se with greater assurance than in the more complicated antitrust field. Fraud, misrepresentation, the gross forms of physical interference, boycotts, disparagement and the like do not require extravaganza of judicial inquiry and analysis beyond the competence of judges and the efficacy of fact-finding processes in private adversary litigation. To be sure, there are differences in the degree of difficulty when the novelty of the plaintiff's claims reach into areas theretofore unmapped in common law and equity suits. It is not apparent, however, why the Anglo-American tradition of growth of law through the judicial process cannot be equal to this exploratory task. If we are persuaded that the American industrial and cultural order is too diverse and changeable to make realistic and workable a comprehensive code of specific fair or unfair practices, then it follows that general legislative standards will in any event throw into the lap of the courts the ultimate function of giving content to such standards in case-by-case adjudication.

As previously stated, advocates of primary resort to legislation, in addition to stressing the inadequacy of the judicial process in the twilight zones of unfair competition, have also emphasized the danger of creating or expanding judge-made monopolies contrary to the overriding public interest in maintaining effective competition. This is an exaggerated fear. It may at times stem from ideological resistance to exclusiveness of rights in industrial and intellectual values beyond the traditional concept of private property in land and chattels. In part it may be attributable to an indiscriminating and emotional use of the word "monopoly," as though it uniformly meant the power to control the market by fixing prices and excluding competition. We cannot deal here with the various refinements of economic and legal analysis of the monopoly concept. Suffice it to say, our society is suffused with differential advantages accruing to particular persons. These are illustrated by product differentiation in brand names, quality, design, or packaging that distinguish one's source from other sources of goods. The Supreme Court in the recent *Cellophane case*, *United States v. E. I. du Pont de Nemours and Company*, 351 U.S. 377 (1956), judicially recognized the economists' characterization of these advantages as forms of imperfect competition in the sense that the owner of good will of the differentiated products has a monopolistic element in consumer preferences for what he produces and sells. Yet the Supreme Court did not equate this with illegality. The majority opinion of the Court warned against this fallacy by saying:

... one can theorize that we have monopolistic competition in every non-standardized commodity with each manufacturer having power over the price and production of his own product. However, this power that, let us say, automobile or soft-drink manufacturers have over their trademarked products, is not the power that makes an illegal monopoly. Illegal power must be appraised in terms of the competitive market for the product.

In the unfair competition field, some of the opinions of Justice Brandeis and Judge Learned Hand warned against judicial sanction or extension of monopoly rights for which there is no constitutional or statutory basis or common law precedent. In part this solicitude is expressed in situations where the claimant is put to an election between the limited-time exclusiveness of a statutory patent or copyright and the perpetual exclusiveness of common law property rights not lost by reason of the owner's conduct. This reasoning is conditioned by the legal concept of publication which we can treat here only in summary form.

As a word of legal art, a general publication results when the owner of subject matter having the attributes of property makes it available for common use. A classic example is literary or artistic property. The rubric is that common law rights in such works continue indefinitely until a first publication is made. There are many acts which may bring this about. A common example is making copies of a book or musical composition and placing them on public sale. Since these are also copyrightable works under our law, publication with notice of copyright paves the way for 28 years' protection with one renewal for a like term. If the subject matter is not copyrightable, the owner may lose all of his rights of exclusion.

Judge Hand has consistently said that the owner cannot have it both ways. If he embodies his literary or artistic property in a tangible chattel for public sale or distribution, his common law exclusive rights are terminated. If this subject matter is within the copyright law and he fails to comply with the statutory formalities, such as notice of copyright, he dedicates his work to the public.

There are various oddities in the publication concept. For example, contrary to the layman's idea of a general publication in the dictionary sense, a public performance of a play, a broadcast or telecast of a musical composition or script, an oral delivery of a teacher's lecture or a minister's sermon is not a general publication if, in all the examples cited, no tangible copies are made accessible to the public. One may hear or see but is not privileged to reduce the subject matter to possession.

In Judge Learned Hand's view, public sale of copies of a work divests the owner of his common law property and if he does not or cannot secure the limited-time monopoly of statutory copyright, the court should not give him the bonanza of a perpetual monopoly by ignoring the general publication. There are conflicting decisions, however, on whether the owner can impose restrictions which manifest a subjective intention to make only a limited publication. For example, in the *Fred Waring* case we previously mentioned, each phonograph record placed on public sale contained a notice restricting the purchaser to non-commercial uses of the record, thus prohibiting broadcast for profit. This restriction was upheld as a so-called equitable servitude on chattels. In the *Whiteman* case Judge Hand refused to give effect to a similar restriction deemed to be an unreasonable restraint upon use by the purchaser.



This suffices to indicate the resistance of some courts to common law or equity recognition of exclusive rights in the types of subject matter we have illustrated. Judge Hand's view, it should be noted, is in conflict with the extension of the misappropriation doctrine in the *Metropolitan Opera* case where the New York Court held that it could enjoin as unfair competition the copying of phonograph records of the Met operas even though these records had been placed on public sale. In the 1955 *Capital Records v. Mercury Records* case, 221 F.2d 657, the Second Circuit Court of Appeals applied this New York doctrine to enjoin the defendant's copying of the records of musical compositions which are in the public domain. The records as such were held not copyrightable under our Copyright Law. Judge Hand's dissent recognized that this was in conflict with his views, but agreed that the *Metropolitan Opera* decision is conclusive if the issue is to be decided by the law of New York where the records were sold.

To what extent is the fear of judge-made monopolies justified? In some of my writings on this subject I have stressed the need for the Rule of Reason in unwritten unfair competition law comparable to the Rule of Reason in the Sherman Antitrust Act. In applying the standard of reason to unfair competition doctrines, there is relevance in Judge Jerome Frank's warning against succumbing to the "monopoly-phobia" which he described as "both a symptom and cause of a neurotic tendency which, in refusing bravely to face facts, cannot yield intelligent advice." We also should give heed to Judge Hand's equally relevant caveat that "In the guise of protecting against unfair competition, we must be zealous not to create perpetual monopolies." My study of the case law has nevertheless inclined me to believe that generally the extension of the unwritten law in unfair competition through judicial decisions has not been out of harmony with American aversion to monopoly rights. The judicial conscience has been sensitive to spurious and inflated claims of exclusive rights. It seems fair to say that judicial expansion of unfair competition doctrines has been conservative rather than daring. The open market for industrial and intellectual productions outside the patent and copyright systems does not appear to be in danger of foreclosure. Unprivileged poaching on the good will of trademarks and trade names, to mention one area of unfair competition, has been weighed against the freedom to make use of undeceptive common words of the language, geographic terms, personal names, and functional features essential to the making and sale of goods. In fact, members of the trademark bar at times complain that some courts have allowed the catch-word of monopoly to restrict unduly the scope of protection of these trade symbols. In the borderland areas where Judge Hand has placed judicial barriers to expansion of unfair competition doctrine, some might wonder why there should be such fear of exclusive rights in designs and styles recognized by Judge Hand himself to be as ephemeral as the changing moods of the dictators of women's fashion. Hemlines rise and fall. Today it is the chemise, the sack, and the trapeze. Women's hats are first

off the face and later on the face. The repertoire of currently popular musical compositions, apart from the imperishable classics available to free use of all, cannot long withstand the whimsies of the public. Today's public insatiability for the words and lyrics of "Hound Dog" becomes surfeited tomorrow.

The thesis that primary reliance should be placed upon judicial mapping of the metes and bounds of the unwritten law of unfair competition has been presented with due acknowledgment of its imperfections and with recognition of the necessity for legislation to meet purposes unfulfilled by the judicial process. It is understandable, for example, that the failure of the courts to bring piracy of industrial designs within the reach of unfair competition doctrine has resulted in long-time efforts to obtain legislative protection beyond the present prospects of securing copyright registration as a "work of art" or a design patent. We must also note that lack of effective private remedies against false advertising, other than the "passing off" practice, has accounted for Section 43 (a) of the Trade-Mark Act of 1946 designed to redress in broader scope false descriptions or representations. This provision has been both strictly and liberally construed and its effectiveness is not yet fully assured. We again remind you that when these types of legislation are formulated in general standards, the judges will tend to have the final word anyway with respect to legislative intent and interpretations that give content to the meaning of the general language.

In conclusion, I suggest that while judicial evaluation of conduct as fair or unfair competition inescapably involves subjective elements, such as the sensibilities or intuitive judgment of the tribunal, case-by-case adjudication is not and need not be divorced from objective processes. Here, as in other fields of the law, the courts need procedural improvements in fact-finding. They also need the aid of the empirical method for introducing into the record of a particular case factual information relevant to the interests of the parties seeking protection of industrial and intellectual productions and the parties contending for freedom to share in these creations. From these sources, always subject to the right of cross-examination in the trial of cases, can come more realistic and sure-footed judicial consideration of objective data for equitable adjustment of the private claims in accommodation to aims of the American economic and social order. It may be anticipated that as this Foundation moves into the area of research in the system here designated as unfair competition law, it will initiate pilot studies in this field comparable to those it has undertaken under the patent system and is likewise planning to do under the copyright system. This is the Foundation's program for enlightenment on the relation of all of these systems to industrial and social progress.

## FRIDAY MORNING SESSION

June 20, 1958

The Conference was reconvened, pursuant to adjournment, at 9:40 A.M., Director O. S. Colclough, Moderator, presiding.

**DIRECTOR COLCLOUGH:** Members of the Conference, it would appear that we have some "fair weather" sailors. I congratulate all the "foul weather" sailors who have made it on time. Rather than wait for those who are not here yet, in the interests of maintaining our schedule today I think we probably should start.

The first item on the report and discussion agenda for today is the "Relation of American Patents, Trademarks, and Techniques, and American-Owned Foreign Patents to Foreign Licensing." This is designated as Project 5a of the Foundation's work plan.

The principal investigator of this project is Dr. J. N. Behrman. He is a professor of economics, formerly of Washington and Lee and now of the University of Delaware. He received his doctorate at Princeton.

He was research assistant in the International Labor Office in Montreal on postwar problems of the iron and steel industries. He has taught at Davidson and also at Princeton.

He is author or co-author of a number of books and articles, the latest of which is co-authorship with Associate Professor Wilson Schmidt of The George Washington University of an important volume in the field of international economics.

Professor Behrman. [Applause]

### Relation of American Patents, Trademarks, and Techniques, and American-Owned Foreign Patents to Foreign Licensing

(Project 5a)

#### RESEARCH PROJECT REPORT

**DR. J. N. BEHRMAN:** Thank you, Dean Colclough.

I presume that most of you are interested in some direct way with foreign affairs, licensing know-how, patents, trademarks. I will not stop to go into

a definition of these types of proprietary assets but will, rather, go directly into the subject matter of our investigation, the way in which we proceeded, and the results.

As with most of the projects of the Foundation, we found we could not obtain secondary information and had to go directly to the source: the corporations themselves and government officials. So we interviewed about 65 corporations across the desk and sent questionnaires to another 400.

We got excellent qualitative responses from them. Forty per cent of them responded, which is pretty good statistical response.

Not all of them were engaged in licensing, and we had some answer that they had specific reasons for not doing so, others that they just had not done so.

About 115 of them returned detailed answers to the questionnaires, so that we have results of around 180 corporations, from which we drew our conclusions and some of the analysis of the problems of licensing.

The results which we obtained may be influenced by the fact that more than 40% of those responding at least to the mail questionnaire were lawyers. They were either heads of patent or legal departments, patent lawyers or legal counsel. Nearly 20% of them were vice presidents, and 12.5% were presidents or assistant presidents. Another eighth were secretaries or assistant secretaries or assistants to secretaries. The remaining 15% were spread over the various management positions in engineering, international operations, exporting, and so on.

We would have to have a larger study, I think, and more personal examination of our participants, to find out whether or not this bias in terms of obtaining information from lawyers has affected the study significantly. Some officials have argued that those in the legal profession don't understand some of the operations of the company; it was rather interesting at times, when I went through several of the offices, to find completely contradictory information given to me as factual by the different officers of corporations. I never called it to their attention, because I thought it might be a little embarrassing.

Licensing, as many of you know, has received considerable interest in the past ten years or 15 years. We sought to find out how significant was this increase. The increase in licensing has been reflected in a greater activity by companies already licensing as well as a rise in the number of companies which have entered into licensing programs.

Among those which we interviewed and questioned, some have been licensing abroad as long as 50 or 60 years, but these are relatively few among those that we talked with. Nearly 20% of the companies have been licensing for more than 30 years. The largest proportion, about 40%, have

been licensing between 15 and 30 years. About 15% began during World War II, and nearly a third began after the war, mostly during 1947 and 1948.

Nearly 95% of the companies that we had responses from indicated an increase in their licensing activities since World War II. The predominant rise, as most of you would guess, was in licensing of know-how—nearly twice as great as increases in straight licensing of patents and nearly three times as significant as the rise in licensing of trademarks.

Oddly enough, or odd to me anyway, is the fact that this increase in licensing was largely attributed to the initiative of the foreign potential licensee, not to the American licensor. That is, the American licensors in general, over 50% of them at least, indicated that the initiative was not theirs. They were themselves not aggressively pursuing this particular foreign operation. Once commercial opportunities abroad became better they were at least interested, but the initiative was more than 50% in the hands of the foreigner.

This doesn't reflect in my mind the sort of aggressive business acumen that I had generally thought the American had. But there are particular reasons for it which we may get into a little later.

We were interested also to find out where were the countries that had an attraction to licensing. Obviously you think of the industrialized countries immediately. The countries which were generally or more predominantly countries of licensee start with England—according to our survey about twice as important in terms of numbers of licensees as France and Germany who came second and third. Canada and Australia and then, finally, Japan are the location of the bulk of the licensing agreements.

Canada might very well be in a more predominant position if it were not for the fact that a large number of the companies consider Canada a domestic operation. And not being able to talk with them across the desk in the written questionnaire, I'm not always sure whether they excluded Canadian operations in responding to a question on foreign operations.

Some of the more rapidly developing countries have received licenses from American corporations in an increasing frequency—Mexico, Brazil, Italy, Argentina, and, finally, South Africa.

Following these, we come back to Europe in the industrialized countries again, with Belgium, Netherlands, Sweden and Switzerland.

Those rankings are based on the *numbers* of licensees; we did not go into or did not obtain specific information on the *value* of the licenses in each of these countries. It might very well be found that in certain countries the rank was reversed. For example, a group of about 20 corporate officials I was discussing the problem with some time ago indicated that in their experience France was considerably more important than any of the others in terms of returns of royalties and not necessarily number of licensees.

Therefore, I cannot assert that the ranking which I have given you is sound in terms of value.

The distribution of licensing agreements among different countries was also found to correlate not necessarily one country and one licensee. That is, many American licensors extend licenses to several companies in the same country.

The percentage distribution—that is, the percentage of the companies responding—indicates that well over a third of those responding have a small licensing operation, one to five licensees in less than five countries. As I say, this doesn't mean that they have one licensee in one country or five licensees in five countries. It's frequently the case that a company has five licensees in two countries. But licensing still is predominantly a small operation for most. The percentage of those having six to ten licensees comprised not quite another third. Nearly a fourth had six to ten licensees in less than ten countries. So, adding them together, nearly 60% of the total have licensees less than ten in number in less than ten countries.

The profitability of licensing, which we will discuss in a few minutes, is probably greatly affected by the fact that for most companies licensing is still small. They have not, therefore, been able to spread their fixed expenses over a larger number of licensees as has been the case for the extremely large companies.

There were among our respondents about ten companies which had so many licensees that they would not enumerate them for us specifically by country and would only indicate that they have, let's say, 75 or 175 or more than 100 licensees in more than 20 or 30 countries. These, of course, find licensing returns in the six- and seven-digit figures.

Skipping from the statistical measuring of licensing over to some of the problems of the licensing contract (if you are following in the *Journal* at all, I'm referring to the section on antitrust) we wanted to study the pattern of exclusivity and other restraints imposed in the licensing agreements.

The restraints which either the licensee or the licensor sometimes wish to place in the agreement relate, of course, to the actions of each other in the market. These are restrictions on competition in some way, such as dividing the market, setting prices, sharing production quotas, or limiting entry of third parties.

While, of course, it is legally dangerous to use the license as a front for a naked restraint of competition, reduction of potential competition through a license may be a strong motive for the agreement in the first place. Both the licensor and the licensee may have an interest in reduced competition. But it is not always to the interest of either one of them to permit the other one the particular restraint he wishes.

It should be emphasized that not all of the officials which we interviewed or questioned expressed a desire to impose the type of restraints which are commonly associated with borderline antitrust cases or restraints of the market. Nearly half of the companies which we questioned held the view that both they and the licensor benefited from competition with others, and a few considered that competition from themselves benefited the licensee, keeping him on his toes.

Most of these officials found that exclusivity wasn't a real problem with them. They were able to bargain away that particular provision through a change in the royalty rate.

There is a good bit of uncertainty in the minds of the remaining 40 or 50% of those that we questioned as to the particular restraints which are permissible to them under not only the antitrust laws but legislation abroad which is just beginning to move into the antitrust, antimonopoly field.

We have restricted our study solely to the United States side so far. Later on, we will, of course, have to open up into the foreign legislation area.

I again found a difference in the uncertainty which the lawyer felt and which the executive felt. A good many of the lawyers considered that the executive officers of the corporation were much more nervous about antitrust than they need be. There is enough uncertainty in the minds of a number of officials—large enough for the Department of Commerce to note the problem—to cause them to modify their licensing program because they are afraid that they are prohibited from the following four things, four things which many of you would consider probably that they were not prohibited from doing, but at least these have been reasons for the modification of some licensing programs as reported by the Department of Commerce:

First, that they are prohibited from restricting the licensed foreign company to selling only outside the United States—that is, preventing them from selling within the United States.

Secondly, restricting a foreign licensee to selling only in his domestic market.

Thirdly, giving exclusive sales territories for the same product to each of several foreign companies.

And, fourth, agreeing with a foreign company not to export to the country of the licensee.

These are reports of the Department of Commerce.

In view of the heavy emphasis as reflected there and in some other quarters on the impact of antitrust legislation in dampening United States busi-

ness activity abroad, it was somewhat surprising to us at least to find that two-thirds of our respondents, particularly the mail questionnaire, considered that their licensing programs were not adversely affected either by antitrust or tax legislation. Only one-third indicated that they had altered their programs in any way or had suffered as a result of either type of legislation—that is, taxes or antitrust.

Now, you may want to question that proportion in terms of the fact that this was a mail questionnaire to which some of them might not want to respond fully. But after our interviewing across the desk I think this is a fair approximation. That is, only about a third of them felt that they were in any way adversely affected by this legislation.

The way in which most of this third was affected was through a felt necessity to change provisions of existing or contemplated agreements. The provisions most commonly changed were those concerning sales territories and exclusivity. One respondent has gone to the length of extending free non-exclusive licenses when the arrangement has been questioned in order to prevent a possible violation. That, of course, is an extreme.

One in seven of those affected indicated that the number of their agreements had been reduced as a result of taxation or antitrust. High taxes abroad or the absence of sufficient tax credits were mentioned by a few.

But the more predominant reasons stemmed from possible antitrust violations. Either foreign firms were reluctant to enter a contract which might be involved in litigation in United States courts, or the United States licensor was reluctant. This possibility was reflected also in the answers of those who stated that negotiations were sometimes made difficult by the different views between the licensor and licensee on the importance of avoiding provisions which might be considered in violation of antitrust. Foreign licensees sometimes do not comprehend the United States antitrust mentality and consider that the United States negotiators are dragging their feet, especially as to provisions on exclusivity. Potential licensees do not wish to sustain competition from the licensor, yet the licensor hesitates in many cases to write such a restriction.

Several respondents asserted they now watch provisions of their contracts much more closely than they did before the war.

Antitrust interpretations figured also in the responses of several of our licensors to the effect that they now (1) would prefer to license only wholly-owned subsidiaries, as a result of the *Timken* case, (2) that they find it difficult to operate abroad either against or with a foreign cartel, (3) that antitrust interpretations seem to show that an assignment or sale of the foreign patent is favored over licensing, (4) that participation in foreign patent pools is frowned upon yet sometimes desirable, and (5) that cross-licenses and exchanges of technical information are too readily interdicted especially under consent decrees.



These were the responses, paraphrased slightly, of the corporation officials themselves. You may disagree as you wish and for your own reasons, but this was their report.

Concern with antitrust policies, however, has not led any of the companies we questioned to seek prior clearance of their agreements with anti-trust officials.

Only one-tenth of the total responding to our questionnaire submit their agreements to any governmental agency, none to the Department of Justice. Half of these sent their agreements to the State Department, mostly for political clearance or to support an application for a license guarantee. One or two sent theirs to the Treasury Department for tax clearance.

Only half of those admitting to having sent their agreements to any government agency answered whether the procedure was helpful—and most of them said that it was not.

Moving to the subject of taxes, being an economist and not a tax expert in any sense, I have dared in this report to tread in an area where angels might fear to tread. There is no implication that the tax lawyers are devils in this sense. [Laughter] But I'm going to avoid this subject this morning since we have on the panel someone who not only dares to tread but in my mind has mastered a good bit of it; so I'll let Mr. Wender, when his time comes, speak to that subject.

There are a good many individuals and experts in the field who argue that licensing is a poor third to exporting and direct investments. We tried to get some comparison of this.

Am I running overtime?

DEAN COLCLOUGH: No indeed.

DR. BEHRMAN: About 90% of our respondents counted licensing as directly profitable. That is, the returns were greater than estimated costs. And this view is held despite the fact that most of them don't cost their programs at all. That makes the calculation of profitability rather easy. [Laughter]

Despite whatever objections we might have—and I think we will raise some of these problems this morning—many of them calculate their royalty returns in six and seven figures. Recent information indicates that the aggregate value of gross royalties *returned* to the United States annually are in the order of \$150 million. This is exclusive of royalties left abroad—that is, received in local currency and spent or invested, coupled with dividends, and benefits under cross-licenses.

I would hesitate to make an estimate of how much that would increase the total value of licensing, but if you press me, or if I press myself, it might come to a quarter of a billion dollars.

The Foundation will later go into this problem to find out to what extent licensing returns are taken in nondollar currencies and/or not returned to the United States.

Nearly 80% of the firms responding to the question on gross income—and about half of them did answer this question while the other half decided it was a little too close home in some sense—stated that their *gross* income from licensing was less than 2% of their total gross income. We chose the gross figure because most of them don't cost the operation, as I indicated. Many of them counted the percentage less than 1. This was the case for both the years 1946 and 1955. A tenth of those answering the question indicated that their licensing income was 3 to 5% after the war, rising to between 5 and 8% in 1955. Another tenth of the respondents showed a rise in the percentage from zero to 2% to 3 to 5%. Only one company indicated a decline in royalty returns. Therefore, licensing for most of them seems to be a long-run proposition. Like investment, it takes time for the returns to come in.

Eighty per cent of the companies replying, as I have indicated, reported royalty returns greater than costs—however they might have calculated it.

In addition to the direct returns of royalties, one out of every three companies counted an increase in export sales of complementary items or component parts as an indirect return to licensing. This is a rather significant point in arguing the desirability of licensing over exporting. It isn't always the case that licensing is a substitute for exporting. In many instances it's been found to be a complement.

This nonroyalty return through exports was the entire basis for the statement of 10% of our respondents that their licensing was profitable. That is, they received no royalties at all, having licensed either their subsidiaries under contracts without royalty payments or licensed a foreign firm with no royalties on the basis of obtaining income from sales of exports to them. Of course, an increase in dividends has also resulted in many cases without an allocation to licensing.

A final 10% of the companies answering asserted that licensing was not profitable directly to them. One gave no reason for his statement. Others asserted that they were still too new in the operation and had not received royalties, though profitable returns were anticipated. One indicated that no royalties were obtained at all from licenses since it had only cross-licenses and the benefit, of course, came in exchange of information. A final company pointed out that it was under a consent decree and that took all the profitability out of licensing.

By far the majority of the firms interviewed or questioned treat their gross returns from licensing as net income. They agree, most of them, that the cost of research and development, of patenting, of registering trademarks, and so on, should be allocated, but they don't do so. A partial justification for this procedure is that these costs would be incurred in any event to support the domestic and foreign sales of the company. Another is that it would be too time-consuming and somewhat arbitrary to make required allocations. This being so, they count licenses as essentially costless.

The tax implications of this Mr. Wender may want to point out, but I think they are at least legally important.

The second largest group of companies did try to allocate out-of-pocket expenses, but they did not allocate any of their overhead.

A third group, far in the minority, attempt in some way to allocate their costs in an arbitrary fashion, but, finding it too arbitrary, many of them have given up. One company, for example, arbitrarily allocated certain costs to licensing and then it turned out that licensing wasn't very profitable, so instead of quitting their licensing they quit costing. [Laughter] Their point was that they knew licensing was profitable; it was just the costing wasn't coming out right.

All the respondents were satisfied with the procedure for accounting of profitability that they used; and, as I have indicated, it's sort of odd, but they didn't want to change. Some have indicated they *should* change but they wouldn't do so unless the operation becomes quite big.

There has been an interest also in the financial aspects of licensing through its correlation with investment. We tried to find out how many companies were licensing their subsidiaries or were investing in their licensees gradually either through participation or through a direct exchange of dollars.

As for the investment of the licensor in the licensee, although there are a significant number of companies that have an equity participation, only in a very small number of cases has it arisen from a transfer of dollars. Almost always it arose through purchasing an equity participation by transfer of know-how or by a requirement that some equities be deposited as a down payment for the licensing agreement.

On the other side, licensing of subsidiaries is not uncommon. This is done basically for the reasons of legal preciseness, for obtaining royalties out of the foreign country as an expense of the subsidiary if possible, sometimes on a different tax basis, and sometimes because it's easier to get currencies out as royalties than as dividends.

In the *Journal* (June 1958) we have some figures on the percentage of licensees which have an equity interest by the licensor, and I must point out to you that there is at least one figure in the table, if you have it in front of you, on page 246, which is quite confusing to the reader. I didn't mean it to be, but a double negative is involved.

We found, for example, that out of the companies that we questioned 25 of them did not license their wholly-owned subsidiaries. A larger number did, but 25 of them didn't. Another 32 had partially-owned subsidiaries which they did not license. These may be the same corporations, you see, because one licensor might have wholly-owned, partially-owned and controlled subsidiaries. Another 28 had a controlling interest in subsidiaries which they didn't license. Only 7 of them that we got responses from indicated that they would *not* license anybody if they did *not* have a financial interest in them. That is, they refused to license an independent company.

By far the largest number of licensees are independent firms—by calculation, about three to one over the licensee in which the licensor has a direct equity interest.

I won't go, again for reasons of time, into more of the detail on that matter. We have covered it *in extenso* in the June report.

I would like, finally, to draw two implications from our study which are considerably broader than licensing. That is, in this investigation I found considerable interest on the part of business officials in a change in public policy on several counts but specifically on antitrust and taxation. They found, at least in their minds, an obstacle in the attitude of government officials toward business operations in general, and there may be some historical justification for it.

I think also, if I may stick myself in personally—apart from the Foundation's position, if it has any, and it should not according to its terms of reference—my own personal position is that, if our public policy is going to be to expand overseas operations of American firms, this particular anti-trust legislation at least is going to have to be re-examined in terms of an emerging competitive pattern different from what we assumed in our economic theory was the case or should be the case back in the 1890's and up through the 1920's. That is, the basis for our antitrust policy, the theory on which it is based, is changing or should be changed to fit the facts.

Where do we get that information? Much of it we have to get from business operations. The business community itself cannot really do the job. Its statements are frequently suspect merely because of the source; it is considered special pleading. In addition, no single corporation can find out enough about what the others are doing.

Therefore, public policy is going to have to be made and altered, if it is altered, on the basis of independent studies of what business is doing.

On that count, then, I argue strongly—and this is not special pleading of the Foundation; this is I think special pleading for an independent research situation in which I find myself—that the business community and government itself are going to have to rely on research investigations and results of those that can be considered to be independent of both. This requires

intensive and extensive cooperation of the legal community, executive officials of corporations, and government officials.

When we get this cooperation—and I think, incidentally, it's coming and coming fairly rapidly, much to my pleasure—then I think our public policy can be directed much more realistically to what is required both from a business standpoint and from our national interests.

Thank you. [Applause]

DIRECTOR COLCLOUGH: Thank you, Professor Behrman.

The first person whom we have the privilege of hearing on this question this morning has a background in both fields to which Professor Behrman just referred. He is currently president of Porter International Company and has been since 1953, but he has served our government extensively in the foreign economic field, having been chief of the United States Mission on Economic Affairs at the American Embassy in London, having been the chief United States delegate to the Economic Commission for Europe in Geneva from 1947 to 1949, having headed the ECA mission to Greece in 1949 to 1950—as a matter of fact, having been honored by King Paul of Greece by being decorated by him.

So he brings to our discussion a viewpoint embracing both those areas of paramount interest to which Professor Behrman just referred.

Mr. Porter.

#### DISCUSSION

MR. PAUL R. PORTER: Dean Colclough and Gentlemen, until recently there has been a shortage of adequate literature on the extent, character and profitability of American licensing abroad.

In my opinion, by far the best study which has yet been made is the one which has been made by The Patent, Trademark, and Copyright Foundation under the direction of Dr. Behrman.

I hope that this study will be continued along the lines that Dr. Behrman has indicated, because I think it makes a valuable contribution to American business firms that contemplate licensing.

So that my remarks may be a little better understood, I would like to give you briefly the background for them.

For the past five years I have been an officer of a company whose business is to provide professional services for foreign licensing both to American companies and to foreign companies.

This company was established about five years ago on the basis of four concepts:

The first concept was that foreign trade in technology would grow relatively with respect to foreign trade in commodities and would also grow relatively with respect to American foreign investment.

That conclusion involved several subordinate conclusions. The first subordinate conclusion was that the dollar would remain a scarce currency for an indefinite period, not only for the import of American goods but also for foreign investment. Another was that there would be a considerable growth in economic nationalism abroad, this despite the support which has thus far been given by the United States Government and many others to the reciprocal trade program.

A second concept was that the aid given by the Marshall Plan would result in a spectacular industrial resurgence in Europe, which would create a growing demand for American technology.

A third concept was that the remarkable industrial growth that has taken place in Europe would add to Europe's exportable technology.

There has always been a much larger export of technology from Europe to the United States than has generally been appreciated. But with the growth in the European economy in these recent years, there has also been a marked increase of technology that is in demand by a great many American companies.

The fourth concept that we acted upon was that the development of the underdeveloped countries would create a great demand for technology that could not be fully met by foreign investment either from the United States or from the industrialized countries of Europe.

It was on the basis of these conclusions that we established our company.

We represent clients who have technology to license. We also represent companies that are looking for licenses. We represent about an equal number of United States and foreign companies.

We have represented or are now representing over 50 American companies in the placement of American licenses in foreign countries.

My comments this morning relate mainly to small and medium-sized companies, because that is the area to which we have directed our activities.

Some of the best technology, especially in such areas as electronics, structural materials, and some of the new chemical products, is coming from small companies as well as the very large ones, in many instances companies created by young men after the war.

In most respects the conclusions reported by Dr. Behrman also apply to those small- and medium-sized companies with which we have a personal familiarity.

One of the things that has long impressed us is that, as Dr. Behrman said, apparently a majority of American companies that have granted licenses have done so not on their initiative but on the initiative of the licensee.

If we accept that as a fact, then I think that that has an important bearing on the question of profitability, because the foreign company that has taken the initiative is not always the best licensee.

In our experience companies that have granted licenses on the basis of foreign initiative have often licensed the wrong company. From the standpoint of market coverage, management capabilities, and sometimes manufacturing facilities, if the licensor had given more thought he would have selected a different company.

So far as our own work is concerned, we make careful survey of suitable companies before we get to a negotiating stage.

This is particularly important in the case of small and medium-sized companies. Though they may have a good technology, they have had very little experience in operating abroad and generally do not have a good knowledge of foreign markets.

I would doubt if very many companies, even those included in the survey that Dr. Behrman has reported on, have fully exploited the foreign licensing potential. They may have granted one license, let us say, in Great Britain to cover the whole of the British Commonwealth, when licenses also in Australia and South Africa as well as Great Britain would have been more profitable to them.

Often they will grant one company in Europe a license to cover the whole of Europe simply because that company has asked for it.

Most companies granting licenses have not had a well-rounded, well-conceived, well-managed licensing program.

If a good study of profitability of licenses is to be made it must treat the whole term of the license as the basis for determining the profitability. It is generally not possible to measure profitability on the basis of any single year.

Many licenses cannot be profitable for at least three years. But they may be very profitable if measured over a term of 10 or 15 years.

There are also intangible benefits of a reciprocal gain of technology or of increasing exports of components.

The question, however, which the licensor should ask himself is: Is the license as profitable as it could be? I think it would be a safe conclusion that the majority of companies which have license programs have fallen short of making that program nearly as profitable as it could be if it were better conceived and better managed. [Applause]

DEAN COLCLOUGH: Thank you, Mr. Porter.

The other member of our panel this morning is a member of the legal profession, a member of the firm of Lord, Day & Lord, of New York. He has

also found time to lend his abilities in the teaching world by lecturing in federal income taxation at the New York University Law School and lecturing at the University of Southern California Tax Institute.

He was formerly Assistant Director of the Harvard Law School International Program in Taxation. He is the author with Professor Barlow of *Taxation and Foreign Investment*, and he has been a consultant to the Bureau of Foreign Commerce of the United States Department of Commerce.

I introduce Mr. Ira Wender.

MR. IRA T. WENDER:<sup>1</sup> I'm not sure which role I should adopt today—that is, whether to talk practically about taxation or academically about foreign investments. I'll try to do both.

I found Professor Behrman's paper most stimulating. Professor Barlow and I in our book also tried to discover why corporations invest abroad and to analyze the factors motivating such investments. Our conclusions are quite similar to those of Dr. Behrman. In general, corporations either license or invest only after they have exported to a country. This conclusion is hardly surprising since there is no other way to establish with equal certainty the market in a country. Dr. Behrman also found that there is a tendency for the amount of licensing to increase according to the level of industrialization of the country. This too conforms to our conclusions. If a company has a good export market and that market can no longer be serviced from the United States, a corporation has three choices: abandon the market, invest directly, or license. The higher degree of industrialization in a foreign country the more difficult it is to make a direct investment there. Initial capital requirements are likely to be greater and there will be major competitors. Therefore, there is a tendency to license.

I was also interested in his section on the profitability of licensing and the apparent lack of systems of accounting for costs and profitability. I think there are many reasons for this. One is, of course, that at the outset a good argument may be made for the proposition that only direct, out-of-pocket expenditures should be considered in determining profits. The same activities and expenses are inherent in the program in the United States so that any foreign income received from the research, products, and know-how is just "found money." But there comes a point when a foreign licensing program becomes an integral part of a business, and expenses in connection with producing that income rise. Generally when this point is reached there is an internal fight within a company. The managers of the international division oppose an allocation of general expenses because their division will not appear as profitable. On the other hand, the domestic managers feel with perhaps some reason that their side of the business should not have all the expenses allocated to it. It is possible that many in the international field

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<sup>1</sup> This presentation includes certain changes and additions.



would as soon that there were no reasonable standards to use for accounting for profitability of licensing.

The area of profitability is further complicated by a tax problem. To compute the limitation on the amount of the United States foreign tax credit, it is necessary to determine the taxable income from a foreign country. If a company has a regular internal system of cost accounting in connection with its licensing program, it may reduce the allowable tax credits. For example, assume that a corporation receives a \$100 royalty from Italy, and a 15% tax is withheld. If the whole \$100 is taxable income, the whole \$15 may be credited so that the company would pay only an additional \$37 in United States taxes. However, if the expenses attributable to that income under a cost accounting system were \$80, there would be only \$20 of taxable income from this royalty. The limit on the foreign tax credit for the \$15 tax withheld would be the United States tax on the \$20 of taxable income, or roughly \$10.40 ( $52\% \times \$20$ ). Thus, \$4.60 of tax credits would be lost. Without an intricate internal accounting system for determining the profitability of licensing, it would be difficult to reduce the taxable income from \$100 to \$20. Accordingly, the lack of such a system is likely to increase the corporation's net cash after taxes.

Despite these considerations, I believe that a very useful area for future research on the part of the Foundation, perhaps in cooperation with a group like the American Institute of Accountants, would be to develop standards in this field for proper accounting for the profitability of foreign and domestic licensing of patents and know-how.

I would like to turn now to the tax aspects of licensing. Dr. Behrman's paper gives an excellent description of the problems that are encountered. Basically, the United States tax problems are the same as those that were discussed yesterday morning. There are a few extra problems because of the necessity of integrating the U. S. and foreign taxation of income from licensing. I do not intend to discuss at length the foreign tax credit or the allocation-of-expense problems which Dr. Behrman has covered. Instead, I thought I might review with you the problems connected with organization of a foreign licensing program from a tax standpoint and, particularly, the use of what is sometimes called "tax haven" or "tax sanctuary" corporations. Actually, such corporations are nothing but foreign corporations organized in countries which impose little or no tax on licensing or other foreign income.

The basis of using a foreign corporation for licensing stems from the tax jurisdictional concepts of the United States. The Internal Revenue Code taxes a United States corporation on all of its income no matter from what geographic source it is derived. However, a foreign corporation is taxable only on income derived from sources within the United States. A foreign corporation is defined as a corporation organized in a country other than

the United States. The consequence is that to the extent that a foreign corporation earns income outside the United States, the United States does not directly tax that income even if its stockholder is a United States corporation which itself would have been taxable on the receipt of such income.<sup>2</sup>

If a foreign corporation is established in a country which imposes little or no tax on royalty income, and that corporation licenses other foreign corporations, royalty income may be accumulated which has been subject only to withholding taxes in the country of source. These withholding taxes usually do not exceed 15%. Money accumulated through such a program can be used for further foreign investment or ultimately brought back at only the cost of a capital gains tax.

There are a number of problems raised by the use of foreign licensing corporations. Perhaps the most basic question is: Should a domestic corporation transfer valuable patents to a corporation organized in a foreign country? A number of companies have been unwilling to do so. They feel the potential risks for their more important domestic business might be too great. As a compromise, some corporations establish a foreign subsidiary to render services under the basic licensing agreements between the parent corporation and the foreign licensee. To the extent that the subsidiary company actually receives income for rendering services outside the United States, the United States will not tax its income. There are, of course, problems created by this compromise as to what is a fair division of the royalty. Under Section 482 of the 1954 Code, the Commission has power to allocate gross income between related companies if the division is not an arm's-length one. Assuming, however, that a system which is reasonably fair is used, it is certainly possible to divide in this fashion the royalty.

If a company is willing to transfer patents to a foreign corporation, several questions are raised. Can such a transfer be made tax-free? If it cannot, what is the tax cost of such a transfer? Let us examine some of the methods used in transferring foreign patents to a foreign subsidiary corporation. The most obvious method would be to organize a foreign corporation and transfer the patents to it in return for the common stock. The difficulty here is that while such a transaction with a domestic corporation is tax-free under Section 351 of the 1954 Code, it is not tax-free transaction if a foreign corporation is involved unless prior to the transaction a ruling has been obtained from the Internal Revenue Service that tax avoidance was not a principal purpose of the transaction. The Commissioner tends, however, not to issue such rulings. Thus, if a transfer is made for stock of a foreign corporation, an immediate capital gains tax becomes due. The measure of that tax is also a problem. The stock received has a value equal

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<sup>2</sup>The Foreign Personal Holding Company provisions, §§ 551 *et seq.* of the 1954 Code, do not tax the foreign corporation, but rather treat the income as distributed to the corporation's shareholders. The tax is thereby imposed on the shareholder, not the corporation.

to the worth of the patents transferred for the stock. It is hence a problem of determining the fair value of the patents. The Internal Revenue Service with the advantage of hindsight may be able to establish a far more substantial value than would have been attributed to the patents at the time of the transfer. Because of this uncertainty, patents are rarely transferred in this manner.

Another method is to form a foreign corporation and sell the patents to that foreign corporation. The problems connected with such a sale were discussed here yesterday. The same considerations are present whether the sale is to a foreign or a domestic subsidiary. There are, I believe, considerable problems in making a sale to a licensing subsidiary which will entitle the parent corporation to a capital gain on the proceeds. The trend of the recent cases in the capital gains field is toward limiting the types of property which qualify as capital assets. For example, in the real estate field it has been held that sale to one customer of one piece of property may in some circumstances be treated as a sale of property held for sale to customers in the ordinary course of business. A similar attack might be made on sale by a domestic corporation of patents to a foreign subsidiary engaged in licensing those patents.

The decision in *Corn Products Refining Co. v. Commissioner*, 350 U.S. 46 (1955), suggests another area of attack. The Supreme Court held in rather sweeping language that despite the literal wording of the capital gains provisions, Congress intended to allow preferential treatment only to "transactions in property which are not the normal source of business income." A sale of property used in business, like a patent, to a controlled subsidiary which likewise uses the property in its business might not be the kind of income to which, in the Court's view, Congress intended to grant a preferential tax treatment.

The Commissioner has in at least one case taken the position that a sale of property used *in connection with* a trade or business does not result in a capital gain. In *Anatole Litvak*, 23 TC 441, (1955), a movie producer owned a movie script which he sold to another. It was the only script he had ever purchased. Nevertheless, the Commissioner attempted to tax the gain on the sale of that literary property as ordinary income on the theory that it was property connected with his trade or business, although admittedly not property falling within the statutory exclusions of property used in his trade or business or held for sale to customers in the ordinary course of business. The Tax Court held for the taxpayer. In view of the broad language of the *Corn Products* decision, the Commissioner may attempt in other cases to limit capital gains treatment on sale of property connected with the trade or business of the seller. If this happens, the sale of patents by a user of the patents would not result in realization of a capital gain. Personally, I doubt that the law will develop as I have outlined, but I do think that the trend is toward limiting capital gains treatment on sales of business property and

that repeated sales of patents to a controlled foreign subsidiary might not result in capital gains.

The third method by which patents are transferred is by outright contribution to the capital of a controlled foreign corporation. In order to do so with security against imposition of tax, it is necessary to make the contribution to an existing foreign corporation and preferably one which has existed for a considerable period of time. If the time between the formation of a corporation and the contribution of the patents to its capital is short, the transactions may be viewed as steps in a single, integrated plan. The tax consequences would then be the same as upon the transfer of patents for stock of a newly formed foreign corporation.

There is a last caveat I would like to point out. Stock of one corporation cannot today be transferred tax-free to an existing foreign corporation by a contribution to capital. A special excise tax is imposed on the difference between the cost of the stock transferred and its fair market value at the time of contribution. Nor can stock of one controlled corporation be sold to another corporation for only capital gains tax. Section 304 of the Code treats such a sale as a dividend. But property like patents can still be the subject of transfers of this type. The exception in the case of such property is not logically consistent with the treatment of stock. It may in the next years become impossible to make such transfers of property should the Treasury become seriously concerned about the revenue loss as a result of licensing abroad through foreign corporations.

Dr. Behrman also mentions the countries used as a base for licensing. In addition to the factors that he has outlined, consideration should be given to the treaty networks of the particular country that may be used as the base for a licensing program. Panama, for example, which is frequently used as a base country for trading operations, is not always suitable for a licensing program, because it has few treaties with European countries; whereas Switzerland has a substantial treaty network. Treaties can become of crucial importance. In the United Kingdom, to illustrate, there is a 42.5% tax on royalties paid to a foreign licensor, unless that tax is reduced or eliminated by a tax treaty. To license a United Kingdom corporation from Panama thus results in little or no tax saving over the United States corporate tax rate of 52%. On the other hand, no tax would be imposed by the United Kingdom if the licensor were a Swiss corporation. [Applause]

DIRECTOR COLCLOUGH: Thank you, Mr. Wender.

Now, gentlemen, we have a brief period for questions, and a member of our staff will be happy to bring the microphone to you, rather than going to the trouble of writing the questions.

Yes, sir?

MR. BARAFF:<sup>3</sup> Mr. Wender, are you aware of any concrete examples of foreign licensing organizations that have been erected on your last premise?

MR. WENDER: Yes, I am aware of a goodly number that have been erected on my last premise. I assume by this you mean picking a country and setting up a foreign corporation in a place with a substantial network of treaties.

MR. BARAFF: Yes.

MR. WENDER: You know, as a lawyer, you have to be careful not to adopt the practice of psychiatrists who are always judging the world on the basis of five patients, because that's practically their life's work. But, nevertheless, from talking to others interested in this field, I would say that this is a growing trend and that there are now a very substantial number of major corporations which do their licensing in this fashion.

DIRECTOR COLCLOUGH: Mr. Seghers?

MR. PAUL D. SEGHERS:<sup>4</sup> I would just like to have a quick word because I have to run for a train. I want to pay my compliments to Ira Wender for an excellent talk. I usually try to heckle the speaker, but I honestly haven't a thing to heckle him on, which is unusual for me.

DIRECTOR COLCLOUGH: Mr. Seghers, thank you for being with us.

Yes, sir?

MR. JACKSON:<sup>5</sup> I thought at times in your discussion, Mr. Wender, you were inclined to fail to distinguish between a United States patent and a foreign patent on the same invention and to treat them as if you considered them the same piece of property for tax purposes.

MR. WENDER: Well, I quite agree they are not the same property, but I'm not sure that this is of vital importance in the tax area. I don't know what the status of a United States patent is in a foreign country. I assume it's a process or know-how, which can be licensed, although less legal protection may be given to it. From a tax standpoint I'm not sure how important the distinction is. I assume that one could sell a process or know-how and treat the proceeds as a capital gain and that one could also license a process or know-how although not patented.

May I emphasize that my comments on sales of property to controlled subsidiaries apply whether one is dealing with an English patent, a French patent, a German patent, et cetera, or whether you're merely selling a process

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<sup>3</sup>See note 17, p. 113, *supra*.

<sup>4</sup>Paul D. Seghers, tax attorney, New York.

<sup>5</sup>See note 7, p. 99, *supra*.

which is patented here and has not been patented abroad. I do not mean to say that from a general legal standpoint there may not be many other considerations, but from a tax standpoint the differences are nominal.

DIRECTOR COLCLOUGH: Yes, sir?

MR. DOUVAS:<sup>6</sup> My question is directed to Mr. Porter. I would appreciate some brief discussion of the European common market.

DIRECTOR COLCLOUGH: The question is that Mr. Douvas would appreciate some brief discussion from Mr. Porter on the European common market.

MR. PORTER: The European common market consists of six countries—Germany, France, Italy, and the three Benelux countries of Belgium, Netherlands, and Luxembourg—who have agreed that progressively over a period of 12 to 15 years they will remove all tariffs between the six countries, and will also remove the barriers to the free flow of capital and manpower between the six.

There is some question obviously as to what effect current developments in France may have on the progress toward realizing the common market. My own personal opinion is the common market in its main objectives will, nonetheless, be realized.

Closely related to the problem of the common market is the proposed free trade area which was sponsored mainly by Great Britain with support from the Scandinavian countries. Some of the other European countries that would not be included in the common market would find it very difficult to accept all of the terms of the common market. The objective of the free trade area is to go a substantial way but not the whole way in reducing trade barriers between these countries.

So far as the effect that the common market will have on American business is concerned, I think it will be generally more difficult for American companies to export to the area of the common market, and they will either have to resort to creating subsidiaries of their own or to licensing or joint ventures or some other form of manufacturing inside the common market area.

DIRECTOR COLCLOUGH: Dr. Rossman of Philadelphia.

DR. ROSSMAN:<sup>7</sup> Mr. Wender made the comment that in his opinion he didn't think know-how had any attributes of personal property or any other kind of property. Now, I think it's rather important to clinch that matter. Perhaps I'm confused. But I have felt all along that know-how is very

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<sup>6</sup>Augustus G. Douvas, Stewart-Warner Corporation, Chicago.

<sup>7</sup>See note 9, p. 101, *supra*.

much in the nature of intellectual industrial property, such as patents and trade secrets, which the courts have certainly protected as property, and I should like to know whether that concept wouldn't be important in connection with tax matters and in the treatment of tax matters.

MR. WENDER: Well, Mr. Rossman, I'm sorry if I gave you that impression. I was concerned again with the tax aspects of it. Certainly know-how partakes of many things. And I think we usually think of it in legal terminology as property. But I suppose a contract for services is also property, yet the income that is derived from it for tax purposes is ordinary income. I'm not sure that know-how for tax purposes may not be somewhere between income from property and perhaps ordinary income.

The concepts here from a tax standpoint as to what is property are, I think, different from general legal concepts. My point is that as in other areas of the conflict of laws the same item may be characterized legally in different ways for different purposes. My fear is that know-how may become categorized as more resembling compensation for services or an agreement to render services than property.

DIRECTOR COLCLOUGH: If there are no more questions, I'm going to take the liberty of asking Professor Oppenheim if he would say a word on the antitrust problem which is implicit in this discussion and which has been referred to by all the speakers.

PROFESSOR OPPENHEIM:<sup>8</sup> I must confess that when I hear the word "antitrust" it's almost like a push button. I just feel myself going like a coin machine. But I'll try not to go 50 minutes as I do in a classroom.

I think that one of the difficulties is that we are apt to make a fetish out of exporting our antitrust policy. That's probably the nub of the difficulty.

We do have, and rightly so, zeal about competition, and there's quite a pressure from the standpoint of our traditions to think of how we're going to carry this antitrust message to the world.

I think also that the Antitrust Division's directional thinking on foreign commerce issues as I see it today, is not something really to be feared. Even though sometimes one's ox is gored and one gets a feeling that there ought to be a law of some kind to take care of this or that court decision, by and large—and I say this perhaps from inferences that I draw because of the experience as co-chairman of the Attorney General's Antitrust Committee—there is a realization that we cannot act in a naive way and go out into the world at large with an antitrust policy as shining armor and start tilting at windmills. I hope this is understood.

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<sup>8</sup>S. Chesterfield Oppenheim, University of Michigan Law School, Ann Arbor.

We frequently use the term "rule of reason." Some think it's "full of sound and fury—signifying little or nothing." But, actually, it is the heart of the matter. In other words, the government agencies should realize we cannot expect to have a realistic and workable approach to doing business abroad or investment abroad or any of the other aspects of trading abroad without a realization that there is a "rule of reason" behind all of this. This is particularly true in the foreign field where there are special circumstances and differentiations from domestic policy that must be taken into account unless we are, as I say, to act as if we can live in a vacuum of our own antitrust policy.

In this respect I think it is most pertinent to bear in mind the ancillary restriction doctrine that is so much talked about. If you have a patent, a trademark, or know-how, and if you have licenses, the real question is whether the main purpose of the transaction is lawful and whether it tends to promote rather than to lessen competition.

With respect to the subject matter of the patent and trademark systems particularly relevant to the Foundation's work, I would plead for recognition in the Antitrust Division and Federal Trade Commission policy of the importance of bearing in mind that, to begin with, there may be an industrial or even intellectual property right to which these license restrictions may be reasonably ancillary. If that is taken into account, even the word "cartel," as Justice Frankfurter said, is not to be treated as a talismanic word in displacement of the "rule of reason" and the paper transactions are not to be judged as though they are literally what they say without analysis of practical effects.

But I do think it's very wise in thinking in terms of legal counseling or the business executive's decision-making not to be deluded into believing that antitrust policy in foreign commerce is going to be readily diluted. I think the Antitrust Division and the courts will continue to feel that if there is an outright agreement to divide territory or fix prices or allocate customers, this is something that registers antitrust violation and psychological antipathy. There's just an ingrained, traditional feeling that this just isn't the way to compete.

I would say that grave thought should be given to the inadvisability of being under the illusion that one day the sun is going to come through and all of these anticompetitive arrangements are going to be considered in light of a "rule of reason" in the sense that the courts will even consider the reasonableness of prices fixed. I don't think we're going to go into this rationalization of industry or rationalization of foreign commerce in the same way as is traditionally ingrained abroad in cartel policies.

That brings me to another point, that is, the danger of American complacency regarding foreign competition. This was borne in upon me recently



by discussions in an area that I'm not too familiar with, but I'm going to try to learn something about—the European common market program.

I have heard discussions which really sent some shivers down my spine. Very informed judgments are being made by persons who have had a lot of experience in corporate business expense abroad. They say we had better not be too complacent about what is going to happen abroad as foreign technology and industrial systems expand and develop. The European economic community may be a transitional step where for the time being there will be a very benign attitude toward American competition, but then later we may be outrun in technology, in know-how, and in productivity, and then the shoe will be on the other foot. Then they will begin to wonder how they can do more business abroad in the United States and other countries.

And they may learn to love competition after a while. We can't be sure that Europe will forever be, let us say, cartel-ridden or that they will forever want to live in the "Father Divine" heaven of peace among competitors. They may really want to get into the struggle. They may learn to love it—like the idea you don't have to be at peace all the time, only with your wife and mother-in-law maybe, but not in business competition.

So I think that is important. There will be a time lag, but there is going to be a transition.

For example, take the time lag in technology. Today, for example, in the office machines industry, there is a great market abroad for office equipment that in this country is considered conventional. The computers will come along, but adding machines, calculators, bookkeeping machines are maybe more important now because foreign firms haven't yet learned to live with big, complicated machines. They're still going through the adolescence of business systems.

I appreciate this privilege of just getting off my chest what that push-button started off. Thank you. [Applause]

DIRECTOR COLCLOUGH: Yes, sir?

DR. JESSE W. MARKHAM:<sup>9</sup> I wanted to ask Professor Oppenheim before he left the platform if he would care to comment on the rising antitrust legislation or anti-cartel legislation already in being more or less in Europe. That is, it may not be so much a matter of exporting our own antitrust in the sense that our antitrust laws are applied against United States subsidiaries abroad, but that, in fact, such United States subsidiaries may find themselves confronting a new competitive situation largely because European countries have more or less, as Professor Oppenheim suggested, catered a little bit more to the competitive ideal.

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<sup>9</sup> Jesse W. Markham, Princeton University, Princeton, New Jersey.

There is the German anticartel law that went into force in January and the United Kingdom registration act of 1956.

The common market has a provision for at least tearing down large conglomerations of concentration, and the coal and steel community has a similar provision. And even the proposed free trade area that you mentioned accepts as a basic fundamental of its philosophy that if it's going to do away with public barriers to trade that it also needs to set up some kind of machinery for doing away perhaps with private barriers of trade.

So there is, I think, a rising anticartel sentiment generally in Western Europe, and it may throw some light on this matter. That is, it's not so much a matter of our exporting antitrust in the sense where you apply our own laws against United States subsidiaries, but United States subsidiaries abroad may find themselves confronting a reasonably similar situation to what they confront at home.

DEAN COLCLOUGH: I'm going to ask Professor Oppenheim to say a word and then Mr. Porter.

PROFESSOR OPPENHEIM: I'll just say a word because I think what Professor Markham said is completely in the context of what I had in mind. I was thinking of our "forced draft" system—that we shouldn't think we can introduce competition by forced draft.

But what you are saying really does mean that there is a recognition of this now. It may not be due to our own preachments but rather to the change in conditions abroad. But whether it's one or the other or a hybrid, there is, as Professor Markham says, this growing recognition of competition as a principle in a way that wasn't recognized previously. And the Gestalt of the European society is changing in that respect.

MR. PORTER: I would agree with that. I think that there will be a marked growth of competition in Europe.

Our own attitude toward cartel practices which is generally received with annoyance in Europe, has little to do with this development. The common market area, however, is creating competition by broadening the trade area. We have observed in our own business a considerable growth of requests from French and Italian businessmen for American licenses in order to survive against German competition.

DIRECTOR COLCLOUGH: Yes, sir? This will have to be the last question.

MR. BARAFF: I'd just like to ask one question which perhaps might be a crucial one.

DIRECTOR COLCLOUGH: Would you speak into the mike, please?

MR. BARAFF: I would just like to ask one question which perhaps might be a crucial one in this subject that we're considering, and particularly in view of the last remarks.

Assume, for example, that in an antitrust suit practices that were struck down in this country involving our American industrial people were involved with a United States party and a foreign party under the same practices. What would happen in such an instance?

DIRECTOR COLCLOUGH: Who would like to answer that? Would you like to answer that, Professor Oppenheim, or shall I say "discuss" it?

PROFESSOR OPPENHEIM: It's always a "hot potato" to answer one of those questions, but I think the answer, as I understand the direction of the thinking of the Antitrust Division would be to determine, whatever the arrangements, whether they are between American companies alone or foreign companies alone or American and foreign companies, whether they have substantial effects on the foreign commerce of the United States, our import inflow, export outflow, or what happens within this country.

In other words, the Department insists that there is one Sherman Act standard, that it isn't a double standard that we are living under, one for domestic, the other for foreign commerce. So I think that's the way the question would tend to be resolved where the arrangement involves an American and a foreign company.

DIRECTOR COLCLOUGH: Now, gentlemen, we are running a little bit behind, but shall we take a brief recess? Will we try and make it about five minutes, please?

[Whereupon, a recess was taken.]

DIRECTOR COLCLOUGH: Gentlemen, yesterday, as you will recall, Dr. Siegel, who has been associated with the Foundation almost from its beginning, discussed some completed studies on the role of patents in the creation and growth of small industrial units, addressing himself to the custom heat treating, the Boston area electronics industry, and the new steel technology. Now he would like to discuss with you new studies on the same subject—the role of patents in the creation and growth of small industrial units. And I will call on Dr. Siegel to direct that discussion.

# The Role of Patents in the Creation and Growth of Small Industrial Units (Project 3a)

NEW STUDIES: SCIENTIFIC AND OTHER INSTRUMENTS INDUSTRY;  
ALUMINUM PROCESSING INDUSTRY; FABRICATED  
PLASTICS PRODUCTS INDUSTRY

DR. IRVING H. SIEGEL: Yesterday I referred to one trio without music. Today we are going to consider the second trio of studies on the role of patents among other factors in the creation and development of small business firms.

We have picked three additional industries in which we know that there is room, as we might say, for small business. We did not pick industries in advance, as I indicated yesterday, because we know there is a strong patent interest. In general, we select industries in which we know there are opportunities for small firms, and we then investigate the role of the patent among other factors in the experience of small firms in these particular industries.

Now, the three industries, as listed in your program, are aluminum processing, fabricated plastics products, and scientific and other instruments.

One reason that these three industries were selected, as I have said, is that we know they have certain potentialities for small firms. Another motivating factor was my noticing some time ago, in a report that Arthur D. Little Company prepared for the Federal Reserve Bank of Boston, that several industries, including these three, offer opportunities for diversification to an old industrialized area losing its traditional industries, such as textiles and shoe manufacturing.

Now, these three studies will be conducted slightly differently from the ones that we did before. We shall be a little more ambitious this time.

One difference between these and the first trio of studies is that we are consciously and explicitly introducing sampling techniques in order to be able to state with greater confidence whatever is generalizable about the experience of the particular firms surveyed. We are confining ourselves, however, to a certain area, principally in order to select a manageably small and geographically convenient group of firms.

After all, we have individual investigators here, not big teams. We are a very small Foundation, and we're trying to spread our fabric about as far as it will go without tearing. We're trying to get some idea about the experience of industries in the Middle Atlantic and New England regions.

Now, what do we look for? Well, we recognize that patents are related to the life history and activities of firms in many ways. A firm may own

patents. It may license to others. It may receive the rights to use patents under license, and so on.

One thing indicated by the other studies that we made may emerge even more strongly from the studies now under way: our theory of the business ecology is quite inadequate. I must say, since yesterday we seemed to have some fun with "statistification," I'm borrowing the word "ecology" from people interested in—to use another unusual one—the symbiosis of the animal and vegetable world, the ability of a whole complex to exist without undue encroachment of some members on all others.

Now, a theory of business ecology is quite important, because, in the patent area among others, we see that many of our prefabricated concepts often are limited. These concepts don't take sufficient account of the verticality of the relationship between large and small firms. They tend to consider firms as competing, say, side by side.

Now, in the same way that small firms may seem unable to keep up with big business if you consider them competing side by side, they are often seen to be helped by big firms through a vertical relationship. There is a flow of know-how to the smaller partner—or, if you prefer, satellite. There is a flow of technology. Often there is a flow of patent rights and specialized knowledge, and so on. You have the type of relationship rendered explicit this morning when Mr. Porter referred to the export of technology to relatively underdeveloped countries.

In fact, if you start with this picture of ecology, if you allow for this vertical relationship, I think you will see better how it happens, in a country like ours, that small business is always in trouble yet always survives. Through an appreciation of the basis of a mutually-supporting relationship and the modes of this support, the economic role and the persistence of small business will become more explicable.

In the patent field we see this relationship rather clearly. In the three studies that we are undertaking now we may find more and more evidence of this type of compatible relationship.

There are other remarks I'd like to make, but I'll try to write articles instead—engage in a different vice.

I now turn to one of the papers, going out of turn because one of the three principals will not be able to be with us today.

## Scientific and Other Instruments Industry

Unfortunately Professor Paul Nichols of Simmons College has to be at Case Institute under some fellowship program which he tells me relates to "economics in action." I'm merely quoting. I thought that's what we had here.

Anyway, Professor Nichols is working for the Foundation on the scientific instruments industry. When he looked through the various directories of firms that I mentioned to him, he discovered, of course, that there are all kinds of instruments. Then he asked me what kind to study and I suggested a stratified sample covering many of them. Since this conclusion is always easier to reach than to implement, we had considerable correspondence. Professor Nichols will attempt to cover a number of segments of this sprawling and growing industry. He will try to cover electrical instruments applicable to measuring, testing, recording, sorting, and so on. He will also try to cover laboratory, electromechanical, nuclear and optical instruments, and a few others.

I hope that he will be able to carry out his sampling plan. One of the problems of sample studies is that you seldom get anything resembling complete response. It might seem like an easy solution to say, "Well, if you send out 100 letters, and 50 answer, and then you write repeat letters to the other 50, and if they don't answer, why not ignore them? Why don't you send out another 100 to some other people and then you'll get 50 more replies. You'll have 100 replies altogether which is the total number you wanted in the first place."

This statement involves fallacies which may be evident to any number of you. In any case, the solution is unfortunately not so easy as this statement indicates.

The problem of non-response often conceals a dichotomy. That is, an inherent difference may exist between the people who do respond and the people who do not respond. You cannot afford to assume that there is no difference. In fact, you have to investigate this difference in order to be able to say better what your total sample would have shown if you had succeeded in following out the predesignated plan.

So Professor Nichols' study is under way. He has sent out his questionnaires, and I am hopefully waiting for a letter in which he tells me he is doing rather well rather than rather poorly in terms of response. For a little group like ours, the non-response problem is often a very costly thing to follow up. That is why it's so important for us to do rather well in the initial go-around. That is why it is desirable to pick a sample with an eye to geographic accessibility and manageable size.

Now I proceed to the second of the studies, actually the first listed on the program, the one being conducted by Professor Marshall Howard of the University of Massachusetts. Professor Howard is working on the aluminum processing industry.

One of the difficulties of working on new and growing industries is that they are quite heterogeneous at the start. Only as they mature will their variety diminish, simply by recognition of that variety. That is, they will ultimately be classified by the Census of Manufactures as distinctive indus-

tries rather than as conglomerate industries, which have many different aspects.

Now, Professor Howard will speak for himself. I simply want to say by way of introduction that he received his bachelor's degree at Princeton, his Ph.D. at Cornell. He has also taught at Cornell. He is now at the University of Massachusetts, as I have already told you, and he has been visiting professor at Smith College and at Amherst.

He has spent two years in business, in the field of finance, and he is also doing some economic consulting work. He is familiar with antitrust problems, and has done research and writing in the area of oil and gas economics.

I present to you Professor Howard.

### Aluminum Processing Industry

PROFESSOR MARSHALL C. HOWARD: Mr. Chairman, Members of the Conference: As I moved from liquids and gases into solids, I found that the first thing I had to do was to identify the nature of the small industrial unit whose creation and growth may be influenced by patents and trademarks.

When I first entered this study my conception of the industry as determined by the literature available was basically that it was in two parts: on the one hand, the primary or basic and integrated producers, and, on the other hand, the non-integrated fabricators. And somewhere along the line was the scrap market.

Actually, aluminum has to go through several steps before you get an end-use commodity. So I think it is valuable to distinguish between basic processing, semi-processing, and fabricating.

First, the bauxite has to be refined into alumina; this is then reduced to aluminum. This is primary production or basic processing. The aluminum may then be further processed into an alloy.

The big prime producers are The Aluminum Company of America (Alcoa), Reynolds Metals Co., Kaiser Aluminum and Chemical Corp., and Aluminum Limited of Canada (Alcan). And recently there have been three new additions into this market, but these will probably not add much in the way of supply as far as the non-integrated operators are concerned.

When you examine the nature of the small non-integrated industrial unit you find a heterogeneous group.

There is secondary recovery or smelting—that is, production from scrap—and this accounts for 20% of alloy supply today. This is in the hands of relatively small business. And this operation certainly comes under the heading of processing.

Aluminum alloys are the principal raw material for a group of industrial units who may best be referred to as semi-processors. These are the non-integrated processors who work the metal into some basic shape. They may use an extrusion or forging press to form some shape. They may draw aluminum to form wire or tubing, roll it to form sheet or foil, atomize it to form flake and powder, or they may cast it. Treating shapes by polishing or applying protective coatings by anodizing may also be considered processing operations.

Now, if we continue this line of thinking, fabricating may be said to begin when these basic shapes are further worked. Extruded shapes, for example, may be bent, drilled, bolted together to form some semifabricated or final product, and the extruder himself may carry out these fabricating operations.

Now, I think, therefore, a final distinction must be made between the semi-processors and fabricators of aluminum who can certainly be included in the aluminum industry and the manufacturing users of aluminum.

If you talk about the manufacturing users of aluminum, you can add up the numbers to as many as 24,000, and you get into such industries as building, paneling, transportation, electrical, and machinery. But these, I have decided, cannot be of my particular concern.

Of course, too, I might add that there may be overlaps in drawing industry lines. As I have said, an extruder may produce some final product himself, such as a storm window. On the other hand, an automobile manufacturer may possibly cast his own aluminum parts.

There actually may be no such thing as a representative firm at the small-business level of the aluminum industry. First, the processes take different forms. There are smelting, extruding, rolling, casting, drawing and forging. And, secondly, there are varying degrees of integration of processing and fabricating within the one firm.

In any case, the fact has been established that there has been rapid growth over the last dozen or so years in that segment of small business that without question falls within the aluminum industry. Extruders have grown from 6 during World War II to 43 in 1952 and to an estimated 100-plus today. Independent makers of drawn tubing who were non-existent during World War II were numbered at 15 in 1955. Makers of aluminum wire and cable increased from 11 to 48 over this same period. Makers of forgings increased from 2 just before the war to 45 in 1955. Secondary smelters have shown a steady increase from 37 in 1940 to more than 80 in 1954.

In terms of gross shipments of mill shapes by weight there have been two-, three- or four-fold growths in most of the various categories which I have mentioned, such as sheet and plate, foil, wire, and extruded shapes and tubing.



Now, given this rapid growth, one might hypothesize that patents have not been an obstacle to growth in the postwar years. And initial investigation supports such a thesis. But I must point out that this study is still in its early stages.

The questionnaire has just been completed and has just been mailed out, but I have no responses. Of course, I am hoping that the response rate will be high.

Initial investigation, as I say, supports this thesis. First, initial queries prior to the construction of the questionnaire have not uncovered the existence of patent problems for these small industrial units.

Second, small-business committees of Congress investigating aluminum industry problems are quiet on the matter of patents. The problem which seems to be under most recurring investigation is that of raw material supply, with the non-integrated relying on the integrated for their supply. It seems that in times of prosperity supply does not seem to be adequate to meet the growing raw material demands of the semi-processors in this expanding industry.

Third, there seems to be little difficulty in obtaining the necessary equipment. An extrusion press, for example, is a piece of equipment which has only to be purchased from the machinery manufacturer. The dies used with the press, it is true, can provide for an almost infinite variety of shapes, and each one of these shapes may be unique, but there is only one basic idea, and that is of squeezing metal through a hole. Aluminum wire, likewise, can be drawn with the same basic equipment from which other metallic wire is drawn.

Fourth, the possibility of patent control in the industry has to be viewed in historical perspective. Alcoa was the only integrated producer in the United States until just before World War II. It would be expected that because of this and because of its size that it would hold a controlling position with respect to patents.

Judge Knox in the 1950 decision in *United States v. Aluminum Company of America* thought that Alcoa had "a comparatively enormous patent portfolio."<sup>10</sup> But, on the other hand, he could find no evidence that Alcoa's patents were serving "as a means of regimenting the industry."<sup>11</sup> Judge Knox found then, and Alcoa declares today, that the company's licensing policy is basically open and nondiscriminatory. The court found that where no licenses were granted they seemed to relate exclusively to minor process improvements.

Today some of Alcoa's patents have expired. Others are licensed on what are probably reasonable terms. That is, there haven't been noticeable com-

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<sup>10</sup>91 F. Supp. 333, 391.

<sup>11</sup>*Id.* at 392.

plaints that they are unreasonable. And others are licensed on a royalty-free basis.

Now, from another point of view, initial queries seem to indicate that the non-integrated firms are too small to engage in much, if any, research and development. I might say that most of the research and development would seem to be placed in either of two categories—one, along the lines of metallurgy, that is, especially, of alloys, and, secondly, in what uses can be made of aluminum, as for example, sheathing skyscrapers or parts for automobiles.

There are two other matters which may well be of considerable importance to the small firm in the aluminum industry. These are know-how and possibly trademarks. Know-how in this setting, from my investigation so far, would seem to be defined as skill in processing. As I say, there is some indication that these two things do play a part. How much of a part I hope the questionnaire returns will shed some light.

Thank you. [Applause]

DR. SIEGEL: The next speaker will be Professor Murray Brown of the University of Pennsylvania. Professor Brown's topic will be the fabricated plastics industry, another heterogeneous affair.

Professor Brown has been teaching at the University of Pennsylvania since 1956. Before that time he served as a teacher at the City College in New York and was an assistant to Professor George Stigler at the National Bureau of Economic Research.

He has his Ph.D. from the New School of Social Research, and he received his bachelor's degree at the University of Buffalo.

Before he takes the platform—I was going to say "stand"—[Laughter]—I should like to point out he has brought an assistant, Mr. Joel Friedman, on my extreme left.

I should also like to point out that, if Professor Brown had to describe himself, he might say "econometrician," which is a fitting term to mention at an interdisciplinary meeting. Just as in the field of law you have many hyphenated lawyers, many specialists, in the same manner in the growing field of economics, especially in the crushed zone between economics and statistics, new specialties are arising.

I know he will not feel offended because I have called him by this particular name.

Professor Brown.

## Fabricated Plastics Products Industry

PROFESSOR MURRAY BROWN: Thank you, Dr. Siegel.

Mr. Chairman, this is in the nature of a progress report of the plastics fabricating industry, a project that we are doing at Pennsylvania, in which

we are trying to evaluate the role of patents among other factors in the development and the current operations of the plastics fabricating industry.

As to the industry itself, one could characterize it as a competitive industry. It gets its raw materials from a few large firms which produce the primary plastics, the powders, the resins, et cetera. The industry that we are concerned with takes these primary plastics and molds them, extrudes them, calenders them, and laminates them.

We call this situation in economics a competitive situation, a term well known to everyone. But the interesting thing is that it buys its supplies, its primary plastics, in what we call an oligopolistic market. In other words, there are few firms which are selling this product. Now, this has some bearing on what I may say or what will be said later on. Unfortunately, it hasn't been completely integrated into the results that we have obtained, and some more work will have to be done on it.

Historically, the industry began about 1846 with Wesley Hyatt producing the first commercial plastic, which was called celluloid. Then there are various other events that occurred, but a real breakthrough came in the industry in 1909 with Dr. Baekeland, who produced a thermosetting plastic which didn't soften under various heat conditions.

DR. SIEGEL: Did he give it its name?

PROFESSOR BROWN: Yes. Bakelite.

One of the important characteristics of this industry is its size composition. There are a great many firms that are in the small-size classification. Actually, the majority of the firms have invested capital of less than \$100,000. In 1954 only about 8% of the independent firms which we are studying employed between 500 and 2,500 workers. Now, this is small compared to large, mature manufacturing industries.

But I think a word should be said about what "small" means here. "Small" is a relative word, especially when we are concerned with problems that will be discussed below. In other words, a firm which has maybe 100 employees in the plastics fabricating industry may consider itself a medium-sized firm. And this is the way we have taken it. We have tried to look at some of these problems, mainly the effects of patents, through the eyes of the firms, so we are taking these size classifications as the firms would see them.

Now, another characteristic of the plastics fabricating industry is the growth. From 1939 to 1954 the industry grew in terms of value added 91% a year. This included the war years. This is a very fast, very rapidly growing industry.

Well, here is what we did. Our study is based on a questionnaire. We sent it to 207 firms and received 53 responses, which is something like 25%, which made us feel pretty good.

There seems to be some justification for considering our size distribution of our own little sample as representative of the size distribution of the population as a whole, the industry as a whole.

This is very important, because, as Dr. Siegel suggested, if the sample is representative, then the results of the sample can be generalized to the industry as a whole. In other words, the results of this sample are typical.

In order to determine this, we used the Kolmogorov-Smirnov test. I hope that nobody from the Justice Department will take me to task.

In terms of the establishment of the firms in our sample, only 12% of the sample firms were established on the basis of patented processes, owned, licensed or other. This "other" is a very interesting category, and since we asked the firms to explain this and since they didn't explain this, I think the inference is quite clear what it means.

Our response has indicated that patents had very little effect upon the establishment of the majority of firms in the sample. Now, this does not really contradict Dr. Baekeland's testimony in the TNEC hearings when he said that plastics fabricating and plastics itself, the primary producers, wouldn't have gotten started without the patent system.

I would like to suggest a hypothesis right off the bat which may bring together many of the behavior patterns that we noticed, and that is that there are a few specialized firms in the industry who engage in research. I don't know how many there are. Here we have 12%. There may be more or less. And it's these specialized firms, what we can call technologically pioneering firms, whom we should focus on in trying to evaluate the role of patents among other things in the development of current operation.

We took a look at the effect of patents on research activity, and here we were a little too ambitious. We tried to determine in quantitative terms whether patent systems stimulated the development of firms via the stimulation of research activity. Unfortunately, our data is a little too sketchy and it didn't hold up under this ambitious program, but we did manage to get some interesting results about the effect of patents on research.

One of them is that 12% of the firms—again 12%—felt that the patent system stimulated research. The firms which stated that patents had no effect on their research programs were distributed evenly in size. Ostensibly, the large firms, most of which have research departments, may or may not feel that the patent system has had an effect on research.

This theme went all the way through the results. I mean this idea went all the way through our results, and it has to be explained. We will offer an explanation at the end which I hope we can have some comment on, because I'm interested in your reaction.

We had one integrated firm in this sample, a captive firm which claimed that the patent system influenced the direction of research and that it does

not attempt to duplicate work already covered by other patents. If this behavior is attributable to the patent system, it is a very important fact, because one of the wastes of monopolistic competition or of a quasi-competitive situation is the limitation of flow of information between firms. If the patent system eliminates this waste to some extent, this is a very good thing, in my opinion.

Another firm suggested that basic techniques are adopted from related industries such as metal-stamping or the rubber industry. Now, again, I think this is very interesting. Earlier someone referred to the importation of technological advances. No one has investigated the importation of technological advances in cross-technologically-related industries. What I'm thinking of is the metal-stamping industry and the rubber industry, which are technologically related to the plastics fabricating industry. If the patent system contributes to the cross-fertilization of technological change over industries, then this again is something that is extremely important. In other words, it may be that there is a uniform technological development across industries contributed to in some degree by the patent system.

We then took a look at the development of the industry in terms of various variables, various factors that may be considered important. And we found that the larger firms felt that patents increased their share of the market. In other words, the larger the firm got, the more likely you would find that patents would increase their share of the market.

Now, we're not able to say that patents contributed to largeness though, since there were some large firms who felt that patents had no effect on their share of the market.

We can say, though, that there is a very good relationship between the smallness of the firm and whether it perceived patents to increase its share of the market. This general rule, by the way, I think was noticed by Dr. Belfer in an earlier study in this series.

One-half of the firms which have developed processes patented these processes, and one-half didn't, but those that did patent the processes they developed were significantly larger than those that didn't.

Now, it struck me and it struck Joel as we were going through this that a very simple factor like size would explain so many of the patterns that we had noticed here. And it always kept cropping up—this size variable—explaining a great deal of these behavior patterns.

Those firms which have developed processes and patented them were also the firms which licensed processes from other firms the most. Clearly, these were the most technologically advanced firms. And the implication is that they acquired the most recent technical information.

There were some reasons that were given for not taking patents out which may be interesting to mention. One was, of course, that the patents were not

considered patentable. Another was that the cost of obtaining patents is prohibitive, particularly for small firms. In other words, it was more likely that the small firms mentioned this reason. Another was that protection may be adequate but enforcement or policing of the patent is almost impossible. This, incidentally, was given to me not only in response to the questionnaire but also in conversations with people in the industry.

Also that the processes developed were not the result of the efforts of one individual firm and that the markets hadn't been developed yet.

Then we tried to rank the various factors as to their effect on the development of the firms in our sample. These were know-how, advertising, trademarks, patents, and government contracts.

And, of course, on know-how, 100% of the firms said that know-how was important.

Fifty-six per cent of the firms felt that advertising was important.

Fifty per cent of the firms felt that trademarks were important.

One-fourth of the firms felt that patents were effective.

Nineteen per cent of the firms felt that government was effective.

DR. SIEGEL: Government contracts?

PROFESSOR BROWN: Government contracts. I'm sorry.

In terms of the size classification, this pattern is consistent with the size classification, except one thing which comes out. It may be the vagary of the data that we have, but government becomes more pervasive in the medium-size classification. In other words, in the medium group government becomes more pervasive than, say, patents. Now, if this is representative of the industry as a whole, and it has to be taken very gingerly, then, of course, it's very interesting. In at least this industry the medium-sized firms get more of the government contracts or feel they get more of the government contracts and feel that this is more important than some other variable, some other factor, like patents. As usual, small firms tended to receive few or no government contracts.

The trademark system was perceived as contributing to the market of the individual firms by about 50% of those firms. This seems to be a more diverse, diffuse influence on markets than patents.

Four firms mentioned an increasing market. The interesting thing for me was that I wondered why more firms didn't mention this. This was a fantastically rapidly growing industry. And I'm at a loss to explain why more firms simply didn't mention this.

DR. SIEGEL: Was this in the check list?

PROFESSOR BROWN: Yes.

DR. SIEGEL: You gave them the opportunity?

PROFESSOR BROWN: Yes.

The only captive firm we had mentioned the financial soundness of the parent.

Finally, we tried to look at the influence of these various factors on the current operations of these firms. And among other things—I'm just touching on the highlights—the larger the firm and the faster the firm grows, the more likely it will feel that patents owned and licensed favorably affected their current operations. This I think we will touch on.

The medium-sized firms and those growing at the medium rate felt that patents acquired in some other way were important. This again we took as an index of the degree of infringement or latent infringement since it was not mentioned. We asked them to explain this, and it was not explained.

I'd just like to offer an explanation of these more or less bits of isolated behavior patterns.

One of the teachers of the economics profession taught us that it only required a few firms in an industry to move it technologically. Of course, I'm talking about Joseph Schumpeter. We have to inquire as to the effect of the patent system on these few firms.

Now, the inference is that it's not altogether clear that innovations would not be forthcoming were the patent system to be absent from the American industrial organization; but if we use the emphasis on patents by the firms as a very crude index of technological advancement for these individual firms, at least in the plastics fabricating industry we can say that the most rapidly growing firms and the largest firms felt patents to be the most important. In other words, presumably they were the technological leaders, and their rewards, a la Schumpeter, were size and rapid growth.

This would have to be checked by a resort to the earnings figures of these firms, which were not available to us.

In a sense, then, our study lends some oblique support to the Schumpeterian theory, coming at the theory from this particular angle, from the angle of patents.

His theory also explains why some large firms feel that patents have had no effect on the development of the markets and their current operations, while a few small firms did feel that the patents had favorably affected their development and operations. In our interpretation these firms were pioneers, and the pioneering firms cut across size lines.

Now, there is some evidence to indicate that the pioneering firms are becoming larger as the industry matures. This was touched on by studies

not in the plastics fabricating industry but industry in general by Kuznets, Merton, and Schmookler. And also there seems to be very good evidence that as the industry matures, as it grows older, the rate of technological change falls. This has been very thoroughly investigated, and at least three investigators have come up with it. Kuznets investigating this problem used patent statistics. Schmookler and Merton did also.

Now, as the industry matures, then, and the rate of technological change falls as the industry matures—

DR. SIEGEL: Within the industry?

PROFESSOR BROWN: Within the industry—the larger firms will be the ones who will be the innovators, the pioneers.

Now, the crucial question is: What effect does the patent system have on the pioneers as the industry matures and as the rate of technological change falls?

In the plastics fabricating industry we can assert with a somewhat higher degree than speculation that pioneers were stimulated by the patent system. We can predict that the pioneering firms will become larger and that the rate of technological change will fall in this industry, and we can make a tentative conclusion that the existence of the patent system will serve to stave off the maturation of the industry—maturation now in terms of the falling rate of technological change.

Of course, in order to show this, we will need more detailed analysis. In fact, these assertions are just a little above the level of speculation.

Now, one of the things that Schumpeter forgot—just one more point—

DIRECTOR COLCLOUGH: All right.

PROFESSOR BROWN: One of the things Schumpeter forgot and that I think has to be included in any analysis of this type is the idea that the technological change grows slowly, inches along, and then along comes some fellow like a pioneer or an inventor—Baekeland was one in this particular industry—and organizes this knowledge, and we have an innovation in the Schumpeterian sense.

There is no reason to believe, in other words, that technological change does not go along, does not proceed in the same way as the accumulation of knowledge.

The reason I am bringing this up is that it's very difficult to include in here the relation between know-how and technological change. It would have to be included though, because it's these little firms, the little firms and even the big firms, that go along from day to day making small changes that they call know-how, that they ascribe to their know-how and fabricating skill, on whose shoulders the innovators stand.



I don't know how this could ever be quantified. It may not be. But it at least has to be mentioned.

Finally, a complete analysis of the effects of patents on the development and operations of the firms in the plastics fabricating industry—or any industry, for that matter—would have to include the market structure and the maturity of the industry. We mention these as to variables that we were not able to investigate.

Thank you. [Applause]

DIRECTOR COLCLOUGH: It's now quarter past twelve, and we should be at lunch by twelve-thirty. If there are a few questions, however, I think we can handle them for a short period of time.

Maybe we're all too hungry to think up questions.

DR. SIEGEL: May I ask one?

DIRECTOR COLCLOUGH: Yes.

DR. SIEGEL: The remark that you make, Professor Brown, regarding technological change slowing down as an industry matures is a very important point if it can be sustained. I think here we have a question of what the unit is that we're discussing—the universe of discourse.

I take it that a firm that diversifies and maintains or possibly increases its rate of technological change through diversification into new lines really represents a multiple-industry firm. It, in effect, becomes several firms and might thereby maintain a very vigorous technological growth.

If this is so, then what you are saying would seem to boil down to this: That if you follow any industrial thread out to its end you may find that the longer the thread gets the smaller the percentage changes in the length of that thread. Eventually, maybe the thread even tears or nobody cares to pursue it any further.

Would you comment on this?

PROFESSOR BROWN: Economists have had fun with this concept of industry almost since the concept was introduced into the profession, and I may say that many economists have achieved a reputation simply on the basis of confusing other economists about the definition of the industry.

Now, I don't know what an industry is, I frankly admit, but I think I have an idea or a feel, an intuition.

This, of course, is not going to answer Dr. Siegel's question, but let me just make this remark anyway.

An industry exists in the minds of the entrepreneurs. It's a very subjective definition. It was touched on by one of Dr. Siegel's former colleagues, Dr. Machlup.

But I think this is what an industry is, and I think this is what you can work with, what you can work with but can't quantify too well.

If this is the case, if an industry exists in the minds of the entrepreneurs, people who are managing the firms in the industry, then there is no reason to believe that when the rate of change, the rate of technological change in the industry as perceived by the entrepreneurs falls that you could get out of this dilemma by diversifying.

For instance, the railroads may have diversified by buying up airplane equipment, but this does not mean that the rate of technological change and the rate of growth of the railroad industry has not fallen.

At least that's helped me. And I know there are objections to this. But that's why I would say that diversification does not ward off the point of maturation that comes when the industry gets old—in other words, defining this in terms of falling technological change.

DIRECTOR COLCLOUGH: We will adjourn for lunch now, and in view of the fact we are a bit behind may I urge that you reassemble at one-thirty sharp.

[Whereupon, at 12:30 P.M., the Conference was adjourned, to be reconvened at 1:30 P.M., this date.]

## FRIDAY AFTERNOON SESSION

June 20, 1958

1:30 P. M.

DIRECTOR COLCLOUGH: Gentlemen, may we forgather, please?

Our first subject for the afternoon is the role of patents in executive decisions. Our principal investigator needs no introduction. But since there are some here who were not at last year's annual conference, may I say that Dr. Markham has combined a career in business and in academic circles. He has been with Du Pont and with our own Chesapeake and Potomac Telephone Company. He is now, of course, a professor at Princeton.

He has taught at Vanderbilt, and he has also made his contributions, like so many in the academic world, in the field of governmental affairs. He headed a research project dealing with evaluation of fertilizer policies for the Tennessee Valley Authority, and from 1953 to 1955 he served as director of the Federal Trade Commission's Bureau of Economics.

So, like so many of us, so many of our Foundation staff, he represents a life in business, in government, and in a great university.

He has published extensively, and among his publications are *Competition in the Rayon Industry* and a workbook on economic policies.

Professor Markham will discuss, as I say, the role of patents in executive decisions.

## The Role of Patents in Executive Decisions

(Project 8a)

### RESEARCH PROJECT INTERIM REPORT

DR. JESSE W. MARKHAM: Thank you, Dean Colclough.

I have had the advantage for a number of years of following on the program behind Dr. Siegel, an advantage both from my point and from yours, because actually what he is investigating parallels that which I am interested in, and, therefore, much of what I would say generally has already been said by the time Dr. Siegel and his staff finish.

There are a couple of differences between my project, the role of patents in business decision-making, and his. You will notice that the platform is not covered with a very heavy research staff—Dean Colclough not being on my research staff. [Laughter] This means that I'm the research staff to the extent that we have one.

This project grew out of a major project we reported on here last year. Those of you who were present might remember that we tried to get at the value of the patent system, and Mr. Worley and I delivered the results of that research.

One of the major conclusions we reached in that research was that while you could develop certain techniques for measuring the value of the patent system, at least as of now and probably in the foreseeable future, we would not have the appropriate data to apply those techniques.

Particularly, in that project we were interested in the role of patents in technology and the development of technology, and the role of technology in autonomous investment. By this approach, we tried to get at some idea of how one might evaluate in economic terms the patent system.

This project, therefore, is an extension of that earlier study. If the data necessary for the earlier approach were not available, then one way of possibly getting at the value of the patent system would be to find out to what extent does the patent system in fact influence private business decisions.

This is quite important, of course, because seven-eighths of the net national product of the economy arises in the private sector of the economy, and, therefore, from day to day businessmen are making decisions which in a year involve \$400 billion worth of goods and services.

We tentatively therefore—"we" being used in the generic sense; it applies only to me—have formulated some questions that we think might solicit useful answers, or, rather, the answers to such questions would be quite helpful and would offer certain "intuitions" into just what the patent system is all about in terms of its economic effects. How it shapes, in short, the course of the economy.

Some of these questions are along the following lines:

To what extent is the patent system, or the patent situation, referred to by business firms when they are establishing their research and development budget?

It may be that the board of directors of a corporation never even asks this question. If that is so, then one could conclude that the patent system as such probably does not have any unique relationship or probably, if any, a very tangential relationship, to decisions in such companies.

Or, to carry the inquiry on still further, after certain basic research has been done and firms are considering the erection of a pilot plant to further explore a potential product, a new product or a new process, to what extent at that juncture do firms survey their present patent situation? Or going on still another step, when they go from a pilot plant into commercial processing?

Here is where we get the connecting link between the patent system and investment. At the time that firms consider building a new plant, do they generally want to know what their patent situation is?

One can set up certain hypotheses that might be quite indicative here. If for example, you find that companies generally ask for the present patent situation, but that once they get it and find it unfavorable they go on and erect the plant anyway, then one could reasonably conclude that the patent system as such is a very weak element in the determination of executive decisions.

If one finds that firms do in fact sometimes stop at the pilot plant stage and do not go on into commercial production because the report on the patent situation shows that little protection can be given the new process or the new product, then one can perhaps conclude that the patent system is a very important determinant in executive decisions.

One way of getting at this problem is to try to establish a relationship between the nature of the product, the organization of the firm, and the use of the patent system. I have done some exploratory work among the very large corporations of the American economy, and have come up with some data that suggest several interesting avenues that can be explored.

For example, if you take the largest 100 corporations as rated by assets, the largest 100 corporations as ranked in terms of their research and development expenditure, and the largest 100 corporations in terms of their advertising outlays—one could go ahead, of course, and expand this list in terms of other variables, but I have played around with these three ways of measuring the size of a firm—you come up with some interesting tentative relationships that merit exploration.

For example, on the list of the 100 largest corporations ranked in terms of assets, 51 appear on the list of the largest firms ranked in terms of research and development, and 44 of them appear on the list of the largest advertisers in the American economy.

But when you cross-classify the 100 largest in terms of research and development and the 100 largest in terms of advertising, you find an overlap of only 24 firms, and these 24 can be accounted for almost entirely by the automobile industry and the electrical appliance industry. And they have certain unique features. That is, typically, these are industries where advertising is done under the manufacturer's name although consumer products are involved. But they are also heavily oriented toward research and development.

The rest of the group seem to be almost mutually exclusive—at least at this aggregate level.

It suggests, therefore, the possibility that what we're going to find as we continue exploring this large group is that to some extent there is a classification of large firms that more or less conforms to the Schumpeterian hypothesis that was mentioned here this morning—that are vigorous innovators. This is where their principal thrust comes. This is the way also that they develop and grow—through research.

And one might expect that these companies will find that the patent system is very important, or, rather, we might find that the patent system is extremely important in the decisions of such firms.

But there is the alternative group where at least on the basis of initial inquiry the hypotheses may be established that some firms do not rely on the patent system, nor do they need it. That is, they advertise, and through this obtain protection in much the same fashion that protection is obtained through a patent. That is, if one can differentiate the product through advertising sufficiently, then perhaps the firm need not, or does not, rely quite as heavily on the patent system.

Now, it's rather important that the causal relationship here be kept straightened out. It may be that advertising can give sufficient protection for the five, ten years or so that a company might want. Or it might be that such companies cannot by the nature of their product or the nature of their process get patent protection, and for this reason they might use advertising as a way of protecting a certain market position for a short time.

In any case, this is largely the kind of problem that Project 8a is concerned with—the extent to which the patent system as such does come into play in the major decision-making of the large firm.

There is a distinction here between this project and the project that was outlined just before lunch. There the unit of study was the industry—the aluminum industry, for example.

As this project is presently framed, and as far as it has been taken up until now, it is to be exclusively an inquiry into the firm. It is conducted almost irrespective of industry classification, although, as I have pointed out, it seeks to find out the extent to which the type of product or the type of business organization relates to the use of the patent system.

We are presently in the stage of going over two or three lists of large corporations. There is the list that is published by *Fortune Magazine* on the 500 largest corporations. There is Mr. Federico's list that he has prepared for the Subcommittee on Patents, Trademarks and Copyrights for the United States Senate Committee on the Judiciary. There is the list of 200 that has been prepared by the National Science Foundation.

There is another list, a composite list that brings together all of these firms under certain classifications, in a study that is currently being brought to a close by my colleague and former associate in the Foundation, Mr. James Worley.

It is intended at the outset, before we try to put together all this information, to try to identify at least one company that acknowledges that patents are quite important to it in its decision-making process. We then propose, if possible, to spend some time with this company. We haven't identified the

culprit yet, but this is going to involve, in order to do the project well, spending some time around the company trying to get access to some of the records. Obviously, one of the most important pieces of evidence would be the minutes of the board of directors' meetings where the patent situation has come up from time to time.

I expect this presents some problems of confidentiality as to whether a college professor is going to be given access to such intimate records of a corporation, but at least this is the first step. Our endeavor at the moment is to find a corporation that fulfills two qualifications—it does rely heavily on the patent system, and it has an extraordinarily soft heart so that it will permit someone to come in and “case the joint” to see how it operates.

A study of such a “pilot” corporation should identify relevant questions which can later be put in the form of a questionnaire and sent to a reasonably large number of firms selected by some device from the composite list I have mentioned—possibly a questionnaire followed up with interviews to straighten out some of the questions.

This is the present status of the project. I have no quantitative results other than those I have hinted at, I'm afraid, to report at this time. It is, as I say, to be regarded primarily as an extension of the project that was delivered here last spring and which was published in the June 1957 issue of the *Journal*.

Dean, I think that that is about all that I have to report at this time.  
[Applause]

DIRECTOR COLCLOUGH: Is there anyone who would like to comment on this “soft-hearted” firm that Dr. Markham is looking for?

MR. SPURDLE:<sup>1</sup> It might involve a soft head.

DIRECTOR COLCLOUGH: Soft-headed perhaps? All right. I think I'm right, am I not, Dr. Markham, that you were not talking about going to a firm and finding out this pattern for publishing purposes?

DR. MARKHAM: No, I was not.

DIRECTOR COLCLOUGH: I think that reduces the softness of the head a little bit, particularly if we consider ourselves trustworthy, which we do. As you gentlemen know, we now receive a great deal of information from big and little business, from industry, that is granted to us on a confidential basis, which I can assure you we preserve.

Dr. Markham was talking about looking at a company in order to get a pattern which would permit going into other companies.

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<sup>1</sup>Robert O. Spurdle, Sun Oil Company, Philadelphia.

PROFESSOR BROWN:<sup>2</sup> I just have a question. One of the things that interested me—

DIRECTOR COLCLOUGH: We have had difficulty and some criticism during the luncheon about hearing. Would somebody on the staff please give Professor Brown the microphone?

PROFESSOR BROWN: One of the things that interested me about the proposal was the possible substitution between, say, advertising and the patent system. I just would like to know if Dr. Markham would comment on this somewhat more—how he's going to go about investigating this.

DR. MARKHAM: Well, I don't know that I could say much more than I have already said. I listed that simply as a tentative conclusion.

I have given some thought in my own mind, turned over a few ideas, as to why you might find this apparent division within the very large groups of corporations, and it has reduced itself really to posing two additional questions:

One, are these companies growing—or, rather, is the growth of these companies essentially due to a great deal of activity on the part of the company that just simply doesn't lend itself to patents? One can think of many such companies where registration of trade name would be, of course, quite important, but then you spend a good deal of time attempting to persuade the public that this is a differentiated product.

And, if on viewing the patentability of the product as a possibility, the firm concludes that chances are quite slight that patent protection is possible then the firm possessing limited resources is simply in looking over the two alternatives electing to take the more promising one of persuading the public that it has a differentiated product that possesses certain merits.

Whereas, in other lines of enterprise, and particularly in intermediate products, by which I mean firms that sell essentially to other firms, where decisions are made on the basis of scientific study rather than consumer preference, then it may be that advertising to these firms looks like a very inferior alternative to protecting, say, this particular device from the encroachment of other firms.

And there are these cross-currents.

The very heavy advertisers, as you would expect, that also appear on the large corporate list, by and large, do sell directly to consumers. That is, their good is sold directly to consumers through dealers and is not, such as basic steel, sold to fabricators who in turn produce consumer goods.

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<sup>2</sup>Murray Brown, University of Pennsylvania, Philadelphia.



So you might find that the data would confirm this. I think the data make a fairly logical case.

Yes, Mr. Rabinow?

MR. RABINOW:<sup>3</sup> You mentioned twice during your talk that you would like to see whether the board of directors ever specifically, explicitly mentions the patent situation in the company to find out how it affects their decisions. I'm wondering whether this is meaningful.

I would take it for granted that the board of directors of General Electric would not mention patent procedure because they would take it for granted that if they set up a new laboratory in Los Angeles that the patent procedures would be taken care of as well as they have been taken care of in Schenectady.

I think this would be taken care of normally. They would assume the legal department would handle it. And I don't think that they would give it any special, explicit consideration at all.

Now, in a small company which perhaps would like to expand its operations, based on a specific patent, there may be a great deal of discussion of patents.

And I wondered whether you shouldn't look at a lower level in studying the importance of patents to companies. Companies like RCA, Westinghouse, and so forth, may take it for granted the patent situation will be taken care of. Do you see my point?

DR. MARKHAM: Yes. I think anyone would have to provide in any kind of empirical research for this kind of possibility.

The other difference that would make I think is this: If you found no reference to it, what this means is that, just as you have pointed out, there is a general acceptance of it and actions are taken in view of the existence of a patent system.

MR. RABINOW: That's right.

DR. MARKHAM: And a firm probably could then in a lunch period or in an hour or two explain pretty fully what the patent system meant to it.

MR. RABINOW: Yes.

DR. MARKHAM: Because it becomes the institution around which so many decisions are automatically made, you see.

MR. RABINOW: Yes.

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<sup>3</sup>Jacob Rabinow, Rabinow Engineering Company, Takoma Park, Maryland.

DR. MARKHAM: But if it's that kind, if the firm uses the patent system for this purpose—that is, relies on its existence—to this extent it can quite clearly and in rather specific terms state wherein the patent system affects its research and development activities.

MR. RABINOW: Yes, I understand.

DR. MARKHAM: Whereas, a firm that doesn't do this but nevertheless is affected by it in certain specific but more or less isolated ways would have to, I think, go pretty much to the records, or detailed interviews, to answer: "Well, we know that you're not completely untouched by the patent system. You could probably not reduce it to a half-hour succinct statement of how you use it. That is, it is not in any sense routinized or imbedded in the company but is something which you rely on every now and then. How does the patent system affect decisions in your firm?"

I would expect, in fact, to find a number of companies that comply pretty much with the image that you have drawn of General Electric.

MR. RABINOW: Yes.

DR. MARKHAM: There probably are quite a number. And my guess is that these will find it somewhat easier to spell out what the patent system means to them than those like Dr. Siegel's heterogeneous case.

DIRECTOR COLCLOUGH: Yes, sir?

A CONFEREE: I'd like to make this comment. One of the questions you could well ask in any of your surveys would be: Is the patent department of a corporation aggressive in informing management not just about details but about the theory and philosophy of the problems in that particular industry and how they affect the industry? Because I have found that corporate patent counsel is notoriously poor in being aggressive in that area.

That is a big factor, because management is absolutely ignorant many times.

DIRECTOR COLCLOUGH: All right. Thank you very much.

Thank you very much, Dr. Markham. [Applause]

I'm sure we all realize the potentialities of this subject.

Now we come to our next project on the agenda, one on which we have published rather extensively; one on which there has been a great diversity of opinion in this country—namely, patent utilization—one on which I, as the director of the Foundation, venture to say there has been considerable guessing.

Now, again, as in the case of Dr. Markham, these two gentlemen need no introduction, because they are also "plank-owners" in the Foundation. But just for the benefit of any that have not read the *Journals*, Dr. Rossman is patent counsel of the Marathon Corporation of Wisconsin. He was for a period of four years, from 1931 to 1935, editor of the *Journal of the Patent Office Society*. He is the author of numerous papers and books—*Psychology of the Inventor*, *The Law of Patents for Chemists*, *Protection of Patents on Scientific Discoveries*, and numerous other articles.

He has been active in the National Association of Manufacturers' Patent Committee.

Dr. Sanders is a research consultant of the Program Development Branch of the Division of General Health Services in the United States Public Health Service. He is a statistician. He is a lecturer in statistics and economics at Johns Hopkins and Catholic Universities, and in 1947 he was advisor to General MacArthur on social insurance.

He too has published many articles, papers, and pamphlets on numerous subjects.

Dr. Rossman and Dr. Sanders are co-investigators of this project.

May I ask Commissioner Clague and Mr. Houghton of Arthur D. Little, Inc., if they will come up and join us on the platform. I will introduce them later.

May I urge the participants to talk into the microphone.

## Patent Utilization

### (Project 1a)

#### RESEARCH PROJECT INTERIM REPORT

DR. JOSEPH ROSSMAN: Gentlemen, I have had some very interesting chats with some of my confreres of the Philadelphia patent bar, particularly with Mr. Virgil Woodcock, who is here and who, as you know, has had a large hand in creating the Foundation in its early stages. He has suggested that patent attorneys—and there are quite a number of them here—are more interested in the gross results that we are finding in our statistical study of the utilization of patents rather than in the specific analysis or the methodology that Dr. Sanders is interested in.

I will try to give you the highlights from the viewpoint of the patent attorney.

I might also mention that I have had some very interesting chats with Mr. Robert Spurdle, who is in charge of the patent department of Sun Oil Company of Philadelphia. His first reaction was quite negative. I'm very happy to say that he became intensely interested in the question. I hope we can induce him to make a few comments later on.

Our utilization study is still in its pilot stage. In the June 1957 issue of the Foundation's *Journal* we outlined a procedure that was used in selecting a 2% probability sample of all patents issued to United States residents during the years 1938, 1948, and 1952. These selected patents totaled 2,214. Some of the preliminary results that we found from the returns have already been published in the June 1957 issue of the *Journal*.

Further work along the same lines since then appears to indicate that the statistical procedures developed in the study are quite sound. They have been reviewed by some outstanding statisticians. You have heard at last year's conference some very flattering comments about our methodology.

The replies to date have been most surprisingly consistent. We find that from the assignee replies—that is, the companies who own patents who have been in our sampled patents—57.2% stated that these sampled patents were in actual use. This figure includes present use, past use, and a small fraction where they indicated there was a potential future use.

We also have replies from individual inventors. Their rate of utilization has been 49.3%.

The over-all utilization rate for the unassigned patents, as you will note, is somewhat lower than that of the assigned patents, but at this stage of the study we cannot conclude from these figures that a smaller proportion of unassigned patents are used compared to assigned patents. There may be undetermined factors at play here which could influence the results, such as the patent policies followed by companies in filing patent applications and the attitudes and problems of individual inventors.

As is well known, some companies file applications to cover only products they put on the market but do not file on processes or equipment which they develop for their internal use.

Then, there are other companies that file applications generously on almost any ideas which may come from their research laboratories or engineering departments, essentially for defensive purposes.

In spite of such diverse policies, these returns indicate, as I said before, a very high, surprising rate of utilization which reflects the tremendous vitality of our patent system. There have been estimates made that only 1% or 5% at most, of our patents are really commercialized. Frankly, I am much surprised by these results. I am confident that they will hold up when we carry out our greater survey with a larger number of patents when and if the Foundation can get a larger staff to carry on the statistical labors.

Now, further evidence of the vitality of our patent system is found in our second report that was published in the March 1958 issue of the Foundation's *Journal*, which I hope many have read, but I will just give you a bare outline of this article.

Out of 528 assigned patents there is an indication that 26.7% were licensed, 41½% were willing to license, and 11% said they might license. Six and two-tenths per cent said they would not license under any circumstances.

According to these figures, it appears that companies are generously licensing their patents. Furthermore, as you know, license agreements serve as a legal basis for exchange of know-how and engineering information besides what the patent itself may teach. There exists today a vast network of license agreements among competitive organizations which, of course, stimulate research and progress of industry.

In view of this present recession that we're experiencing, I thought it might be interesting to get preliminary light from our data as to whether patents which are being utilized and commercialized have anything to do with stimulating sales. Our analysis indicates that 16% of the companies that utilized patents stated there was a marked increase in sales in commercialization of these patented inventions. Twenty-five per cent indicated there was a moderate increase in their sales. Twenty-two per cent stated it was slight.

In these days of declining sales the patent portfolios of companies might be carefully reviewed to determine whether some patents have been overlooked that should have been commercialized and in that way increase sales.

Mr. Houghton, who is here with us from Arthur D. Little, perhaps will give us some comments on that phase, because I understand that they have done considerable work in this direction.

Our returns also show significant results bearing on reduction in production costs based on the utilization of the sample patents.

We found that of the currently utilized patents the replies from assignees show reduced production costs—12% very markedly, 14% moderately, and 16% slightly. Dr. Sanders will give you a detailed analysis of that phase, which I think is very interesting and timely.

We can analyze our sample patents in many ways. We have, for example, the official classification of each of these patents so we can break them down by groups such as mechanical, chemical, and electrical.

The figures we have for patents in our sample for 1938 show that 11% were chemical, 14% were electrical, and the rest, about 75%, were mechanical. Now, comparing these with 1952, the other year that we're working with, we find that 15% were chemical, 14% were electrical, and the balance

mechanical. This shows a great growth in the rate of chemical patents in the last few years.

Out of a total of 528 returns from companies, we found that the reasons they gave for non-use of their patents were, first, 40.9%, that the invention was competitively at a disadvantage; 30% indicated there was lack of market demand; and 15% gave the reason as being rapid obsolescence.

We're also trying to determine many other interesting factors through the statistical approach, not just guesswork, for example, the importance of know-how associated with these patents, and the extent to which the development of know-how might be dependent on patent protection.

Then the reasons for licensing. Why do companies license and under what conditions?

And another very critical question: Would the companies have invested and developed these inventions had there been no patent system?

Other interesting topics that we are exploring are the personal characteristics of inventors, their education, their training. Can some of this information possibly be utilized in analyzing creativity?

As you know, research men are very expensive, and companies are trying to utilize their talents to the maximum extent in developing inventions. If we can determine the characteristics of successful inventors, we may possibly have clues in selecting engineers and chemists for inventive work.

One facet that Dr. Sanders has found in his figures is the answer to the question: Do inventors who report themselves as "engineers," develop inventions at a greater rate than those who are not self-classified as engineers? He found that the chances are 45 to 50 times greater, as compared to any other occupation, that designated engineers are more likely to make inventions than not.

These interesting items are just a very broad indication of some of the highlights of the clues that we are trying to unearth in this statistical study.

I should like to add one more word. The labor behind these few figures which I just gave you is tremendous. A lot of cards, indexing, sorting, and collating was involved. The Foundation's staff is working on a very limited budget. I certainly want to say that Mr. Harris, the executive director, and his wonderful staff—and then I want to mention specifically Mr. Robert Carter and Mr. Robert Grindle who did a lot of the compiling of statistics—did a magnificent job. At times they were there working right through weekends in getting the figures together for us.

I'll let Dr. Sanders carry on from here. [Applause]

DR. BARKEV S. SANDERS:<sup>4</sup> Dean Colclough, Discussants, Gentlemen: It looks as if I'm on the carpet here. I have to prove it.

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<sup>4</sup> This presentation includes certain changes and additions. The tables referred to are reproduced in the Appendix on p. 217.

Well, you see, in a sense I think I was taken advantage of. This project was called a pilot project to test the method and not to use the results as findings. But the findings have been so novel and significant that they have been grabbed at. Yet, I'm told that people are not interested in how these findings were obtained. [Laughter]

You see, if I were designing this study to get information I would have designed it entirely differently as a statistician. Of course, I haven't been working alone. We have been working as a team. But be that as it may, I hope you will be somewhat tolerant, because my interest is in showing that here is a method that will work, and the reason I shall go to absurdity maybe in your way of thinking, to show that it works, is because I feel that the proof of the pudding is in the eating.

Of course, if I were dealing with mathematicians I think it would be relatively simple to show that this method works. But with this group I have to depend on a different type of proof. So you will be tolerant if I do quote statistics to document the consistency of the findings.

Last year it was not really showmanship which led me to give examples of how closely one can estimate the characteristics of all the patents from a 2% probability sample. For instance, I illustrated that since we knew the total number of patents in each of these years that I had sampled, my estimate of the total number based on the 2% sample had a maximum error of one per ten thousandth. Of course, if I kept on indefinitely pulling such samples I might not have been as lucky each time. But, actually, in these three years my maximum error in estimating the total number of patents from the 2% samples was 1 per 10,000.

One other thing. Now, some people have said that patents are too variable to be sampled. I'm sure you know that patents are quite variable as to the length of time that a patent application stays in the Patent Office. For these three years I estimated from my 2% sample the duration of time between application and the granting of the patent. I compared my estimates with estimates that the Patent Office had prepared for these same years based on thousands of patents. And the maximum difference that I had was three-tenths of a week.

These are by way of illustration. I could give you a number of others. Some of these were listed in the proceedings of last year's conference.

Last night after our fine dinner and the excellent lecture, I was told by Mr. Woodcock that there was some understanding among some of you that last year I was saying that 20% of the patents were used and this year I'm saying 57%, as Dr. Rossman has reported to you. This is apparently a misunderstanding and the published figures given in last year's proceedings will clearly substantiate me. Last night when I got home I dug out my old tables. I had eight different stages at which percentage of patents utilized had been computed. This is just like oil flowing through the pipes in a refin-

ery and one takes samples at different points to see what changes, if any, have occurred. I have at different times compiled the utilization rate. And because I remembered from my past knowledge of law, the prerequisites of admissible evidence I selected only those estimates that had been published. They are printed reports and, therefore, could not be altered.

The first of these was based on the 26 inventor questionnaires that I got in Baltimore by personal interviews. At that time we were just exploring and had not differentiated current use from past use, we simply asked, "Is this patent used?" It showed that 53.8% of these 26 cases said the patent was used (combining patents used in the past with those in current use). At that time we were not asking, "Is the patent about to be used?" Instead our question was, "Do you expect this patent ever to be used before expiration?" And 11% answered "yes" to this question. So there were 65% out of this 26, a very small sample, to be sure, that responded affirmatively that the patent was used or was expected to be used.

Then, in my first report to the Foundation's Advisory Council in 1956, I had 79 mail questionnaires returned by inventors. At that time 34% of these mail questionnaires showed the patent was in current use and 15% showed it was used in the past. In other words, 49 or 50% said it was used, comparable to the results based on 600 patents based on assignee questionnaires. Nearly 4% said they expected use in the immediate future. All together, 53% of these 79 inventors said that the sampled patent was used or was about to be used.

Last year when I reported to you at the First Public Conference, I dwelt on the fact that we had for assigned patents separate replies from the assignee and the inventor for the same patent. The percentage of used patents and patents about to be used was slightly higher if one accepted the replies of inventors of assigned patents in comparison to the percentages derived from the replies of assignees. The sample analyzed last year consisted of 562 completed questionnaires from inventors of assigned patents. Of these, 40% said the patent was in current use. Nearly 18% said it was in past use. Nearly 11½% said it was about to be used in the immediate future. In other words, a total of 59% said the patent was used or was about to be used. Now, in the tables that I have given to you, if you turn to Table 9, it shows there are 607 inventor returns, of which 38% said the patent is in current use, 19% said the patent was used in the past, and 21½% said the patent will be used in the future. This is merely to emphasize the uniformity with which the replies with respect to percentage of patents in use have persisted from the very beginning of this inquiry.

It's quite conceivable, and I hope to get into that, that we have not asked the right questions. But the important thing at this point is the fact that the method lends itself to repeated verification of whether we're getting the same thing.



I think you can see—starting with the 26 patents—that those figures speak for themselves; they seem phenomenally consistent.

I have put these on the blackboard, because apparently, speaking orally last year, some people had misunderstood me.

You note that our figures last year and this year are almost identical. Fifty-nine per cent are in this broad category, used in the present, past, or the future. This is on the basis of inventor answers to the assigned patents. I shall get to the assignee replies. That much by way of illustrating the consistency of returns at different stages in the development of this pilot study.

If you turn now to Table 1 of the material given to you, it shows the utilization pattern as reported by assignees. I shall not read my prepared paper, but, in order to expedite the presentation, I shall ad-lib, using the tables as a guide.

Looking at Table 1, you will see that it differs from the analysis shown on the blackboard in that the replies analyzed with respect to utilization are not those of inventors, but of assignees. We have 600 assignee replies. Of these, nearly 31% answered that the patent was in current use. Nineteen per cent said that the patent was used in the past. Eight per cent said there was likelihood that the patent would be used in the immediate future. These figures could be compared with figures shown in Table B, in the 1957 Conference Supplement.

Now, I'd like to refer to the comparable figures in last year's report, which is again published so there could be no possibility of changing it.

On page 151 of *The Patent, Trademark, and Copyright Journal of Research and Education, Conference Supplement, 1957*, we present these figures. There were 377 assignee returns at that time. The percentage of patents in current use was 31.8—as against 30.5 now based on 600 returns. The number in past use was 19.1 as against 18.9 now. The number about to be used was 7.7% as against 7.8% now.

I think these figures speak for themselves. There is, therefore, no basis whatsoever to the statement that previously our figures showed 20% of patents being used and now 57%.

Now, confining myself to present Table 1 which you all have, the peculiarity or the uniqueness of Table 1 is not merely to give utilization, but to go further. Last year I was merely touching on one aspect, utilization. This is, again, as if I were using a method of fractional distillation. In this Table 1, I have made successive distillations of replies in terms of questions 7, 8, 9, 20, and 21 in the assignee questionnaire.

Now, 57% of these patents were used, either in the past, were used currently, or were about to be used. For these we didn't look for any further evidence of usefulness. Now, on the remaining, we further sorted the returns

in terms of replies to question 20. Question 20 attempted to ascertain was there any other benefit that the assignee derived or expects to derive from the sampled patent. We found that 11% mentioned other actual or potential benefits even though they had not said the patent was used. Many assignees who indicated the sampled patent was not being used and had not been used failed to make any entry under question 20.

For patents not utilized, if the assignee reply to question 20 was non-affirmative, we went to question 21. Question 21 deals with licensing. And we found that another 7% of these patents that did not fall in any of the previously mentioned slots considered beneficial, were patents that had been licensed and were useful in that sense.

Therefore, in compiling Table 1, I have assumed that a patent which either is used, or is about to be used, or the assignee indicates some other benefit in response to question 20, or that is licensed may be considered "useful." If you agree with me in this definition of useful patents, then, nearly 75% of all of these 600 patents are to be regarded "useful." That leaves 25%, or a quarter of the patents, on which we had no definite information, or the information was negative, that is, the patent was considered of no value.

Now, perhaps this coincides with what my colleague, Mr. Frost, has labeled "scarecrow patents." Yesterday, we heard of these scarecrow patents. I do not know exactly what is meant by scarecrow patents. He presumably had estimated that their number would be about one-quarter to one-third of all patents. And in assigned patents we find one-quarter that do not fall into any of the various slots we have defined as useful patents could be considered as "useless" patents, perhaps.

In Table 2 I have analyzed two of the classes, the patents which were said to have been in current use, and those which were used in the past. Now, let me first read to you the definition of use so there will be no misunderstanding. We advised these people who were answering our questionnaires that use means "making or selling a patented invention in the production of goods and services." To me this is a reasonable layman's definition. In fact, yesterday it was said that the bundle of rights for patents included the right to make, use, or sell. These two concepts are quite similar.

I may come back to this because there has been some criticism of the study on this score. Please, let me reiterate, I'm not saying that the study is not subject to criticism. I'm merely saying the method employed is an effective method. Maybe we did not use the right language, or failed to ask the "right" questions, but at least we have a means by which we can go back and check ourselves, whether we have used the right concept. What was in the back of the mind of the respondent when he answered our questionnaire, and so on.

Now, if you look at your Table 2, we had a number of other questions that revolved on use. We asked in question 13, if the patent was used, was it used

extensively, moderately, or to a limited extent. Ninety-six per cent of the assignees who said the patent was in current use answered this question, indicating that the sampled patent was used either extensively, moderately, or to a limited extent. Because of shortage of time I don't want to read you the specific percentages. You can study these yourselves.

Now, for the patents used in the past, again over 95% answered specifically one of these—that the patent was used extensively, moderately, or to a limited extent.

In the vast majority of cases, in other words, there was an independent answer, tying in and confirming the statement that the patent was used or had been used.

Let's turn to Table 3. Table 3 is based on question 18. In question 18 we asked the assignees if the patent is being used or was used, had the use affected your sales markedly, moderately, or slightly. And again, you see, 16% of those who said their patents were in current use said their sales were increased markedly. That is, the use of the patent increased sales markedly. Twenty-five per cent said the use increased sales moderately, and 22% said it increased sales only slightly. In other words, in 62% the assignees definitely indicated an increase of sales attributable to the use of the sampled patent.

For sampled patents with respect to which nothing was said about increased sales, we analyzed with respect to question 20—was there any other benefit derived? That is, other than sales. Well, there were 7% that indicated other benefits, such as increasing the shelf-life of the goods, customer good will, or leading to other useful inventions. In other words, patents for which the assignee got some other useful end product, you might say.

Well, those that were not screened out by question 20, we ran through licensing, question 21, 2.2% said the patent was licensed. A number of assignees indicated that the licensor did not know whether the licensee's sales had been affected or not. That appears reasonable response on the part of the initial assignee. We excluded any such from our definition of "used" patents.

In other words, in 72% of the patents used currently, we had specific confirmation in relation to sales or some other benefit other than reduced production costs derived from these used patents, and the comparable percentage for patents used in the past was 54%.

Now, these percentages, 72 and 54, indicate marked difference; also, if you look at the effect of sales, whether the use of the sampled patent increased sales markedly, there is a distinct difference in favor of patents in current use in comparison with patents used in the past.

Well, this apparent difference partly indicates that these two groups of patents are somewhat different, that they are not homogeneous, but there is

also a certain bias. Assignees whose patents had been used in the past were really making the judgment largely in terms of the tail end when the patent was about to be shelved. I mean, the true difference between these two groups of patents is not as sharp as these statistics indicate. There is a memory bias here which tends to disparage the effectiveness of patents used in the past.

Now, let's turn to Table 4. In Table 4, we were interested in the extent that the use of the sampled patent had reduced production costs. Therefore, assignees who had said that their patents were in current use were asked whether such use had reduced their production costs. Twelve per cent of those with currently used patents said it had reduced production costs markedly; 14% moderately; and 16%, slightly. In other words, 42% indicated definitely lower production costs.

The percentages are somewhat less for the group of patents used in the past. Again, part of this difference is real and part of it is a kind of looking at the tail end of a patent that is about to become obsolete; it is like judging a man's accomplishment by what he can do in his old age and generalizing what he may have accomplished over his lifetime.

I don't want to dwell too much on this because of shortage of time. I would like to emphasize the implications of replies as to the economic impact of patents, not only for patents in current use, but also those used in the past. This is also shown in Table 4.

In Table 5 we have dovetailed the replies regarding the effect of use on sales with that on reduced production costs. In terms of this combination of effects, we find that 78% of currently used patents either increased sales, or decreased production costs, or did both.

When we applied other screening questions we found that 83% of the patents used currently were patents with some specific indication of beneficial results from their use.

These findings are not only significant in themselves, as evidence of the economic impact of patents; they are also significant as indexes of consistency. These replies tie in. One supports the other. The question of use does not stand by itself. Even if we had the wrong concept of use to begin with, these other questions fill in giving us some definite indication of the effectiveness of these sampled patents. The corresponding percentages for patents used in the past is 69. Were we to exclude those without specific answers these percentages would become 96 for patents in current use and 79 for those used in the past. This much with respect to the patents in current use or used in the past.

At this point, I may say I was glad this morning that Professor Schumpeter's name was brought in, because I wanted to refer to him and say that now we have a method by which we can test some of his theories and hypotheses as to the role of patents on our economy.

We took the patents that were reported about to be used and classified those on the basis of questions 20 and 21. Of course, these patents had not been used in the past; therefore, we should not expect effects on sales or production costs. We find in Table 6 that the replies are quite consistent with what one would expect. Of course, as far as questions 18 and 19 are concerned, as a rule, the assignees of patents about to be used made no entries.

But with respect to question 20 when they did answer, it was in terms of actual or possible exploitation, actual or possible royalties, in terms of development of the art, and in a number of cases, alternate processes. The latter was largely confined to patents issued in 1948, which were war patents. The utility of alternate processes, especially in a war period, is understandable.

In Table 7 I have considered the 252 patents where the indication was that these patents had not been used and there was no immediate likelihood of their use.

We again sorted these patents according to the assignee's answer to question 20—that is, what other benefits had the assignee derived from these patents. Nearly half of those that answered question 20 gave answers indicative of "actual or possible exploitation" of the sampled patent. In other words, implying, according to the assignee, many of these patents still have prospect of being used, or perhaps, being licensed. Another sizable group were already licensed. This left only 148 patents for which we have no indication of any beneficial use, out of a total of 600 patents with completed assignee questionnaires. In other words, we have, therefore, this 25% of patents which might be labeled, perhaps, paper patents or scarecrow patents or whatever you want to label them. But even a few of these might be patents with beneficial effects if we had specific replies to each of our questions from the assignees who returned a questionnaire.

I am again glad that Dr. Siegel preceded me. The question is: How far can we extend these findings? This is the key question, how much can we generalize these findings? Even though our sample was a probability sample to start with, unfortunately, we did not get replies from every assignee to whom we sent a questionnaire. In fact, we got replies only from 53% of the assignees who were in our sample. These are assignees exclusive of private individuals.

Now, as I have indicated, we not only sent questionnaires to assignees but we sent appropriate questionnaires to inventors of these same assigned patents. In Table 9, I have compared the utilization pattern for patents on which the assignee only returned a questionnaire with those where both the assignee and inventor had returned completed questionnaires. In other words, the patents with assignee questionnaire only are not significantly different from those where we did have both inventor and assignee replies. When we analyzed the utilization patterns of these two groups of patents

separately by the year of issue, we found no significant difference. That is, the utilization pattern for patents without an inventor questionnaire is no different from those with an inventor questionnaire. We find that they are homogeneous—that is, the two groups are not different from one another significantly.

In the same way we compared the utilization pattern of patents where only the inventor had returned a questionnaire with those where both inventor and assignee have answered. We asked: Are these two groups of patents different? And we find, again, when we make the comparison year by year the two groups are homogeneous. It is as if they were identical twins. You can substitute one in place of the other, and even the mother may not know the difference.

In Table 10, you will find that we had some assigned patents on which we had returns from inventors, but no returns from the assignee. But because we had the replies on many patents both from inventors and assignees the relationship of assignee and inventor was established. On the basis of this relationship we could estimate what would have been the assignee reply knowing the inventor reply on utilization. We have shown these inferred replies in Table 10. The utilization pattern of patents with inferred assignee reply is significantly different from those where the assignee actually replied (Column 2 compared with Column 5). But this significant difference disappears if we compare separately these two groups of patents for each year according to year of issue. This would suggest that lack of homogeneity is because the proportion of patents issued in a given year differs markedly for patents with inventor questionnaire only from those with assignee questionnaire. When this is removed, the pattern of utilization is not significantly different between these two groups of patents. We are justified, therefore, in combining these two, as we have done in Columns 8 through 10 of Table 10.

I am pointing these out because they show the consistency of the basic method and the homogeneity of patents with assignee replies and those without, as well as those for which we have inventor replies and those without.

Our ability to combine the inferred replies with actual replies boosts the proportion of assigned patents with some information from 53% to 74%.

I think I'd rather stop here than take any more time. I had some other data that you can see from your tables. Perhaps we can cover the rest in the questions because I'd rather have some questions than hog the time and not leave any time for questions.

But I'd like to say my object has been to indicate that here we have a method that we can test and measure its reliability. If the questions are not the right kind of questions, well, let's get the right kind. We'll get equally reliable and consistent answers by the method pursued with any appropriate set of questions. [Applause]

**DR. ROSSMAN:** Gentlemen, just one sentence as epilogue to what I said before. The old courtroom trick of putting your witness on the defensive has brought results from our statistician. [Laughter and Applause]

**DIRECTOR COLCLOUGH:** Now we are privileged to have two gentlemen to discuss this project which is so important.

We have first the Commissioner of Labor Statistics of the United States Department of Labor, Mr. Ewan Clague. He was formerly professor of social science at the Pennsylvania School of Social Work. He is one of the pathfinders in social work for the Metropolitan Life Insurance Company.

He was director of the Bureau of Research and Statistics of the Social Security Board during its formative years and, therefore, might well be called one of the chief architects of our social security system.

During the war he was director of the Bureau of Employment Security and also at one time special assistant to the Secretary of Labor.

We are pleased to have the Commissioner with us.

#### DISCUSSION

**COMMISSIONER EWAN CLAGUE:** My comments will be brief. I'm very happy to have this opportunity to comment on this study. As the head of an agency which is engaged in studies of productivity and automation, and the effect of technology upon our economic life, I welcome this kind of information that's now appearing.

I'm not raising any questions about Dr. Sanders' statistical techniques. He was one of my associates in the Social Security Board, and I know how good he is as a statistician.

In the second place, we in the Labor Department use our statistics not only for statistical studies but, as he indicated, we can use them for administrative techniques also. In fact, one of the things we are doing in the Department is emphasizing to our administrators how they can use small sample statistics to guide them in good administrative methods.

If you will pardon a personal reference, I would like to say that, although I have a master's degree in political science and a Ph.D. in economics, and have read very widely in social sciences generally, I never before came across any statistics or studies on the uses of patents. I have had the typical layman's impression of patents, and I suppose you have heard these before.

There are generally two ideas about patents, I think, that most social scientists and other people have. One is that it's a shadowy world of conflict, lawsuits between engineers, scientists, and perhaps some crackpots on the one hand, struggling with lawyers, financiers, and probably some promoters on the other, and in these battles that the "poor but honest" in-

ventor is fighting to protect his brainchild against powers trying to steal it from him.

The second impression is that it's a battle of new versus old, in which powerful entrenched interests buy up and suppress patents or harrass and handicap inventors, that it's the destruction of technology. And I read articles in magazines on proposals to force licensing.

So it's amazing to me that throughout the history of the Patent Office there's never been any basic study of the kind that would touch on this fundamental question.

I have just a few comments on the study itself. This has some of the characteristics of an opinion survey and, of course, some of its weaknesses. It could lead to variable responses, for example, from these respondents through differences in the criteria they used in answering these questions.

For example, a small business has a small item, and he says it had a big effect. A large business with a big item, says it had a small effect.

Another example is that one respondent says this had a big effect and another respondent says it has very little effect. Well, it might be a difference in temperament, or possibly even difference in the knowledge of the respective respondents.

So these variations should be expected.

But, on thinking it over, I came to the conclusion that in a strictly relative sense, on the relative value of the patent to the user, these results are very good. I think it does not necessarily portray the value of the patent to the community or to the economy. It doesn't tell us which was a really fundamental, dynamic and vital patent as distinct from a relatively small one to the economy as a whole. But that is a later study, and is a different type of question, as I'm sure Dr. Sanders would say.

I was also impressed with the problem of time. Dr. Sanders pointed out that in the case of the older patents there is possibly a downward bias. Usefulness is declining with the passage of time. Present user may be a late-comer and he didn't know the early history. The patent may be approaching expiration, so it's not of so much value.

Well, I can see a possible upward bias in the responses on the new patents that might partly offset that.

First of all, the new beginner has seasoned his actual experience in use with a dash of hope for the future, so possibly he has a more optimistic outlook.

But again I thought of another possible downward bias in the actual figures Dr. Sanders shows. A new patent not yet in use may be put to use in future years. You can't tell the final outcome on value of a patent until its



life is over, so to speak, and, therefore, a careful distinction needs to be made between the analyses of new patents and those old ones which are practically expired.

Personally, I'd like to see in the future, if Dr. Sanders keeps on, a study of those patents not used. I think I hardly need emphasize to you that there is a strong body of opinion, perhaps misinformed, that feels lots of patents aren't brought to light that should be. We ought to find out a little more about those that were not used, why weren't they used, how valuable might they have been, et cetera.

Just one minor criticism of the statistical tabulations. Dr. Sanders mentioned this himself so I feel emboldened to mention it. I had difficulty with the format in going through them. I couldn't tell which were groups and subgroups, which added up to 100, and so on.

I would suggest in final publication that great care be given so that the lay reader particularly will be able to see which items add up and which do not.

In closing, let me say I think this is an excellent study on new ground, and I'm sure it opens up great vistas for social science.

Thank you very much. [Applause]

DIRECTOR COLCLOUGH: Thank you, Mr. Commissioner.

Our next discussant is Mr. Frank N. Houghton, of the well-known firm of Arthur D. Little, Inc., where he has been since 1926 and of which he is secretary. He has worked with patents since 1929.

He is a registered professional engineer and a patent agent, a member of the Chemical Practices Committee of the Boston Patent Law Association. And he brings to us a rich background in this area which is so important to us.

Mr. Houghton.

MR. FRANK N. HOUGHTON: Dean Colclough, Fellow Speakers, and Gentlemen: I was going to say "Ladies and Gentlemen," but I don't happen to see any ladies here at the moment. Maybe I can't see around the corner.

I find that my name is pronounced several different ways in different parts of the country, but I shall not attempt to elaborate on that right now.

DIRECTOR COLCLOUGH: I have the same problem. [Laughter]

MR. HOUGHTON: It's going to be rather difficult, I must say, to do real justice to this very thorough analysis which we have heard from the investigators, but what I would like to do would be to offer a few comments based on our own experience with the patents which we have been getting out.

I will take also the same general period which they have taken, starting with 1938 and running to date, which covers some 200 patents, give or take a half a dozen, which have been issued to inventors on our staff, plus some 30 for which we are licensing agents, although they have not been made by our own inventors.

I might say here that since we are engaged only to a fairly minor extent in manufacturing or in patent licensing activities, since we are primarily consultants, our experience may not be a particularly good criterion, but I will give it to you for what it may be worth.

When I looked over the reviews which have been published from time to time by the investigators here, I was as skeptical as some of you are as to the number of patents which are being utilized. I had heard, as most of you have, that 10% or perhaps 25% are used.

But when I came to look over our own patents, I found that we, surprisingly enough, agree pretty much with the conclusions which the investigators have reached. Maybe I should have known that before, and I should not confess it now. Anyway, that is the picture.

Of course, I can't go into this realm of where does use begin and where does it end and how many are being licensed and so on, but I would say at least in our business we find very few patents indeed which are not of some use. They may be merely useful to demonstrate we have some know-how in some field or other.

I must admit once in a while we have a patent I would just as soon had never issued because it demonstrates we don't know very much about that particular subject. I killed one a little while ago just before it was ready to have the final fee paid because the inventor couldn't make the thing work. [Laughter]

Out of the 200 patents that I mentioned there, all but 31 are either licensed or assigned or used by us, some more than others. The 31 of them are not necessarily useless in the sense that the investigators are referring to here.

In fact, a month or so ago we had an inquiry involving possibly some six of those patents. That particular group of six, unfortunately, were issued in the early part of this period, and they had expired within the last year. But they are not totally useless because they at least demonstrate that we have some know-how in that particular area.

The reason for their non-use, however, is a rather unusual one, simply because the material to which they related comes from Central America, and it has not hitherto been commercially feasible to bring it out.

I might add here that we know of no specific instances of patent suppression. Every once in a while somebody says patents are being suppressed. I know they are not being used in many cases, for various reasons which

the investigators have pointed out, but the deliberate suppression of a patent, or refusal to use it or to license it—I just haven't run across any such situations. In fact, most companies are very happy indeed either to find uses or licensees for their patents.

This leads me to the comment that I think it might be well for a number of companies or patent owners to make a very critical survey of the unused and unlicensed patents which they own. Every now and then they may uncover something that is real "pay dirt."

I have a recent instance concerning a company which had several unused patents which seemed to be rather interesting but they didn't know where they could use them or what they might be used for. We happened to be fortunate in locating a company in a different field which thought very well of one of those patents and took out a license which is returning very good money to the patent owner.

I wish that were more frequently possible. Many times the patents just are not of any real commercial interest, but once in a while they are, and I think it justifies a company in taking a very close and critical and broad-gauge look at some of the patents it owns and is not using or licensing.

I have one or two comments here which I might make on some of the points which the investigators have brought out in their report, whether or not they touched on them today.

One is this question of a patent being a major or minor element in the license complex. Specifically, I'd like to refer just for a minute to a system of vapor compression distillation on which we worked and took out some 17 patents which we licensed to a manufacturer who made tens of millions of dollars worth of those things during the war for the Government primarily.

Of those 17 patents, five were used very extensively, to the extent of millions of dollars worth of equipment. Four were used moderately. Eight were used very little, possibly just for the prototype equipment or what have you.

Now, as to those five that were used very extensively. I may say that two of them were merely engineering electives. They were extensively used, but I would not call them valuable. The only reason that they were valuable in a sense is that they were dominated by, and hence conveniently used with, the other three patents.

A second thing—I have three here—that I'd like to comment on is this question of obsolescence before issue. Sometimes, as in the case of the Government during World War II, or in other sorts of you might say "crash" programs where a new subject is involved—possibly nylon may have been an example but I don't know; I'm not with Du Pont—but in a crash program of that sort in a relatively new field a company may spend a great deal

of time and effort and start filing patent applications on everything that comes out of it. They don't know which ones of those are going to be commercially useful, and they obviously can't wait until that is found out before they file. So they file a lot of applications which eventually become of relatively little use.

That, I think, is one of the reasons why we have some of these patents which are what you might call relatively useless, and yet can you say they are useless? Any more than you can say that an insurance policy under which no claims have been made is useless?

The last subject here which the investigators have touched upon is reasons for non-use. I would give two principal reasons. One is that the non-used patents are non-competitive, and the other is that they are premature.

Obviously, their definitions come within either one or the other of those two.

I might mention though, in regard to this "premature," the conservatism of the industry is one of the points they have brought out. One of the most conservative that we ever ran across was the iron and steel industry. I don't know whether any of you are from the iron and steel industry. But it's quite natural that if you have a blast furnace worth tens of millions of dollars, or however much it's worth, you're not inclined to put it under pressure with impunity. When a piece of equipment like that goes up, you've really got something.

However, we generally found in our negotiations with the steel industry in that area that either they were very short of cash, times were very poor, they couldn't afford to do anything, or, conversely, things were so good that they obviously couldn't stop to take a blast furnace out of production and equip it for pressure.

However, a good many of them are using pressure now. Unfortunately, our patents here again have expired, although we did collect a few royalties on them.

I think I'll close at this point. I could give a few other illustrations, but I think these prove the point. [Applause]

**DIRECTOR COLCLOUGH:** We now have a few minutes for questions, without impinging too much on our last item on the agenda. But before I ask for them, this is an opportunity just to mention the cost element of the research of the Foundation.

The cost is considerable. We are going to need—and I trust we are going to obtain—additional financing. This particular project is a good illustration, because thousands of dollars of the Foundation's assets have been expended on it. The Kettering Foundation—the Charles F. Kettering Foundation—gave us \$15,000 this year. The Alfred P. Sloan Foundation also gave us \$10,000 this year. That was just for this project alone, and it's

nowhere near enough, as you can well gather. As Dr. Sanders has explained his statistical method and as the discussants have commented upon it, I hesitate to use a statistical term because I might be wrong, but at least it needs "extrapolation."

Now, are there questions?

As a matter of fact, whether he likes to talk or not, may I call on Mr. Spurdle of Sun Oil?

MR. SPURDLE:<sup>5</sup> Thank you, Dean Colclough.

I am here as the result of very incautious voicing of sweeping generalizations to Joe Rossman several months ago. I was so incautious as to voice a complete criticism of this entire project. I am not going to tell you what the statement was because so far I have had to swallow about 30% of it, and I may have to go all the way.

I have, however, one important comment that I offer by way of constructive, positive criticism; and that is the definition of "use." What was intended by "use"? Is there a complete understanding, as to the underlying basis for this study, that the use of a patent means the infringement of a claim and not the use of the disclosed invention?

Secondly, do the respondents to these questionnaires so understand?

In my opinion, these questionnaires should be answered in every instance by a patent attorney who has taken the pains to analyze the operation that is regarded as a "use" in the light of one or more of the claims of the patent.

The patent grant in this country is a right of exclusion. It is not a license to operate. There is no statutory or constitutional basis for use. There is no compulsion to use. The only right, by virtue of the grant of the patent, is to exclude others.

So I would caution—as a matter of fact, recommend strongly—that, when additional questionnaires are sent out, or possibly some of these could again be sent out, they be directed to this particular end: Was the use, so-called, that was reported, a use of a claim in the patent or under a claim? In other words, was it an operation that, except for a license or ownership, would constitute an infringement and make the operator liable for infringement action?

I find myself, after studying this very carefully, very wholeheartedly in accord with this study and its aims and the hoped-for results.

As has been mentioned a moment ago, there are recurrent criticisms by the lay public, and to some extent by non-lay bodies of the Government, of the patent system; and many of these are directed at so-called suppression of patents. If, as these studies seem to indicate, we are going to find that patents are applied or used, in the proper sense, of course, freely and volun-

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<sup>5</sup>See note 1, p. 175, *supra*.

tarily and to the greatest extent possible, then we will have a further answer to those critics.

As far as the statistical analysis that has been used here, I am not a statistician. I merely question the rationale or the logic or the validity of this particular method of random sampling on a small unit basis. Dr. Sanders and I have had several discussions, and I believe that he is going to do us the privilege of coming to Philadelphia and undertaking a rather minute study of the patent portfolio of the Sun Oil Company to see if we can find a good, sound basis there to support the minuscule sampling method on the basis of a complete survey of our entire portfolio.

Thank you.

DIRECTOR COLCLOUGH: Thank you, Mr. Spurdle. Thank you very much.

I take it Mr. Spurdle has probably made one or two comments that many people here could comment up on. Unfortunately, as I say, we want to finish on time, as nearly as possible. If somebody would like to be spokesman for any group that doesn't agree with him, we'd be happy to hear him.

We're certainly aware of the fact that we have a great deal to do in this area. We do believe in the competence of our staff, and we are sure that we seek an answer that will be valid and adequate to this area, which, as several people have said this afternoon, has been one of those grey areas in the patent system that has been many times characterized more by heat than light.

Thank you, gentlemen.

The final item on our agenda this afternoon concerns the attitudes of American inventors toward defense invention. This is, may I say, a project which has drawn nationwide attention.

I call on Professor Mosel, whom I need not introduce again because he talked to you yesterday on another project, for which he is also the principal investigator.

## Attitudes of American Inventors Toward Defense Invention (Project 6b)

### RESEARCH PROJECT REPORT

PROFESSOR JAMES N. MOSEL: Thank you, Dean Colclough.

The Foundation's project 6b, "Attitudes of American Inventors Toward Defense Invention," is essentially a study of inventors' motivations, incentives and deterrents to producing defense inventions.

There are a few things to keep in mind about this project.

One, a report on it appeared in the December issue of the *Foundation's Journal*.

Secondly, it is financed to date by the National Inventors Council.

Thirdly, Dr. Siegel and Dr. Sanders have been principal consultants on this. When this project was set up, we made a deal that they would let me be principal investigator and I would take all the complaints and they could get all the glory. It didn't work out that way. I got all the glory as well as the complaints.

So if you people have anything to give, give it to my colleagues, be it glory or complaints.

Fourthly, this project is continuing.

The data to date are based upon a sample of 500. We call them "blue ribbon" inventors. They represented about a 20% return on a much larger mail sample. We have more data than we have been able to analyze to date.

The report in the December issue covers only the broad trends in the data. It states in broad outline some of the surface findings. But the really important stories lie in cross-tabulations, testing of a number of fascinating hypotheses, answering specific questions, and, above all, in being able to target specific subgroups of inventors more effectively than the present report does.

The project is continuing. We hope that we can gain more financial support for it. Send your contributions to L. J. Harris.

The point is that we have estimated about a year's work on this—if we get enough money. At the end of that time we will have approximately 10 times as much to say as has been said to date.

But what has been said to date? It might be good for me just to review a few of the major points here before we turn to our discussants.

The experimental design, if I might call it that, behind this project, consisted of viewing the defense invention process as a series of junctures or decision points, beginning with the initiation of an idea and terminating with an invention being used, licensed to or assigned to a defense agency or its contractors.

What we did essentially was to study what happens to inventions at each point.

The first attrition point or juncture is the difference between not getting an idea and getting an idea which has defense implications. Of our sample, for instance, we found that 63% had conceived of an invention which to them

appeared to have defense possibilities. You see, then, we have a certain attrition at this point.

The second juncture or attrition point lies between having a defense idea and in doing something with it—that is, taking it to a defense agency. Of the 63% who did have a defense invention idea, we found that 38% did not bring the defense invention to the attention of a defense agency or its contractors.

The third attrition point is after negotiations with a defense agency have been initiated, what happens then? Are they finalized, or in some way are they terminated in mid-course?

We found that of those inventors who did bring an invention to a defense agency, 37% had the experience of having their invention rejected by defense. Sixty per cent, however, finalized their negotiations.

These figures do not represent inventions alone. They represent inventors' experiences, you understand.

Well, this gives you an idea of what I mean by decision points or attrition points.

What we then did was to study the factors, the attitudes, the motivations, the incentives and deterrents, obstacles and barriers which created this set of results—in other words, we studied the factors which either blocked or pushed inventors at these decision points.

In summary, it could be said that the major deterrents to *conceiving* a defense invention—in other words, the thing that makes the difference between an inventor and an inventor with a defense idea—was primarily ignorance of defense needs and problems. There were other things, but this was the major one.

The major deterrent to *developing* a defense invention idea once it is conceived was the belief that the financial rewards are smaller in a defense field than they are in non-defense. And there are very unfavorable expectations on the part of inventors concerning procedures, the organizational structure, and the personnel that you have to deal with in bringing an invention to a defense agency.

The major deterrents to *submitting* an invention to a defense agency after its development are ignorance of how to proceed and whom to see and to contact, and unfavorable expectations concerning defense procedures, organizational structure, personnel.

You will notice that in this series of junctures, all the deterrents at any later juncture also act retroactively as deterrents at earlier points—they accumulate backwards.

Now let's say just a brief word to get our discussants participating on what might be done to improve the flow of inventions as suggested by these results.



The problem can be viewed in terms of three sub-problems.

There is the problem of strategy, the problem of tactics, and the problem of targeting.

The problem of strategy actually presents three main possibilities. You can simply increase the number of inventors without doing anything else. If 63%, let's say, of inventors produce defense ideas, if you increase the number of inventors, you will, of course, keeping the proportion of 63 the same, increase the number of defense ideas.

The second strategy is not to increase the number of inventors, but simply increase the number of inventors who are inventing defensewise. In other words, change the area of their invention.

The third strategy is to leave the first two conditions the same and merely increase the output per inventor. If an inventor's likelihood of coming up with a defense invention is, let's say, 63 chances out of 100, let's change that likelihood. We don't change the number of inventors. We merely increase their output. Thus, if a man turns out 100 inventions, there will be a greater number of defense inventions in that output.

These are the only three main strategies.

When it comes to tactics, there are two possibilities, and possibly a third which is a combination of both.

One is to increase the incentives to inventing for national defense, increase the rewards and the other satisfactions which attend it.

The other tactic is to decrease the deterrents, remove the barriers, tear down the obstacles. Since most of these obstacles lie in unfavorable expectations of procedures, personnel and organization, the implications of that are obvious.

You can either make the "goody" look better, or you can remove the obstacles which lead to the "goody."

Thirdly, by targeting, I mean: Whom must you influence in order to increase the flow of invention?

There are all kinds of inventors, but, broadly, the most important distinction exists between what we might call the institutionalized inventor—the one who works in a formal organizational setting, let's say a research chemist for Du Pont or an engineer for the Naval Research Laboratory—as opposed to something which approximates entrepreneurship.

Now, from a practical point of view the institutionalized inventor is easier to reach because he is to some degree a captive and we know where he is. We have ways of influencing him. We can get to his boss. We have control over him—administratively, legally, organizationally. These people are identifiable. We know where they are.

They're clustered too. Where you find one you find others right next to him.

The entrepreneur is a much more evanescent target, hard to identify, and hard to reach through information channels.

For my money, one way of increasing inventors is to increase the amount of institutionalization. This goes against my individualistic, eighteenth-century personality, which believes that everybody ought to be on his own and do what he wants to do. And so in institutionalizing inventors, if we can interpret the sociologists correctly on this point, we always lose something too. That is, the real offbeat, unusual idea very often doesn't emerge in an institutional setting.

Institutional settings, as you know if you have read *Fortune Magazine*, tend to utilize "group think." And this is certainly true in research and science. Somebody made a study showing the rate of increase in scientific articles with joint authorship. Twenty-five years ago it was always Herman Zilch. Now it's Zilch, Glockenspiel, Sassafrass, and Associates—and then a footnote with 30 graduate students listed. [Laughter]

"Group think." You can't do anything today without a team. This is one reason why research costs money. You've got to pay all these fellows.

When you do institutionalize, you do lose a lot of the aberrant, randomized type of ideas, because in an institutional setting things have to be on specific problems which are presented. So maybe the Einstein doesn't appear under these conditions.

But you have to make your choice to some extent.

If the flow of inventions, as our data suggests, could be increased by increasing awareness of problems—and very often this involves a security matter, which you cannot breach in order to bring your problem to the public—institutionalization looks like a very definite possibility.

So we have strategy, we have tactics, and we have targets.

My job is done. The discussants, reading from left to right— Would Dean Colclough take over and put them in their order?

DIRECTOR COLCLOUGH: Right. We belong to the same institution, and I don't want him to feel institutionalized.

PROFESSOR MOSEL: This is simply a verbal habit but it's a very good one. [Applause]

DIRECTOR COLCLOUGH: Now we are most fortunate to have with us as our first discussant Mr. Wadsworth W. Mount, inventor and engineering consultant, of Summit, New Jersey. Mr. Mount was educated at Amherst

and New York University. He's a member of the Army Ordnance Association and the American Rocket Society. I don't know whether he's institutionalized or not. [Laughter]

He provides personal services to clients on a professional basis for the promotion of new ideas and products, including research, technical development, and business and financial management. He successfully invented, built, tested and, more importantly, sold, four types of ordnance equipment to the armed services in World War II.

Since World War II he has completed the design of new ordnance items for the Naval Ordnance Laboratory and Bureau of Ordnance requirements.

Mr. Mount.

#### DISCUSSION

MR. WADSWORTH W. MOUNT: Dean Colclough, Professor Mosel, Friends in the Audience: I think you have me here for one purpose—to represent the meat you patent lawyers feed on. [Laughter] And I'll do what I can to satisfy you.

Last week I rode down from a college reunion with a friend who said he was going to send me a framed placard for my office—which consists of my hat. It says, "It's amazing how rapidly the man with the facts can settle an argument." I imagine if we had all the facts we wouldn't have this conference.

Since so many opinions are being expressed here, I'm going to express a few, and some of them are pretty general and some of them are pretty specific. They are all based on some experience, and I must say right now that it's only my own experience, and it may not be in accord with the experience that you gentlemen have had.

First, in general: When I was a boy I was told the Japanese could not develop anything, that they could only copy. They copied so well that they might have taken over Hawaii and maybe other parts of our land.

Since say 1935 I have heard that the Russians can't produce anything, that they can't run machines. So I believe that Sputnik is very good for us.

We have to get to the point of view that any race on any part of this earth that has a man willing to think as an individual can come up with just as good and as valuable an idea as any of us.

And that leads me right into the statement that I think we should copy from the Russians. I think we can be as smart as they are. I'm under the impression that they are now giving great rewards for great effort. I believe they stole that idea from America.

I believe our patent system was an ideal of our founding fathers that any boy or girl could develop something and make a fortune, that it was a fair

system, and treated everyone impartially if he really developed something. The inventor took nothing from anyone else. He merely added to the sum total of wealth of the economy.

I think if you look at our great industries today you will see that they were formed and founded by men who had that point of view. I think George Westinghouse must have had that in the back of his mind. I know that the chairman of the firm that I'm thankful to say hires me primarily at this time, got his start on patents.

I'm sure that if the Foundation leaders will come out wholeheartedly for their belief in the fundamentals of the patent system they will go further and get more support than if it appears, as it has to me in the last two days and in reading their documents, there is real doubt as to the value of the patent system. I don't believe you can work both ways.

Now, on this reward business, I don't recall in our country anything analogous to giving 200,000 pounds, I believe it was, tax-free to Commander Whittle for developing the jet engine. Of course, we paid for it. But still in all it's tax-free to him.

We have all been told by the tax laws that we can handle a lot of money but that's all, that the Government knows better than we do how to spend it if we are successful in our efforts.

Furthermore, in our institutionalized invention today, where you have hundreds or thousands of engineers and where \$15,000 a year is just about a top salary for them, I think that you have practically sounded the death knell to development that amounts to anything. It may be that your teams will come up with ideas, but I dare say that if you added all the costs of all the people on the team times the days, months, or years that it took to bring out the ideas, the costs are far greater than they would be if the actual inventor was given direct backing and financial incentives to perfect his invention.

I counted up, before I came down here, five friends or people I have met, who have left their organizations (and they are some of the outstanding organizations in this country) because when they obtained a patent or had a really good idea it meant absolutely nothing to them except their name in the paper or some other minor emolument.

On the other hand, one of the big oil companies had an invention, and I went over there thinking that I could get it and promote it, and I found that the man I wanted to get to work with me wouldn't think of leaving that oil company because on every invention that he had made individually that the company thought worthy of patenting, regardless of what they did with it, they gave him \$150. And I think it was three years he had worked there and he was \$3,000 ahead on his salary already.

Now, I'd like to propose that the Foundation ask some questions from the patent bar or from the large industries: Just what reward do they give the

men who do think at night or half asleep when commuting on the train and who come up with the idea that is of value? What incentive is there? I would like to see a tabulation of that. I have a few records on it but they're very incomplete.

I think it might do the economy a lot of good if those in industry generally got the feeling that actually all they have to work with are the brains and the brawn of people. They do not have machines. I think that we have gone too far in idolizing an institution. An institution is nothing without the people.

All you have to do is think back to 1928 when we had the same inventory, the same machines, the same people, but people didn't feel confident in working the way they did before and we called it a depression. It was a real one.

I think that if you will look at invention as primarily the result of a human brain and treat it as the patent law treats it, which requires an individual to be on the patent—it doesn't require the name of a big corporation to be on the patent but it requires an individual or two to be on the patent—immediately a lot of the fundamentals of invention will fall in line.

Now, I have another theory: It is that in the politics of the day in which we live, if we're going to go from here on into a monolithic economic structure—call it socialism, communism, statism, all-embracing industrialism, anything you want—where you can control it more easily because you have everybody locked into step like the gear teeth on a gear train, if we're going to do that, the time will come when the "powers that be," whoever they are, and they will be political, will say that, for instance, that pitcher [pointed to one on table] is a good enough water pitcher for America, for 176 million Americans. So we get these teams to tool up to make that water pitcher, and they turn on the juice, and, sure enough, we've got 200 million water pitchers in three weeks.

I think that's the trouble with Russia. They have decided that individual initiative on civilian products now, at least in my lifetime—that's the way I read the news—is not permissible. You cannot upset the State. The State knows best.

The same thing is happening in England.

So they get to the point where they don't know what to do with the people who aren't making pitchers any more. Consequently, they can't have them out raising the rafters, so they put them in the army. Then what are they going to do with the army? Well, they've got to have something for the army to work on, so they come up with a big threat against the rest of us.

I think you can read all about that in Plato's *Republic*. It's very well stated there.

Now, the moment you free a human mind to come up with an improvement of that pitcher, what have you done? This may be so basic that it's childish for me even to mention it to you gentlemen who have so much more experience. But you know that you bring out the best talents and brains and skills in an economy if you so much as change the design of anything that is produced for the economy. You can't change it a sixteenth of an inch, without perhaps, in a big mass-production industry, requiring \$50,000 or a hundred thousand dollars worth of die changes.

I think industry today has got itself in a peculiar situation. They're tooled up for such production that very shortly we have all the refrigerators we need for a while, and to me recession is just using our products up. Like the ducks on Barnegat Bay. When they've had enough to eat they don't keep digging for more for a while.

A short while ago I read a fine article entitled "Sputniks, Flopniks, and the Future of the United States," by Dean C. Ken Weidner, Dean of Engineering, American University, Beirut, Lebanon. And in that he says it's widely believed that if we're to survive we must place the ability to generate new creative ideas and concepts above that of the development and improvement of what exists.

He says also it appears to the thoughtful foreigner that the present American social and economic structure no longer contains many of the basic American concepts which created America and that many of those which we seem to have discarded have been effectively adapted by the Russians to their system.

I say that if we once again return to the position where we're giving great rewards to our inventors, we won't be able to stop our inventors from inventing. You will have all the inventions you want for national defense or anything else, and, what's more, I still believe that we can keep ahead of the Russians if we re-establish our own original system.

Now, I proposed some time ago—and this is probably another reason that I'm here—in a letter to the National Inventors Council, of June 17, 1957, which I will read, this definite proposal:

Having had considerable experience with attempts to solve ordnance problems such as are listed in "New Inventions Needed," I would like to know whether or not there has yet been established any system whereby an inventor can be compensated if he does come up with the idea which solves the problem.

It has been my experience that once the idea is described, an entire barrage of opposition is thrown up by the military services, such as (a) it doesn't meet a military requirement, meaning that they do not have an appropriation yet established to work on that solution, or (b) this belongs to the Marines or the Army, if you're talking to the Navy, or vice versa, and until an inventor finds himself back where he started.

Now, if the inventor patented the idea, the Government then, if it likes it, can take it over, spend hundreds of thousands of dollars setting up R. & D. projects in various places, and is apt to come up finally with the almost identical idea or product the inventor proposed, and then he's told he can sue the Government for compensation if he wants to.

I believe it would be cheaper, which is admittedly not a military objective, if the Inventors Council, made up of knowledgeable men, determined by their own judgment that an idea was worth pursuing and then made the funds available to the inventor to bring the idea up to its potential both for the military and for the inventor's profit.

As I understand it, Commander Whittle works for Power Jets, which is a profitmaking institution set up by the British Government. We seem to have voided the profit motive directly in this country while endorsing it indirectly in other countries judging by the current newspapers. I understand the Russians make substantial rewards to their inventors, and I believe we have a system that actually destroys invention as far as the military is concerned.

I would like to make a second proposal. This is based on very direct experience. That the military procurement officers be held personally responsible if they set up a costly R. & D. project when they know there is a solution already perfected by an outside inventor for that objective without making full use of the capabilities of the inventor.

By the same token, I think the military procurement officers should be given an exceptional reward if they accomplish an objective for less money and in shorter time than was originally estimated.

I would like to propose, as I have in the document I sent down, that the original estimate and the final cost be forwarded to the General Accounting Office so that proper reward and proper credit and proper penalty could be assessed, with some degree of knowledge for the country at large.

These may seem like drastic proposals, but I think we're now faced with the proposition that time is running against us, and we cannot go on indefinitely putting things off.

I would like to make a third proposal. You have been talking here about patents as property. Certainly the Senate public hearings on Section 1235 define very clearly that patents are property.

Now, if a thief comes into my driveway and starts to drive off with my car, I can call the local police, for which I have paid good taxes, and they might get in their car and go after him right then and there. But if somebody starts to infringe on my patent and he has a great big, powerful car to take it away and I only have a tiny little one-lunger, it's very unlikely that I have any recourse whatsoever.

I'm just wondering if it isn't possible, if you really mean it that a patent is property, that our whole body of law for the protection of life and property should also apply to the Government's defense of patent property.

Now, the last thing I have to say is that I think that if you patent attorneys will defend the patent system as an American ideal, with impartial treatment to all comers, and forget once and for all setting up any board that

will determine whether my invention is a bad one and yours is a super one, or my child is entitled to go to college and yours is not, we will avoid the very thing that leads into a collectivist state.

I think the patent system is the basis of our economy and should be maintained as such.

Thank you very much. [Applause]

DIRECTOR COLCLOUGH: Our other discussant has had a distinguished career in the Army. He graduated from West Point in 1929, received his master's degree in 1935 at the State University of Iowa. His career in the Army was in the Corps of Engineers.

He held numerous responsible positions, during his Army career, including District Engineer of the Panama Canal Zone, chief of the Operations Division for Headquarters of General of the Army MacArthur, and Commanding Officer of the U. S. Army Engineer Research and Development Laboratories right down here at Fort Belvoir.

He retired from the Army in 1957 and currently serves as staff engineer, Advanced Systems Concepts, for the Chrysler Corporation. In this capacity he is responsible for the analysis of trends in requirements in ballistic missile systems, the formulation of forward development plans to meet these requirements, and the development of new advanced weapons systems concepts.

Colonel Sykes surely has an active interest in the subject we have been talking about.

COLONEL H. F. SYKES: Thank you, Dean Colclough, and Gentlemen.

I shall speak partially to Professor Mosel's paper and partially to the remarks of the preceding discussant. I believe that we have many points in common.

I would like to start by looking at the three obstacles that were mentioned.

First, the idea that an inventor has difficulty conceiving an invention with defense implications because he is ignorant of the requirements.

I made inquiry in Central Engineering at Chrysler (our automotive group) of the man who receives ideas from outside Chrysler. He receives something like 500 a month. I asked him, "What sort of results do you obtain?" He replied, "Rather meager." Offhand, he named two which he thought were really fine that had crossed his desk since the war.

I submit for your consideration that there must be great familiarity on the part of the American public and inventors with the use of the automobile, and the context in which it will be used—in other words, the consumer



or military characteristics to be met. And yet we find that, at least in the experience of Chrysler, the outside inventor has been able to contribute very little.

Now, I recognize that my evidence constitutes only one point on a graph, and that one can draw any kind of a line through it. On the other hand, it does put into question the idea that we do not get more defense inventions because people are ignorant of defense needs.

Second, the idea that there is a dearth of ideas because there are not sufficient incentives. I would like to add one thought here. Perhaps we are having difficulty not only with the lack of incentives to the individual, but with a similar lack to the industrial firm itself.

There has been considerable comment recently in the press indicating that the procurement rules, particularly in the R. & D. field, are being re-examined. This is being undertaken because there is a general feeling that the reward to a firm is about the same whether they do a superb or an ordinary job. In any case, the rewards are not comparable to those that they would obtain with the same amount of brainpower in their own, or commercial field. So the rewards not only to the individual, but also to the firm, appear to need a review.

Third, the idea that it is difficult to submit an idea to the military. This raises the problem of where to take an idea. I used to hear the following remarks quite often. "We don't know where to go. There must be one point in the Department of Defense where we can go to sell our idea." I sometimes had a little fun by asking this question: "How many customers do you have?"

"Oh, about 3,000."

"How much of your business would you like to have the military do?"

"Oh, three-fourths."

"Then, why do you want one place to go to sell three-fourths of your business when you're doing all right now with 3,000 customers?"

Somehow the impression has gotten around that there is something wrong in beating the pavements when you are selling to the military, whereas it is quite all right to do so if you are selling in civilian life.

I know of no one place that one can go in the United States that will tell you every firm that might want to use your product, and I submit that it is not necessarily true that there should be one place in the military that you can go for such information.

I would like to divert here to take up a point which I think pulls some of these ideas together. A short while ago the National Science Foundation sponsored a meeting on the Impact of Research and Development on the

National Economy. One point that impressed me was that we were talking about \$8 billion a year, or more, of R. & D. effort. It seems to me that it becomes almost obvious that, whether we like it or not, practically everyone with an inventive turn of mind is going to be employed by a firm. We simply cannot put that much money into the economy in R. & D. by the employment of individuals as such; we must use many, many firms—which leads to Mr. Mount's problem. Apparently we are faced with using institutions to a large extent, and this may be where most of our inventors are located. Hence, we must place increasing reliance on groups, and less on the individual inventor.

I would like to join with him in raising another question. As I understand the situation, industry generally takes the position that, if they provide the context within which a man works and he has an idea within that context, then the idea belongs to the employer.

Now, I have been told that one theory of our patent system is that the community gains by rewarding an individual for an idea even though the community has provided the context and basic education. Otherwise, the community will not benefit and would get very little use of the idea. In other words, although the community has furnished to the man his education, the inspiration which led to the idea, and, in fact, his whole way of life, the community gives him this reward and this protection in order to exploit his idea and to gain from it. The community as a whole gains more by this device than it would to let the man stay off in the corner and give him no reward and say in effect "You live in America, and therefore, America deserves your idea."

So the question I think Mr. Mount was raising, and in which I would like to join him, is that our firms may need to take a look at the assumption: Because they have furnished the context, a bench, and some tools and facilities, the idea belongs to the firm and not to the individual.

This is not in line with present industrial policy, and I am speaking solely as an individual in this case. But I cannot help but agree with Mr. Mount that this is a subject into which we need to look very closely.

Now let me go back for a moment to the \$8 billion for R. & D. This is evidence of big and complex activities. This requires, then, a highly institutionalized approach to most of the problems. This, in turn, means that very few lone-wolf inventors will be left.

As a result, the core of the problem of the National Inventors Council and of those in industry who are dealing with engineers and scientists, becomes: "How do we maintain and foster a creative atmosphere within an institution?"

The American Society of Mechanical Engineers many years ago raised this question, and, I would guess that it has been with us from the early

dawn of society. However, it does seem to be rising in importance as we increase the size of our firms, and as we increase the numbers of engineers and scientists who are working in groups.

Our key problem is not the lone inventive mind, but how do we maintain and foster creativity; how do we let the human mind operate on a random basis within an institution?

I would like to demur slightly here from the view previously expressed that an individual, be he a procurement officer or the director of research in a firm, should be held personally responsible if he says, "I think we can do this for \$50,000," and it turns out to be \$75,000. As nearly as I can find out from the literature, the ability to estimate how much a research project is going to cost is hidden in a cracked crystal ball.

I am in favor of a hard look at research problems, but I am afraid that we are in the position that Professor Morris Stein describes. He says that many people are in favor of creativity and that management has taken it up almost as a nice fad. He says one must remember, however, that management gets what it wants, not what it says it wants.

He cites a meeting he attended in which the company president was making a talk to some of his principal people, and said, "I want new ideas around here. We've got to get going. Let's have lots of new ideas. Let's be creative. But, of course, be sure that your ideas are sound, and feasible, and fully justified before you bring them in to me."

Professor Stein concludes, "You know what he wants — and it's not creativity."

I have tried to set the stage here by saying that the areas which have been developed by Professor Mosel are worth while, but I do believe there are a couple of obstacles. I believe that the size of our R. & D. effort, and the need for institutions to carry it out, have minimized the role of the lone inventor and raised the problem of how to create within an institution that atmosphere which will permit our people to be creative even though institutionalized. [Applause]

**DIRECTOR COLCLOUGH:** Would you like to say something, Mr. Mosel, in the light of the comments of the discussants?

**PROFESSOR MOSEL:** I'd like to say a little bit about something Colonel Sykes brought up.

I am very concerned with the problem of how to get creativity in an institutional setting. This is what I was getting at when I said we get too much "group think." However, as I said, there are certain types of problems which you can handle in an institutional setting. This is what the Russians have done. They say, "Look. Figure out what kind of metal you put on the out-

side of Sputniks that will withstand these temperatures—and if you don't, the salt mines for you." Russian inventors have an incentive. [Laughter]

The point is that when you can specify the problem, you don't have to worry so much about pure creativity. Where pure creativity is important is where nobody can say what the problem is. A part of creativity is asking the right questions. If you ask silly questions, you, of course, get silly answers. We all know this.

So we have to distinguish between types of problems. Just by hiring a lot of inventors and assigning them problems you will get a lot of inventing done. But my point was, and I think you share it: What do you do about the less tangible problems? And I think the management situation you refer to doesn't have a close analog in scientific research.

What you were saying was people like to have their own ideas coming back to them. They like stuff that agrees with their thinking. And, of course, this does happen. But very often the crucial issue of scientific research is how to formulate the question.

Now, I might point out there is work being done on this. It's not labeled creativity. It's labeled how you get a team of researchers to do a job. And there is a growing literature on this.

I may say parenthetically that you all have probably heard about "brainstorming." I went to a National Inventors Council meeting where the inventor of brainstorming was present. He stormed my brain and I haven't been the same since.

But the point here is that I recently read in an Office of Naval Research study about whether or not brainstorming really produces creativity. It was a very ingenious experiment, and I won't say much about it except to say brainstorming needs a second look and that I don't think we can rely upon such gadgets. I think that the fundamental issues are management and how you organize a group of people. The gadget isn't going to be enough.

MR. RABINOW:<sup>6</sup> I would like to ask some questions.

DIRECTOR COLCLOUGH: I thought you would, Mr. Rabinow. I would have called on you if you hadn't.

MR. RABINOW: I was a defense inventor for some 14 years. I started in 1941 and finished in 1954. Half of my patents are in defense fields.

First of all, I would like to know why the institutionalized inventor was not included in this study of yours. Why, Professor Mosel, weren't the inventors of NOL and Bureau of Standards not included in your talking about inventors? It doesn't say outside inventors.

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<sup>6</sup>See note 3, p. 177, *supra*.

PROFESSOR MOSEL: We had some of them in.

MR. RABINOW: I had the impression from your speech you were talking about people who submit inventions to Ordnance from outside. What about inside inventors? What are their motivations?

PROFESSOR MOSEL: Our research did not focus upon them so much.

MR. RABINOW: Why not? They do most of the inventing for defense.

PROFESSOR MOSEL: They are still on our 500 cards.

MR. RABINOW: Okay. I'm just implying that this title isn't right.

PROFESSOR MOSEL: I do want to indicate that we did have a small section in the report on the inventor who is employed, but this is the area which we haven't analyzed yet.

MR. RABINOW: I was just curious why the title was picked, because all the people who work for Chrysler and General Motors in the defense field should be included, because their motivation is terribly important.

PROFESSOR MOSEL: Very valid.

COLONEL SYKES: May I get a clarification? My understanding was that John Green of the National Inventors Council had suggested this study originally, and having worked with him a little bit I knew he was very much fretted about the fact that he felt that ideas were not coming to him—

MR. RABINOW: Yes.

COLONEL SYKES: —from the outside and that this was the primary focus of the study.

PROFESSOR MOSEL: This is true.

DIRECTOR COLCLOUGH: Maybe I could clarify this. This particular research project was undertaken at the request of, and financed by, the National Inventors Council. The Advisory Council of the Foundation was consulted about our undertaking research projects such as this, because in a way it was restricted. We think it is a good thing to do because we can develop method and concepts which we can extend to other areas.

I just wanted to explain that this project was undertaken at the request of the National Inventors Council.

MR. RABINOW: I want to thank you for the answer. I did not criticize. I just wanted to clarify, because if you don't clarify this point—

DIRECTOR COLCLOUGH: We like to be criticized.

MR. RABINOW: Thank you. I feel that it should be very carefully spelled out that this study is basically on the outside inventors and the motivation of the internal inventors could be quite different.

Secondly, I'd like to talk about the cliché of the "institutionalized inventors versus the independent inventors." I once read an article that inventors past the age of 40 stop inventing. Since I was past the age of 40 at the time and I'm getting more past all the time—[laughter]—I decided to look into this.

First, I found that the article was based on papers published in the I.R.E. journals. And, really, it doesn't mean that the man stops inventing. He stops writing about his inventions. As we get richer, as we get older, as we get more modest, we write less articles. We're less impressed with our own bright ideas. So it isn't fair to list only the ones that write articles.

There's been no study as far as I know about how age of inventors correlates with their inventiveness. It would be very interesting to know. However, I decided to keep a record of my inventions. I took my several volumes of notes, and I decided, arbitrarily, that any idea at the time it was recorded—whether it was found later in the Patent Office as of 1830 doesn't count—if it was new to me at the time it would be listed an invention. I plotted a curve, and this curve showed some very interesting things. Maybe some day I'll publish an article on it. People will accuse me of boasting if I do, but that's the risk of my business.

Based on this study, I would like to say this: That I became much more prolific when I was thrown into an institution. I do not believe for a moment that the outside inventor, Mr. Mount, is necessarily better, more prolific, or has more basic invention than the man who works with a good team. By "team" I mean a group of people not too regimented.

I have a team of people working for me, and you should hear the arguments.

And I worked for a team in the Bureau of Standards. And all I can tell you is that you are a better man when you're thrown into a team—the kind of team that produced the atomic bomb, radar, proximity fuses, the kind of teams that produced all the wonderful things during the war, wonderful in the sense of technical sense. I think that the kind of team RCA put together to produce color TV to beat CBS put on a magnificent effort.

These people were in teams. But good people get tremendous freedom, particularly when the stakes are high enough, either for RCA, which was at war, or for us against Germany, and I'm sure this was true of Russian teams also.

I think there's no proof at all Einstein would not have developed the theory of relativity if he had worked at Princeton's Institute of Advanced Studies in his youth.

I'm sure that rubbing elbows with better people than yourself is inspiring—I get much better when I work with people better than myself. I try to match them. I don't quite do it, but I certainly try as hard as I can. I think a runner runs better when he runs against a team. That sounds right, doesn't it?

I think it's a cliché that a team kills spirit. I think I would like to see some proof of this.

DIRECTOR COLCLOUGH: Thank you, Mr. Rabinow.

We're running overtime. Dr. Rossman has just a word. But let me say something before I forget it, to which Mr. Rabinow just referred. Dr. Sanders has collected data on the relationship of the age factor to inventiveness. That's one of the aspects we are including in our study.

DR. ROSSMAN:<sup>7</sup> That's correct. I'd just like to point out that Dr. Einstein was a patent examiner in Switzerland when he evolved the theory of relativity back in 1905, which shows the tremendous influence of the patent system. [Laughter and Applause]

Also it's very little known that he actually invented and got at least one United States patent.

Some of our great scientists also have taken out patents.

But in connection with the comments Mr. Rabinow made, there have been some studies made of the age of inventors, and in the past I have done a little bit myself. The results show that many great basic inventions have been made by young inventors at ages 18 to 35.

DIRECTOR COLCLOUGH: Thank you, Dr. Rossman.

Before we adjourn the conference, there has been some reference to criticism and there should be—and I was quite sincere when I said this to Mr. Rabinow—that we like criticism. As a matter of fact, we thrive on it. We didn't undertake this project with any naive thought that in this undertaking, the first university ever to tackle it, that we were going to be free of criticism.

I do want to point out, and I think it's tremendously important, that individuals and corporations who are supporting the Foundation's effort, intellectually and financially, should become familiar with what we do.

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<sup>7</sup>See note 9, p. 101, *supra*.

In my opening remarks yesterday morning I referred to this little brochure and the other literature which you have. I urge you to make yourselves thoroughly familiar with it.

I was thinking a moment ago, while Mr. Mount was talking, that it is always good to go back and see from whence you started. It is like a ship in a heavy fog. It is wise to drop your anchor, because then you can heave in on the anchor and know from whence you started. That is the reason I have repeatedly referred to this original brochure, our anchor. The Foundation's objectives and purposes are clearly set forth therein. We put the facsimiles of Charles Goodyear, Orville and Wilbur Wright, George Westinghouse, Eli Whitney, Cyrus McCormick, Samuel F. B. Morse, Robert Fulton, and others in here because we are acutely conscious of the history of the patent system. We are also concerned that the people of this country know what the patent system is all about—and with that the second Annual Conference stands adjourned.

[Whereupon, at 4:15 P.M., the second Annual Public Conference of the Foundation was adjourned.]



# Appendix to the Proceedings

## TABLES FOR THE PATENT UTILIZATION STUDY

TABLE 1

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS IN TERMS OF USE OR OTHER SPECIFIED BENEFITS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

### PRELIMINARY

UTILIZATION STATUS	NUMBER	PER CENT	
		All	Excluding "Others"
(1)	(2)	(3)	(4)
Total: Number.....	600	600	447
Per Cent.....		100.0	100.0
In current use.....	183	30.5	40.9
Past use.....	113	18.9	26.3
Future use.....	47	7.8	10.5
Used or to be used.....	343	57.2	76.7
Other benefits indicated (n.e.c.).....	64	10.7	14.3
Licensed (n.e.c.).....	40	6.7	9.0
"Useful" patents.....	447	75.5	
All others (n.e.c.).....	153	25.5	

**TABLE 2**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF USED PATENTS BY THE EXTENT OF USE, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.**  
**PRELIMINARY**

EXTENT OF USE	IN CURRENT USE			USED IN THE PAST			COMBINED		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number	183	183	176	113	113	108	296	296	284
Per Cent		100.0	100.0		100.0	100.0		100.0	100.0
Extensively	89	48.7	50.6	22	10.5	20.4	111	37.5	39.1
Moderately	54	29.5	30.7	27	23.9	25.0	81	27.4	28.5
To a limited extent	33	18.0	18.7	58	51.3	53.7	91	30.7	32.0
Sub-total	176	96.2	100.0	107	94.7	99.1	283	95.6	99.6
Sold	—	—	—	1	.9	.9	1	.3	.4
Unknown	2	1.1	—	—	—	—	2	.7	—
Unanswered	5	2.7	—	2	1.8	—	7	2.4	—
Not asked	—	—	—	3	2.7	—	3	1.0	—

**TABLE 3**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF USED PATENTS BY THE EXTENT TO WHICH SUCH USE HAS INCREASED SALES, BASED ON**  
**ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.**  
**PRELIMINARY**

	IN CURRENT USE				USED IN THE PAST				COMBINED			
	No.	Per Cent	Per Cent with Specific Answer		No.	Per Cent	Per Cent with Specific Answer		No.	Per Cent	Per Cent with Specific Answer	
(1)	(2)	(3)	(4)		(5)	(6)	(7)		(8)	(9)	(10)	
Total: Number	183	183	160		113	113	96		296	296	256	
Per Cent		100.0	100.0			100.0	100.0			100.0	100.0	
Markedly	29	15.8	18.1		6	5.3	6.2		35	11.8	13.7	
Moderately	46	25.1	28.8		18	15.9	18.8		64	21.6	25.0	
Slightly	40	21.9	25.0		30	26.6	31.2		70	23.7	27.3	
Sub-total	115	62.8	71.9		54	47.8	56.2		169	57.1	66.0	
Other benefits (n.e.c.)	13	7.1	8.1		5	4.4	5.2		18	6.1	7.0	
Sold or licensed (n.e.c.)	4	2.2	2.5		2	1.8	2.1		6	2.0	2.4	
Sub-total	17	9.3	10.6		7	6.2	7.3		24	8.1	9.4	
Combined sub-total	132	72.1	82.5		61	54.0	63.5		193	65.2	75.4	
Not at all	28	15.3	17.5		35	31.0	36.5		63	21.3	24.6	
Unknown	17	9.3			12	10.6			29	9.8		
Unanswered	6	3.3			5	4.4			11	3.7		

TABLE 4

NUMBER AND PERCENTAGE DISTRIBUTION OF USED PATENTS BY THE EXTENT TO WHICH SUCH USE REDUCED PRODUCTION COSTS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

PRELIMINARY

EFFECT ON DECREASING THE PRODUCTION COSTS	IN CURRENT USE				USED IN THE PAST				COMBINED			
	No.	Per Cent	Per Cent with Specific Answer	(3)	(4)	No.	Per Cent	Per Cent with Specific Answer	(7)	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)					(5)	(6)			(8)	(9)	(10)
Total: Number	183	183	158			113	113	96		296	296	254
Per Cent		100.0	100.0				100.0	100.0			100.0	100.0
Markedly	22	12.0	13.9			3	2.6	3.1		25	8.4	9.8
Moderately	26	14.2	16.4			16	14.2	16.7		42	14.2	16.6
Slightly	29	15.9	18.4			8	7.1	8.3		37	12.5	14.6
Sub-total	77	42.1	48.7			27	23.9	28.1		104	35.1	41.0
New product	7	3.9	4.4			8	7.1	8.3		15	5.1	5.9
Other	11	6.0	7.0			1	.9	1.0		12	4.1	4.7
Sold or licensed	3	1.6	1.9			4	3.5	4.2		7	2.4	2.8
Sub-total	21	11.5	13.3			13	11.5	13.5		34	11.5	13.4
Combined sub-total	98	53.6	62.0			40	35.4	41.7		138	46.6	54.3
Not at all	60	32.8	38.0			56	49.6	58.3		116	39.2	45.7
Not asked	2	1.1				5	4.4			7	2.4	
Unknown	8	4.4				5	4.4			13	4.4	
Unanswered	15	8.2				7	6.2			22	7.4	
Sub-total	25	13.7				17	15.0			42	14.2	

TABLE 5

PATENTS IN CURRENT USE AND THOSE USED IN THE PAST, ACCORDING TO THE REPORTED EFFECTS ON INCREASED SALES AND/OR REDUCED PRODUCTION COSTS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

EFFECT ON INCREAS- ING SALES AND/OR REDUCING PRODUC- TION COSTS	UTILIZATION								
	CURRENT USE			PAST USE			COMBINED		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	183	183	159	113	113	99	296	296	258
Per Cent.....		100.0	100.0		100.0	100.0		100.0	100.0
Markedly.....	36	19.7	22.6	7	6.2	7.1	43	14.5	16.7
Moderately.....	54	29.5	34.0	29	25.7	29.3	83	28.0	32.2
Slightly.....	53	29.0	33.3	35	30.9	35.4	88	29.7	34.1
Sub-total.....	143	78.2	89.9	71	62.8	71.8	214	72.3	83.0
New product (n.e.c.).....	2	1.1	1.3	---	---	---	2	.7	.8
Other beneficial results (n.e.c.)	3	1.6	1.9	5	4.4	5.1	8	2.7	3.1
Sold or licensed (n.e.c.).....	4	2.2	2.5	2	1.8	2.0	6	2.0	2.3
Sub-total.....	9	4.9	5.7	7	6.2	7.1	16	5.4	6.2
Combined sub-total.....	152	83.1	95.6	78	69.0	78.9	230	77.7	89.2
Not at all.....	7	3.8	4.4	21	18.6	21.2	28	9.5	10.8
Combinations of "not at all," "unknown," "unanswered," or "not asked"	24	13.1		14	12.4		38	12.8	

TABLE 6

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS ABOUT TO BE USED, ACCORDING TO OTHER ALREADY REALIZED OR PROSPECTIVE BENEFITS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

OTHER BENEFITS DERIVED OR TO BE DERIVED	PATENTS ABOUT TO BE USED		
	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)
Total: Number.....	47	47	25
Per Cent.....		100.0	100.0
Actual or possible exploitation.....	9	19.1	36.0
Actual or possible royalties.....	8	17.0	32.0
Development of the art.....	6	12.8	24.0
An alternate process.....	---	---	---
Sub-total.....	23	48.9	92.0
None.....	2	4.3	8.0
Unknown.....	1	2.1	
Unanswered.....	21	44.7	
Sub-total.....	22	46.8	

TABLE 7

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS NOT USED AND NOT LIKELY TO BE USED, AT LEAST IN THE IMMEDIATE FUTURE, ACCORDING TO OTHER REALIZED OR PROSPECTIVE BENEFITS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

OTHER BENEFITS DERIVED OR TO BE DERIVED	"NEVER USED" PATENTS		
	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)
Total: Number.....	252	252	124
Per Cent.....		100.0	100.0
Actual or possible exploitation.....	24	9.5	19.4
Actual or possible royalties or sale.....	17	6.7	13.7
Development of the art.....	18	7.1	14.5
An alternate process.....	5	2.0	4.0
Sub-total.....	64	25.4	51.6
None.....	60	23.8	48.4
Unknown.....	2	.8	
Unanswered.....	126	50.0	
Sub-total.....	128	50.8	

TABLE 8

NUMBER AND PERCENTAGE DISTRIBUTION OF UNUSED PATENTS WITH NO ASSIGNEE  
REPLY ON POSSIBLE BENEFITS OR A REPLY OF "NONE," CLASSIFIED ACCORDING TO  
LICENSING STATUS, BASED ON ASSIGNEE RETURNS RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

LICENSING STATUS	REPLIES TO QUESTION 20, OTHER BENEFITS						
	No BENEFITS		UNANSWERED		UNKNOWN	TOTAL	
	No.	Per Cent	No.	Per Cent	No.	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total: Number.....	60	60	126	126	2	188	188
Per Cent.....		100.0		100.0			100.0
Licensed.....	5	8.3	35	27.8	---	40	21.3
Not licensed.....	55	91.7	91	72.2	2	148	78.7

TABLE 9

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS ACCORDING TO UTILIZATION STATUS, COMPARING PATENTS WITH ASSIGNEE QUESTIONNAIRES ONLY WITH THOSE WITH INVENTOR AND ASSIGNEE QUESTIONNAIRES, AND SIMILARLY THOSE WITH INVENTOR QUESTIONNAIRES ONLY, WITH THOSE WITH RETURNS FROM BOTH ASSIGNEES AND INVENTORS, BASED ON REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

UTILIZATION STATUS	ASSIGNEE REPLIES						INVENTOR REPLIES					
	Assignee Questionnaire Only			Assignee and Inventor Questionnaires			Combined			Inventor Questionnaire Only		
	No.	Per Cent	(3)	No.	Per Cent	(5)	No.	Per Cent	(6)	No.	Per Cent	(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total: Number	239	239	361	361	600	600	246	246	361	361	607	607
Per Cent		100.0		100.0		100.0		100.0		100.0		100.0
In current use	72	30.1	111	30.8	183	30.5	95	38.6	138	38.2	233	38.4
Past use	54	22.6	59	16.3	113	18.9	59	24.0	57	15.8	116	19.1
Future use	9	3.8	38	10.5	47	7.8	10	4.1	5	1.4	15	2.5
Sub-total	135	56.5	208	57.6	343	57.2	164	66.7	200	55.4	364	60.0
Not used	102	42.7	150	41.6	252	42.0	44	17.9	91	25.2	135	22.2
Don't know	---	---	2	.6	2	.3	30	12.2	65	18.0	95	15.7
Unanswered	2	.8	1	.3	3	.5	8	3.2	5	1.4	13	2.1



TABLE 10  
COMPARISON OF ACTUAL REPLIES OF ASSIGNEES WHO COMPLETED QUESTIONNAIRES WITH RESPECT TO THE UTILIZATION STATUS OF THE  
SAMPLED PATENTS WITH INFERRED REPLIES BASED ON INVENTOR QUESTIONNAIRES, BASED ON REPLIES RECEIVED ON OR BEFORE 5/1/58.  
PRELIMINARY

UTILIZATION STATUS	INFERRED ASSIGNEE REPLIES			ACTUAL ASSIGNEE REPLIES			COMBINED		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total: Number.....	246	246	245	600	600	595	846	846	840
Per Cent.....		100.0	100.0		100.0	100.0		100.0	100.0
In current use.....	81	32.9	33.1	183	30.5	30.8	264	31.2	31.4
Past use.....	53	21.5	21.6	113	18.9	19.0	166	19.6	19.8
Future use.....	27	11.0	11.0	47	7.8	7.9	74	8.7	8.8
Sub-total.....	161	65.4	65.7	343	57.2	57.6	504	59.6	60.0
Not used.....	84	34.1	34.3	252	42.0	42.4	336	39.7	40.0
Don't know.....	1	.4		2	.3		3	.4	
Unanswered.....	—	—		3	.5		3	.4	

TABLE 11

NUMBER AND PERCENTAGE DISTRIBUTION OF UNASSIGNED PATENTS BY UTILIZATION STATUS, BASED ON INVENTOR REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

UTILIZATION STATUS	NUMBER	PER CENT	
		ALL	Per Cent with Specific Answer
(1)	(2)	(3)	(4)
Total: Number.....	201	201	170
Per Cent.....		100.0	100.0
In current use.....	64	31.8	37.6
Past use.....	20	10.0	11.8
Future use.....	15	7.5	8.8
Sub-total.....	99	49.3	58.2
Not used.....	71	35.3	41.8
Don't know.....	23	11.4	
Unanswered.....	8	4.0	

TABLE 12  
NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS WITH DIFFERENT UTILIZATION STATUS, ACCORDING TO REASONS FOR THE CURRENT NON-USE OF THE PATENT, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.  
PRELIMINARY

REASONS FOR CURRENT NON-USE	PAST USE			FUTURE USE			NEVER USED			UNKNOWN OR UNANSWERED			TOTAL		
	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer	No.	Per Cent	Per Cent with Specific Answer
		(3)	(4)		(5)	(6)		(7)	(8)		(9)	(10)		(11)	(12)
(1)	(2)			(5)	(6)		(7)	(8)	(9)		(10)	(11)	(12)	(13)	(14)
Total: Number	113	113	106	47	47	100.0	252	252	239	239	5	5	417	417	394
Per Cent		100.0	100.0			100.0		100.0	100.0	100.0	100.0		100.0	100.0	100.0
(a) Lack of market demand	20	17.7	18.9	20	42.6		60	23.8	25.1				100	24.0	25.4
(b) and (c) Obsolescence <sup>1</sup>	44	38.9	41.5	1	2.1		27	10.7	11.3		1	20.0	73	17.5	18.5
(c) Competitively at a disadvantage	13	11.5	12.3	17	36.2		105	41.7	43.9				135	32.4	34.3
All others with a single reason	13	11.5	12.3	4	8.5		22	8.7	9.2		1	20.0	40	9.6	10.2
Multiple reasons	16	14.2	15.1	5	10.6		25	9.9	10.5				46	11.0	11.7
Unanswered	7	6.2					13	5.2			3	60.0	23	5.5	

<sup>1</sup>The specific wording for (b) was "rapid obsolescence." There was no specific category corresponding to (c) in the assignee questionnaire, but in the inventor questionnaire there was an item (e) which reads "development of the art has taken a different course." Replies like this entered under "other" by assignees have been combined with (b).

**TABLE 13**  
**NUMBER AND PERCENTAGE DISTRIBUTION OF REASONS FOR THE CURRENT NON-USE OF PATENTS IN SPECIFIC UTILIZATION STATUS GROUPS,**  
**BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.**  
**PRELIMINARY**

REASONS FOR CURRENT NON-USE	PAST USE		FUTURE USE		NEVER USED		UNKNOWN OR UNANSWERED		TOTAL	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total: Number.....	123	123	53	53	267	267	2	2	445	445
Per Cent.....		100.0		100.0		100.0		100.0		100.0
(a) Lack of market demand	31	25.2	25	47.2	77	28.8			133	29.9
(b) and (e) Obsolescence <sup>1</sup>	53	43.1	1	1.9	41	15.4	1	50.0	96	21.6
(c) Competitively at a dis- advantage.....	23	18.7	21	39.6	123	46.1			167	37.5
All other reasons for non-use	16	13.0	6	11.3	26	9.7	1	50.0	49	11.0

<sup>1</sup>The specific wording for (b) was "rapid obsolescence." There was no specific category corresponding to (e) in the assignee questionnaire, but in the inventor questionnaire there was an item (e) which reads "development of the art has taken a different course." Replies like this entered under "other" by assignees have been combined with (b).

TABLE 14

NUMBER AND PERCENTAGE DISTRIBUTION OF PATENTS WITH DIFFERENT CLASSIFICATION, BY UTILIZATION STATUS, BASED ON ASSIGNEE REPLIES RECEIVED ON OR BEFORE 5/1/58.

## PRELIMINARY

UTILIZATION STATUS	CLASS OF SAMPLED PATENT						ALL CLASSES	
	MECHANICAL		ELECTRICAL		CHEMICAL			
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total: Number.....	338	338	117	117	145	145	600	600
Per Cent.....		100.0		100.0		100.0		100.0
In current use.....	128	37.9	24	20.5	31	21.4	183	30.5
Past use.....	65	19.2	28	23.9	20	13.8	113	18.9
Future use.....	20	5.9	4	3.4	23	15.8	47	7.8
Sub-total.....	213	63.0	56	47.8	74	51.0	343	57.2
Not used.....	123	36.4	59	50.4	70	48.3	252	42.0
Don't know.....	---	---	1	.9	1	.7	2	.3
Unanswered.....	2	.6	1	.9	---	---	3	.5

