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Featuring Selected Papers from the Spring Conference on April 14, 1977 held in Manchester, New Hampshire

on

OVERCOMING LEGAL BARRIERS TO THE UTILIZATION OF SOLAR ENERGY

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Overcoming Legal Barriers to the Utilization of Solar Energy: An Introduction

N. LINDA GRIP GOLDSTEIN

As existing technological barriers to the practical use of solar energy are removed, there is a growing awareness of the many non-technical obstacles which must be overcome before the widespread commercialization of solar energy systems becomes a reality. At the state and municipal level, for example, access rights to sunlight, zoning and building code restrictions, and property tax assessments must be considered. At the federal level, consumer safeguards, loan guarantee and tax incentive programs, and energy equipment standards must be addressed and evaluated.

To consider these and other legal issues associated with the rapid growth of a national solar energy industry, a one-day conference on OVERCOMING LEGAL BARRIERS TO THE UTILIZATION OF SOLAR ENERGY was sponsored on April 14, 1977 by the Patent, Trademark and Copyright Research Foundation and GOVERNMENT R&D REPORT of Cambridge, Massachusetts. The conference attracted interested participants from both the private and public sectors, including such non-law professionals as architects, engineers, building contractors, state energy office officials, and community developers.

The keynote speaker was United States Senator Thomas J. McIntyre (D-New Hampshire), long on outspoken solar energy advocate and in recent years one of the Senate's most articulate and creative proponents of federal solar energy incentive programs.

In addition to Senator McIntyre, Professor Joseph F. Vittek, Jr., Director of the Patent, Trademark and Copyright Research Foundation, discussed potential problems which the widespread commercialization of solar energy technologies may pose to American consumers (for example, product liability, insurance protection and contract disputes, among others) and suggested possible ways in which these problems might be overcome; Mr. William V. Donovan, energy adviser to Senator McIntyre and one of several aides responsible for drafting solar related legislation, outlined federal legislation creating various types of financial incentives for those consumers interested in purchasing and utilizing solar (and other alternative) energy systems; Mr. John Holton, an architect and Director of the residential solar energy technology program at the National Bureau of Standards, spoke about the problems of setting operational standards for a wide range of solar energy systems; Ms. Gail Hayes, an attorney with the Washington-based Environmental Law Institute and a recognized authority in the field of sunlight access, outlined several perplexing obstacles (in the form of traditional property law concepts) which must be hurdled before solar access can be assured, and reviewed several solar access legislative proposals presently pending in both state and federal legislative chambers; and Mr. David Engel, an attorney and Director of Market Development for the Department of Housing and Urban Development's (HUD) solar land use program, discussed measures which state governments, local zoning officials, and community developers should take to encourage homeowners to utilize solar heating and/or cooling systems.

Much of this edition of IDEA has been devoted to a presentation of papers given at the conference; (as such, the reader is reminded that the pages which follow were written for the ear and not the eye). It is the hope of the Editorial Board that these papers will serve as a springboard for further dialogue and debate within the law/science community so that those legal barriers now occluding the full commercial development of solar energy technologies may be swiftly removed.

Solar Energy Development: Defining the Proper Federal Role

THOMAS J. MCINTYRE*

Your topic — Overcoming Legal Barriers to Solar Energy — could not be more timely.

We have just come through a long, hard winter and everyone wants the government to do something so it will not happen again.

Of course, the first thing we do in Washington is to look for easy solutions. I heard that over in the House, somebody introduced a bill to weatherstrip the Arctic Circle.

Some federal agencies are taking action. The Federal Communications Commission is finally going to do something about violence on TV — they are banning weather reports.

And now President Carter is planning to issue an energy message next week. Well, I do not know where it will all lead, but this past winter has made me a firmer believer in the hereafter. It is not that I have become more religious, I just feel that after all this, we are entitled to an explanation!

But to be serious, this long winter has served us with another grim reminder that our nation faces serious energy problems. We do not yet have to be alarmed; there is time to make good judgments and to decide on the best solutions. But we cannot be lured into a false sense of security. We must continue to be concerned about energy.

You are rightly concerned, and that is why you are here. You are

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*U.S. Senator, Democrat, New Hampshire.

concerned about your own future and the future of your children and grandchildren. It is a fact of that future that we are slowly, but inevitably, running out of oil and natural gas. Today those fuels supply about 75% of our energy. By the year 2000, or perhaps 2020, there may not be any more crude oil or natural gas left in domestic oil wells.

As the supplies of these fuels decrease, the petroleum industry will have to drill deeper and go farther offshore for new natural gas and oil; we will become more dependent on the whims of a cartel for our oil supply — and prices will continue to rise.

Nuclear power, for all its promise, is not the quick and easy answer that so many of us once hoped it would be. Construction costs of nuclear power plants have been rising rapidly. Domestic uranium supplies are becoming more and more expensive, and production is not keeping up with demand.

Congress can and should clean up the kind of bureaucratic tangle that has engulfed the Seabrook nuclear power plant. But we should all recognize that other difficult problems, such as disposal of radioactive wastes and proliferation of weapon-grade nuclear fuels, will not be resolved by reorganizing procedures in Washington.

In short, we can expect that the growth of nuclear power will be slower than most of us had once hoped, and sometimes will be very painful while difficult issues are resolved.

Now what about coal, our most abundant fossil fuel? We have been called the "Saudi Arabia of coal." We can expect that President Carter will make sweeping proposals next week to step up the nation's coal production while at the same time embarking on an accelerated program to solve the environmental problems that coal use causes.

I should point out that this nation's largest untapped reserves of coal are in the mountains of Colorado, Wyoming and Montana. These supplies are far from the northeast, and the nation's rail system needs substantial improvements before this coal could be shipped eastward. In addition, the technology for cleaning the emissions at coal-burning plants must be improved and made more economical.

In other words, the development of coal as a major replacement for oil will be a costly and time-consuming task.

But we also have another great resource that we can apply to the nation's energy needs. This resource is our ability as a nation to get the job done. We are a nation of activists and achievers, not a nation of temporizers. With strong, effective leadership from the White House, we can solve our energy problems.

The use of the sun's rays is a key part of that solution. The sun is

already a small but growing source of energy; and it will be a major source in the decades ahead if we commit ourselves now to the job of developing solar energy.

To achieve this goal we must first bend our efforts and our nation's vast reservoir of talents toward greater use of those solar technologies which are already in the market. Let me briefly review what is happening in the development of solar energy today.

Two months ago, a new home equipped with solar energy, the Goosebrook Home, was completed in Harrisville, New Hampshire. We can all be proud of this home, which was designed by a New Hampshire architect, built by New Hampshire contractors, and financed through a New Hampshire Bank.

In another action just two weeks ago, the Federal Department of Housing and Urban Development announced that it was embarking on an ambitious $10 million project to demonstrate the practical uses of solar water heaters for homes.

New Hampshire is one of ten states in which people will be able to obtain grants of $400 per household for solar water heaters under this program. In all, some 200 New Hampshire homes are to receive these grants.

This program is an excellent step toward broadening the use of solar energy for heating and cooling of buildings.

A visitor from Japan might be very surprised to hear that the Federal Government is spending money to convince people that solar energy is a good idea, for in Japan nearly two million solar water heaters have already been sold.

In fact, if not for the temporary heyday of cheap natural gas, millions of Americans might already be using solar energy. In the early fifties, there were nearly 50,000 solar water heaters in use in the City of Miami, Florida alone; but most were abandoned when cheap natural gas became available.

The solar energy business is now making a comeback. Our American solar manufacturers are producing collectors at the rate of three million square feet per year according to a Federal Energy Administration survey. This is three times the rate of production just two years ago. Most important, an estimated two-thirds of this production is being sold to buyers who do not have federal subsidies of any kind.

Let me put that into perspective. Solar energy as a source of home heat and hot water is competing against heavily subsidized conventional fuels — and still, the use of solar energy is growing by leaps and bounds.

Recent studies show that solar energy is becoming more economical

for heating and cooling of buildings. For example, a recent report to the Energy Research and Development Administration by the Mitre Corporation shows that solar heating of homes is more economical today than electric resistance heating in ten of the thirteen major American cities surveyed.

A new study, which was released last month by the Joint Economic Committee of Congress, concludes that solar space heating is already more economical than all available alternatives for new homes in six states: Montana, North Dakota, Maine, Vermont, Rhode Island and New Hampshire. Furthermore, the study concludes that solar will be more economical than the available alternatives in six more states by 1980, and in sixteen additional states by 1985.

These studies all assume, however, that the solar heating system will be installed in new construction, and that the solar and backup heating systems will be amortized over the life of the mortgage.

Market analysts have predicted that we will see a boom in the use of solar energy and energy conservation in buildings in the next few years. One highly respected research firm, Arthur D. Little Inc. of Cambridge, Massachusetts, has projected that sales of solar-related equipment will total $1.5 billion per year by 1985 — a twenty-fold increase over sales in 1976.

That brings me to the role of government and the legal profession. The technological barriers to the use of solar energy for heating and cooling of buildings have already been overcome. Our engineers and scientists will soon solve the problems associated with solar and wind generating plants for electricity, and for the use of silicon photovoltaic cells for producing electricity.

But many legal questions remain unanswered and there are many regulatory roadblocks to be removed as solar technologies work their way into the marketplace.

I recall one such artificial roadblock very well. In hearings before the U.S. Senate Small Business Committee in 1975 an official of the Department of Housing and Urban Development (HUD) revealed that there were no federal guidelines for the use of solar energy in homes which have federally guaranteed mortgages. As a result some buyers were being turned down for mortgages on homes that had solar equipment.

HUD developed interim guidelines for solar-equipped homes, and now a buyer can obtain a federally guaranteed mortgage for a solar-equipped home in some, if not most, circumstances.

Other legal barriers remain. For example, this afternoon you are scheduled to hear discussions on the right to sunlight, which in some

cases can conflict with our traditional views of the rights of neighboring property owners.

With regard to generation of electrical power by small local wind or solar generators, there is the question of whether the individual should be allowed to sell electricity back to the utility company and at what price.

As some of you know, a wind-powered generator of this type is producing electricity atop a cooperative apartment building in New York City today.

A broad range of legal and regulatory issues is emerging with regard to standards, warranties and product liability for new solar equipment. As more and more solar equipment — some of it very good and some not so good — comes into the market, the need for standards and warranties will undoubtedly grow.

Another legal question which faces many innovations, but seems to be especially difficult with regard to new solar technologies, is the question of patent rights. If a small business or individual inventor comes up with an idea, and then builds a working model using federal research funding, who should own the patent — the inventor or the public? Clearly, there are rights on both sides.

But a transcendent public question is in whose hands the patent will do the most good. Certainly in some cases, an inventor will have a greater incentive to sell a good product to the public if he has exclusive rights than if the government owns the patent.

Finally, our tax system is a major stumbling block to progress on solar energy. Frequently, the tax system discriminates against new ideas by granting tax advantages to older, entrenched methods.

The best example of this is the myriad of tax loopholes granted to the petroleum industry. Solar energy, a direct competitor with home heating oil, does not enjoy such advantages.

Now, I do not pretend to be an expert on any of these issues; but I am confident that the legal profession will develop the special expertise needed to help us cope with the blockades to progress in solar energy.

The nation is hopefully awakening to the folly of wasting fuel. We will, with your help, create legislative incentives to put our nation on the course toward wiser use of energy.

At present, a big roadblock to the needed investments in solar energy and energy conservation is the high initial cost of the equipment. I have introduced three bills to deal with this problem.

One bill, S.806, provides a tax refund to help families and businesses pay for their solar energy conservation investments. The tax

rebate is largest for families with incomes under $10,000 a year and smallest for those who can better afford to make the investment on their own.

My second bill, S.805, provides for low-cost loans to help families and small businesses with financing for solar and energy conservation.

The third bill, S.907, is to help small businesses that make, distribute and install energy conservation and solar energy products and systems. This bill proposes a loan program through the Small Business Administration (SBA) so that small companies can get capital to go into lines of business related to solar energy or energy conservation.

I cannot assure you at this time that these specific bills will become law; but I do know that the time and the climate are right for Congressional action to stimulate the development and utilization of energy and energy conservation technologies.

Further, there have been reports that the President intends to propose a solar energy tax credit similar to the bill I have introduced. We will learn about his recommendations when he gives his energy message to Congress on April 20, 1977.

During the past three years, our progress toward creating a comprehensive national energy policy has been slowed by regional and partisan differences. But we have made some progress. And in this Congress, with less partisan bickering and streamlined energy policymaking, we can enact legislation that will wean our nation away from those sources of energy that are subject to foreign control, while we emphasize domestic energy, domestic jobs, and protection of our environment.

How to Buy Without Getting Burned: A Consumer's Eye View of Solar Energy

JOSEPH F. VITTEK, JR.*

Solar energy systems have big potential! There were almost 76 million year-round housing units in the United States in 1974[1] with new units being constructed at a rate of 1 to 2 million per year.[2]

The revenues from the sale of electricity to the residential and domestic market were almost $19 billion in 1975[3] (or about 40% of the total electric light and power sales). The average residential bill was $262.[4] The gas utility industry had residential revenues of $8.5 billion in 1975.[5] Although the total revenues from the sale of domestic heating oil are not readily available, combined household and commercial use in 1974 was over one billion barrels.[6] At 42 gallons per barrel and $.50 per gallon, retail sales would equal $22 billion. Therefore, total energy sales to dwellings must have been somewhere in the vicinity of $40 to $50 billion at today's rates.

Although the cost of providing solar equipment for all these units

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1 U.S. Bureau of the Census. *Statistical Abstract of the United States: 1976.* (97th edition) Washington, D.C., 1976 p. 749.

2 *Id.* p. 737.

3 *Id.* p. 559.

4 *Id.* p. 559.

5 *Id.* p. 561.

6 *Id.* p. 713.

could be as high as one trillion dollars,[7] a concerted program for solar development could pay for itself in ten to twenty years and wreak havoc with the traditional utility industries in the process.

With such a large untapped market, why has the transition to solar systems not taken place? One answer is the low cost of fossil fuels until the past few years. There has been no incentive to invest in solar systems until recently. Now that the financial incentives do exist, what will it take to make the transition to solar systems and what obstacles can be foreseen? In the final analysis, the introduction of solar systems will depend on consumer acceptance. Therefore, the consumer's concerns are of great importance.

The Consumer Interest

As the potential purchaser and/or user of a solar system, the consumer can be expected to ask four basic questions:

1. What will solar energy do for me? (Or, more bluntly, what will it save me?)
2. How much will it cost?
3. Is it safe?

And, if the answers to all three are favorable,

4. How do I get one?

1. *What Will Solar Energy Do For Me?*

The savings to be derived from solar systems are difficult to compute. They will depend on several factors.

Efficiency. There are three major components to any solar system: a collector to capture the sun's energy; a storage medium to save energy for nighttime or cloudy day use; and a heat distribution system that transfers the energy from where it is collected or stored to where it is needed. How much heat or energy can be produced is a function of the efficiency of each component and how well they are integrated into a system.

Unfortunately, it is almost impossible to assess these factors without a technical degree as shown by the following quotation:

> Quantitative relations available for prediction of performance of collectors of almost any design are entirely trustworthy if the properties of the components are known. But this means knowing the internal absorption coefficient of the glass or plastic; the reflectivity for solar energy of the

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[7] John Keyes, *The Solar Conspiracy,* (Dobbs Ferry, New York: Morgan & Morgan Inc., 1975), p. 3.

> air-glass or plastic-air interface expressed as a function of angle of incidence (calculable from the Fresnel equations if the refractive index is known); the transmittance of the cover plates for low temperature radiation (zero for glass, but plastics have some spectral windows); the hemispherical emittance of the cover plates; the solar absorptance and low temperature emittance of the "black" receiver, both as a function of angle of emittance; etc.[8]

To make things more complex for the average consumer, ratings are in such cryptic units as BTUs or Degree Days (if not more abstract units).

In an attempt to cut through the technical confusion, the U.S. Department of Housing and Urban Development (HUD) published interim solar system performance criteria in December, 1974.[9]

This was a first cut specification prepared by the National Bureau of Standards to help HUD get its solar heating and cooling demonstration program started. Rather than set out highly technical specifications, it listed expected performance criteria such as

a) 70° minimum temperature in winter

b) 78° maximum in summer

c) 140° hot water[10]

There is a more detailed intermediate standard which was released for public comment in July, 1976.[11] But again, the more complex and exacting the standards become, the more difficult they are for the average consumer to understand.

Geographic Location. The northern states get less sunshine than southern states. There is less energy to be received. Therefore, any particular system of given efficiency will have lower output in the north than in the south.

Site Characteristics. A solar system on a site shaded by trees or

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[8] H.C. Hottel, "Solar Energy," *Chemical Engineering Progress,* Vol. 71, No. 7 (July, 1975): 58.

[9] *Interim Performance Criteria for Solar Heating and Combined Heating/Cooling Systems and Dwellings.* National Bureau of Standards, Washington, D.C., January, 1975.

[10] G.E. Kelly and J.E. Hill, *Method of Testing for Rating Thermal Storage Devices Based on Thermal Performance,* NBSIR 74-634, National Bureau of Standards, Washington, D.C., May, 1975, and J.E. Hill and T. Kusuda, *Method of Testing for Rating Solar Collectors Based on Thermal Performance,* NBSIR 74-635, National Bureau of Standards, Washington, D.C., December, 1974.

[11] *Intermediate Property Standards for Solar Heating and Domestic Hot Water,* NBSIR 76-1059 National Bureau of Standards, Washington, D.C., April, 1976. *HUD Intermediate Minimum Property Standards Supplement,* 1977 ed. Vol. 5, Solar Heating & Domestic Hot Water.

natural or artificial obstructions will not perform as well as one unshaded. Likewise, prevailing winds and other site-specific environmental factors will decrease output.

Building Characteristics. Larger houses consume more energy than smaller ones. A system adequate for a 1,000 square foot structure may be woefully inadequate for a 1,500 square foot structure. Insulation; size, type and orientation of windows and doors; weatherstripping, and caulking are all variables.

In short, even if one can predict the performance of a given system according to some meaningful standards, there may still be great fluctuations between its performance in particular installations.

How Can the Consumer be Protected?

Consumers have several paths through the technological maze. The safest thing to do is to hire a professional engineer, preferably with solar experience. The engineer can evaluate the particular site, type of construction, etc. on one hand, and the solar systems available on the other, and make recommendations on which system seems best suited to the application. However, this can be expensive and, even if one has the money, it may be difficult to find a solar-qualified professional engineer.

The consumer should insist on a contract that spells out performance standards. This will require a lawyer and a technical expert to decide how to word the guarantees to take into consideration all the possible variables and contingencies.

In addition to contract protection, the consumer should insist on a performance bond or hold a substantial part of the payment in escrow until actual performance can be measured. But most solar firms are small and cannot afford bonds or to have cash locked in escrow.

The only safe statement that can be made about solar systems is that you probably can find a system to produce a substantial portion of a residence's hot water needs almost anywhere in the United States, but that you probably can not find a system that can provide all of a residence's heating needs, even in the south. Beyond that, the performance depends on the specific system and specific circumstances.

2. *How Much Will It Cost?*

The minimum cost of a solar heating system in the New England area would be at least $4,400 (probably much higher).[12] In addition, a

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[12] Jerry Ackerman, "Solar Heat: An Industry About to Take Off or a Futuristic Pipe Dream?" *The Boston Globe,* Nov. 5, 1976, p. 39, Col. 1.

conventional backup system would still be required. The cost of a solar system can be broken down into several components.

Initial Costs. When costs are quoted, the consumer must be sure of exactly what is included. For example, it may be cheaper to buy some components locally than have them shipped — glass for collectors, rocks for storage, antifreeze. Are these included in the price quoted or not?

Hidden Costs. New insulation is one example of a hidden cost. In addition, windows may need reglazing, the roof or basement may have to be strengthened to support collectors or storage mediums. There may be costs associated with clearing obstructions and obtaining a building permit. Insurance will have to be increased, raising annual premiums. Then there is the problem of reassessment. The impact on property taxes could be significant. (To provide an incentive to install solar systems, Massachusetts has passed a law exempting solar systems from local property taxes for 10 years).[13]

Operating Costs. Except in totally passive systems (e.g., large southern facing windows and a stone wall inside the house), electricity will be needed for blowers, pumps and other circulation devices. Again, the cost of the backup system must be considered.

Maintenance Costs. Many systems will require periodic maintenance. Receptor plates need cleaning and antifreeze has to be checked and replenished. Large glass areas may be subject to vandalism. An even more subtle maintenance problem is the availability of replacement parts and trained personnel. If they have to be brought in from the manufacturer's place of business, who pays for the transportation?

What Can Be Done?

The best protection is through a good contract which spells out in advance what the buyer is getting and for how much. But again, this requires both engineering and legal advice which is expensive. One should also check with the Better Business Bureau and local Consumer Action Programs. Try to get information on the company's assets and the reputation of its owners. But there is no real guarantee that the firm will be around to honor its agreements.

3. *Is The System Safe?*

The major concern is about physical injury. The consumer should

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[13] 59 M.G.L.A. §5 (1975).

investigate whether caustic chemicals are used and be sure that glass collectors are not placed where someone might walk into them, or where they might fall on someone if broken. The consumer should ask questions such as, "Will pump failure result in super-heated water or steam being released?"

The second concern is property damage. If the system fails, will there be thousands of gallons of water in the basement or oil vented over the roof?

To protect against either type of harm, systems must be fail-safe. If something goes wrong, it is a "safe" failure that does not cause injury. But again, this requires design evaluation by a professional. The consumer can also insist that the company provide the name of its product liability insurer. And the consumer should never accept a contract which attempts to limit liability, particularly to replacement only. The damage caused by escaping water could far exceed the replacement cost of a bad washer.

How Can I Get One?

If the consumer is resigned to the costs and the need for a lawyer and engineer, the next hurdle is finding suppliers, which may not be easy.[14] There are not many in the yellow pages. In some areas, there are directories if you can find one[15] but the information is not readily available to the public. If you do find a publication, it is probably better to use an old one just to see if the firm is still in business. And having found a contractor is still not the end of the problem. First, compatibility with state and local building codes must be checked. Because solar systems are so new, you may have to educate the local building inspector as well as yourself. Again, your engineer and lawyer may be needed. And, most important, do this kind of research in advance of buying. Second, be sure there is adequate access to sunlight. Today, sun rights are not guaranteed by law. If you do not have adequate land area to protect yourself, you may have to negotiate some sort of easement with your neighbors to protect against growing trees and large buildings.

If you have surmounted all the barriers to this point, you are finally ready to install your system!

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[14] Elizabeth C. Moore, "No News is Bad News," *Solar Age* (December, 1976).

[15] New Hampshire Solar Energy Association. *Solar Directory* (Updated).

National Policy Issues.

Many of the reasons that make it difficult for the consumer to obtain and install a solar system can be traced to a lack of national policy for solar development. On one hand, solar development would be enhanced if a large established firm were to take over the market. The credit and reputation of Westinghouse or General Electric would alleviate many consumer concerns. A large firm could get systems into mass production sooner and at lower costs. On the other hand, large firms, particularly utilities or companies already in the energy business, are suspected of monopoly practices and conflicts of interest because of existing products, etc. It can also be said that at this stage of development, many independent inventors will increase the rate of technological innovation, leading to better, more efficient devices; so large firms dominating the market should be discouraged.

Obviously there are competing national goals and policies: energy independence; protection of small businesses; protection of jobs and the investments of existing power companies; etc. It is doubtful that a political solution that balances these interests can be found. Ultimately, the decision will be made in the market place when someone introduces a solar system that can answer the consumer's questions.

Creating Financial Incentives for the Development of a Commercial Solar Energy Industry

WILLIAM DONOVAN*

I would like to address briefly three questions regarding financial incentives for solar energy — three issues that are facing us in Washington right now.

The first question is: Why incentives? Second, What kinds of incentives? And third, How much?

The first question might be asked this way: Why should the government give some people your tax money to encourage them to do what, on first glance, it seems they would do anyway if they had any sense? That is, if solar energy is in the long run cheaper than conventional fuels, if it is workable and presently available, if the price of oil and natural gas continues to escalate, particularly as natural gas becomes more scarce, and if coal and nuclear power continue to be plagued with the kinds of regulatory problems and environmental questions that have made development of coal and especially nuclear power very difficult recently, then why should we spend government money inducing people to buy solar energy?

The answer is that people do have a lot of sense regarding how they spend their money and what they buy. Oil is relatively cheap right now. Consumers are paying less than it actually costs to get it out of the ground. And more important than that, when a family budgets its money it is easier to pay for oil every month — even this past winter

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— than to figure out how they are going to get ahold of $5,000 or $10,000 or, depending on the type of system, even $15,000 to buy a solar energy assemblage.

The solution to this kind of problem lies not only in incentives, but in incentives *and* penalties; when President Carter announces his energy program next week I think you are going to find out what I mean by penalties. He is going to be talking about higher natural gas prices, banning the use of natural gas by large industries and electric utilities and higher oil prices. Yet, he really will not be saying anything new.

Congress decided in December of 1975 to gradually take controls off of crude oil, including gasoline, heating oil, and the oil used to produce electric power. Hence, unless something surprising happens over the next couple of years, our oil will probably rise to world prices. So existing conventional fuels — and I think we should include coal because there are many indirect costs inherent in coal production that are certain to increase — are going to cost more in the future.

Alternative energy incentives are needed for another reason. The United States is simply running out of oil and natural gas; but the world is not. The organization of petroleum exporting countries (OPEC), particularly its Arab members, sit atop hugh reserves of oil. If the figures I have seen are correct, OPEC oil could last the world as long as one hundred years.

Hence, the policy question we face is: Do we want to rely, as we did in 1973, on foreign oil suppliers only to learn again what we learned that year — that the spigot can be very suddenly, and very surprisingly, shut off?

Last night I was at a dinner in Boston with Senator J. Bennett Johnston of Louisiana. The Senator noted that from the late 1960's to 1972 we were producing as much as twenty-six trillion cubic feet of natural gas per year; in 1976 we produced less than twenty trillion cubic feet. In other words, there has been a drop of over six trillion cubic feet a year in production in just six years.

In 1976 we consumed approximately six and one-half to seven billion barrels of oil — almost half of which was imported. Before the oil embargo, our imports were only about 37% of our supply. Just since 1973 our dependence on foreign oil has risen from 37% to nearly 50%.

Senator Johnston suggested that we remove barriers to drilling on the outer continental shelf. He cited some interesting figures. For example, there are perhaps three to five billion barrels of oil and as much as fourteen trillion cubic feet of natural gas lying off the Atlan-

tic coast. At current consumption levels that equals approximately half a year of oil and two-thirds a year of natural gas. And that is the largest untapped source of oil and gas that we know of!

We do need to drill off the east coast; but we need to change the rules a little bit so that more independent and small businesses can join the consortium that does the drilling. And the states ought to be allowed greater participation.

We need to do much more than search out new reserves of oil and natural gas. There are advocates of nuclear power who will argue very forcefully that nuclear energy can provide all of our energy needs. If we can solve the problems associated with nuclear power, the atom could satisfy a large portion of our energy needs in the short run. Yet, I do not think that nuclear power is the kind of long-range energy solution we should pursue during the next century.

Solar energy can play an important part in helping to meet the current and future energy needs of this nation. Estimates contracted for by the government suggest that by the year 2000 3% to 5% of our total energy supply could come from solar energy. These studies assume that we will continue to provide large incentives to the oil and natural gas industries for fossil fuel exploration, and that we will continue to supply incentives for the use of nuclear power (such as the supports to nuclear power liability insurance and federally sponsored fission research). Indeed, today about two-thirds of the budget of the Energy Research and Development Administration (ERDA) supports nuclear power research and development projects.

The studies also assume that only $10 to $60 million a year would be provided for solar energy research and development. We are spending much more than that now — in fact nearly $300 million in the current fiscal year.

Change the assumptions a little and you change the results dramatically. Assume that solar energy research and development is increased beyond its current level, and that financial incentives are provided for consumers and for those who manufacture and install solar systems. Assume further that the price of oil and natural gas continues to climb and that the cost of coal production increases. Finally, assume that the nuclear power industry is forced to pay its own way (even though it does not now).

I have not yet done a study using these assumptions, but some other people have and I have seen a number of different results. A fairly conservative result is that by the year 2000 solar energy will supply 10% of our energy needs. Assuming that increased consumption is the equivalent of approximately one billion barrels of oil an-

nually, at today's prices, that is approximately twelve billion dollars of oil that would be replaced by a domestic solar energy industry. Obviously, this would greatly reduce the amount currently spent on imported oil; and would result in the creation of hundreds of new businesses and thousands of new jobs.

And, the United States would again have the opportunity to export energy as it once did. Indeed, proposals have already been drafted to begin exporting solar energy to developing nations. In other words, when we talk about providing incentives we have to talk about the total national value of stimulating the growth of solar energy industries. And, as I mentioned, that value is not just in reducing the costs each citizen pays for a solar system.

It should be noted that wind energy technology is just a few years behind solar heating and cooling advances. Ironically, wind technology in this country was probably ahead of the rest of the world for a long time; however, along came cheap oil and natural gas, and rural electrification, and the small wind system went the way of the mule. Now we are figuring out that perhaps there is greater value in having those smaller wind systems and we are trying to bring them back. But, the technology has been virtually abandoned. Thirty years ago we had good wind machines; today, there are very few manufacturers of wind systems.

Let me move on to the second issue which I wish to address: that is, what kinds of incentives and penalties are currently being considered? However, first a note on existing federal programs. ERDA's solar research and development program started off small; but Congress has increased the funding for the agency's solar energy program at an exponential rate. Before 1972, total federal funding for solar programs was less than $100 thousand a year. ERDA's solar energy budget for the current fiscal year is approximately $278 million.

The Department of Housing and Urban Development (HUD) has a residential solar energy demonstration program which I am sure you are all aware of. This is a child of the ERDA program; and, I might add, a child that has greatly out-achieved its parent.

There is also an obligation guarantee program; that is, a loan guarantee program enacted by Congress last August as part of the Energy Conservation and Production Act. This Act allows public institutions, local, state and federal government agencies, and industries and businesses (but not homeowners), to take out government guaranteed loans for solar energy and energy conservation systems. The government funding requested last year was $60 million — which would have allowed the government to loan out $2 billion, or to

guarantee $2 billion in loans. (Because it is just a guarantee program cash is not needed for all the loans, but only for those that fail.) Unfortunately, the Ford Administration, in its infinite wisdom, decided last December not to fund this program.

However, President Carter did put some money in: $2 million for fiscal '77, and $20 million for fiscal '78. It can not be guaranteed that this proposal will get through Congress in the same form, but I think it will.

The Energy Conservation and Production Act, passed last summer, provides building conservation standards which are fairly loose and easy for builders to follow. Yet the Act also raises some important and potentially troublesome constitutional questions. The federal government is telling the states and towns what they may put in their building codes. If a state or municipality does not rewrite its building codes to include energy conservation standards, the citizens of that state or municipality will not be eligible for federally guaranteed mortgages.

These penalties will not become effective until seven years after the law's passage. This long lead-time was designed to give the states ample time to redraft their building codes.

The legislation also includes an escape clause; if 80% of the states conform, then the other 20% need not necessarily follow suit. The logic of this is that if there is an obstinate governor somewhere in the United States — and, off hand, I cannot think of one — the people of the state would not be penalized.

Another existing penalty is one I mentioned earlier — decontrol of oil prices. This is the law now and everyone here witnessed what happened to oil prices this winter. I would like to say that what happened was a rip-off by the major oil companies, that fuel price increases are all their fault, and that we are going to investigate them and get prices rolled back. Well, we are not; because we cannot. It is crude oil that has gone up in price. The oil companies have to raise their prices by law. They are making profits; but, it is sad to say, these profits are perfectly legitimate, and probably a good idea.

There are a number of legislative proposals which I worked on with a group of House and Senate staffers throughout most of the winter. One proposal provides for various incentives to farmers including funding for demonstration programs under the supervision of both federal and state agriculture departments. Another proposal gives the Agency for International Development (AID) funds for the purpose of exporting solar technology to developing nations.

Still another proposal would create a new government building program, which would provide a great deal of money to allow the government to purchase solar energy equipment and retrofit existing buildings. This program is intended to create, in a short period of time, a subsidized market to help stimulate solar energy businesses.

The proposal I spent the most time on was the solar loan and grant program. Under this program a small business would be allowed to borrow money from a local bank for purposes of installing solar energy equipment; the money would be guaranteed by the government so the bank would face little or no risk. Senator McIntyre worked hard to get this proposal through the Banking Committee. It did eventually pass the Senate. However, it did not pass the House; and finally, in conference, it was cut down to a HUD demonstration program.

Another proposal I worked on was the solar energy tax credit. Senator McIntyre has introduced two solar energy tax credit bills. One is patterned after a proposal that passed both the Senate and House last year and then (because the Congress needed to cut two billion dollars from the tax reform bill) died in Senate-House conference. The energy title, Title 20, would have cost half-a-billion dollars; so in order to cut the two billion, they threw out that section.

The third and final question which I promised to address is: How much of a financial incentive is needed? In my mind, this is the least important of all the questions which will be discussed here today. However, it is the one issue that we spend the most time talking about, researching, and debating in Washington. I think this is largely because nobody in the government wants to take the blame for wasting money.

As an example, I recently had a discussion with some people in the Treasury Department who felt a tax credit for solar energy was inefficient. What they mean by "inefficient" is inefficient use of government tax money. They argued that the proposed tax credit program would give assistance to people who would install solar energy systems even without the credit. Unfortunately, these Treasury officials did not have any figures which supported their contention and, frankly, I do not think they are correct.

Faced with this worry about wasting government funds, Congress continues to debate a variety of issues, such as: Should the tax credit be larger for certain income groups? If so, which income groups — those with the lowest incomes, who would have the greatest difficulty financing an investment in solar equipment; or those with higher incomes, who are more likely to install solar equipment, and hence who will most likely help spur the development of a solar industry?

Should we give credits to businesses and industries; or are they already making so much money that they ought to install solar systems on their own? Indeed, why not penalize industries for not installing such systems?

These issues become far more complex when incentives are considered in perspective with penalties. If oil and natural gas cost more than solar energy, the consumer needs little incentive to be encouraged to consider the purchase of a solar system; and, if we forbid the use of natural gas for certain uses, consumers will have an even greater incentive to install solar systems or other alternative energy systems.

Right now there are four solar energy incentive proposals pending in the Congress. Senator McIntyre introduced one proposal at the beginning of this current year. The Senator's proposal called for a tax credit of up to $2,000 on a solar energy expenditure, and would have provided a maximum credit of $750 to help defray energy conservation costs.

The Senate Finance Committee proposed a two-step solar energy tax credit allowing consumers a credit for (1) 40% of the first thousand dollars, or $400, and (2) 25% of the next $6,200, or $1,550 — totaling a maximum tax credit of $1,950. This two-step credit was devised to provide a relatively greater credit (40%) for a less expensive solar system or one installed by a consumer, thus creating an added incentive for a homeowner to install a small, less expensive system.

President Carter's solar energy advisor recommended something like the Senate Finance Committee's proposal; a 40%/25% scheme with a maximum credit of $2,500. The distinguishing characteristic of this proposal is that it is graduated. Depending on how much they spend, people at lower income levels would get a far larger credit than those with large incomes.

For example, a family with an income of $15,000 or less would receive the maximum $2,500 credit. That scales down to the point where those making $36,000 or more receive only a $500 credit. The theory behind this is that families with larger incomes do not need as large an incentive to install solar energy.

The incentives I have just discussed vary tremendously, of course, both in the groups to be helped and in the amount of help to be provided. Yet, whatever the specifics of any given proposal, adoption of these schemes will do much more than provide financial assistance to those who install solar systems — it will underscore the government's commitment to the development of a commercially viable and productive national solar energy industry.

Establishing Technical Standards for Solar Installations †

JOHN K. HOLTON*

National Goal and Objectives

The purpose of the "Solar Heating and Cooling Demonstration Act of 1974," PL 93-409, enacted in September 1974, is

> to provide for the early development and commercial demonstration of the technology of solar heating and combined solar heating and cooling systems.

Sections 5 and 6 of the Act provide for the development of: (1) interim performance criteria for solar heating and combined solar heating and cooling components and systems to be used in residential dwellings; and (2) interim performance criteria (relating to suitability for solar heating and combined solar heating and cooling) for such dwellings themselves. Section 8 of the Act provides for the development, "as soon as feasible, and utilizing data available from the demonstration programs under Sections 5 and 6" of (1) definitive performance criteria for solar heating and combined heating and cooling components and systems to be used in residential dwellings, taking into account climatic variations existing between different geographic areas: (2) definitive performance criteria (relating to suitability for

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solar heating and combined solar heating and cooling) for such dwellings, taking into account climatic variations existing between different geographic areas; and (3) procedures whereby manufacturers of solar heating and combined solar heating and cooling components and systems shall have their products tested in order to provide certification that such products conform to the definitive performance criteria.

National Program Plan

In order to aid in the implementation of the programs described in PL 93-409, the "National Program for Solar Heating and Cooling" (ERDA-23A) was prepared in 1975[1] and updated in 1976[2] (ERDA 76-6). In support of the national program goal, to work with industry in the development and early introduction of economically competitive and environmentally acceptable solar energy systems, the following specific objectives relating to various standards development and implementation activities have been included in ERDA 76-6.

- Develop solar energy system performance standards and criteria for the production and installation of solar energy systems, subsystems, and components, with appropriate provisions for consumer protections.
- Identify and promulgate the necessary legislation, codes, and incentives to mitigate or eliminate existing legal or institutional restrictions which may discourage the development of solar energy.
- Develop analytical methods for rigorous economic and technical assessment of solar energy systems.
- Develop design guidelines for solar heating and cooling systems, subsystems, and components.
- Assure early availability of accredited private sector testing facilities.
- Assist in the development of site and structural design criteria of high utilitarian and aesthetic value.

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[1] *National Plan for Solar Heating and Cooling (Residential and Commercial Applications)*, ERDA-23A, Energy Research and Development Administration, October 1975 (available from ERDA Technical Information Center, P.O. Box 62, Oak Ridge, Tennessee 37830).

[2] *National Plan for Solar Heating and Cooling of Buildings*, ERDA 76-6, Energy Research and Development Administration, November 1976 (available from ERDA Technical Information Center, P.O. Box 62, Oak Ridge, Tennessee 37830).

As outlined above, the "National Program for Solar Heating and Cooling" clearly recognizes the importance of developing needed standards to help stimulate the creation of a viable industrial and commercial capability to produce and distribute solar heating and cooling systems. More specifically, standards for solar heating and cooling systems and components are needed to establish acceptable minimum requirements for health and safety as well as acceptable minimum levels of technical performance; e.g. thermal performance, durability/reliability, etc. Such minimum requirements and levels of technical performance are also desirable for purposes of consumer acceptance, mortgage insurance, financial incentive programs and industry commercialization.

National Bureau of Standard's Activities

Solar energy program activities at the National Bureau of Standards (NBS) are primarily focused on carrying out assigned tasks in support of the previously cited provisions and objectives contained in the Solar Heating and Cooling Demonstration Act and the National Program Plan. These activities which are being carried out in technical support of the Energy Research and Development Administration (ERDA) and Department of Housing and Urban Development (HUD) solar heating and cooling demonstration programs are briefly described in the following paragraphs.

Standards Development Plan

A plan to guide the development and implementation of standards for solar heating and cooling applications was published in August 1976.[3] The purpose of this plan is to present background information concerning the need, implementation and general scope of standards which may be required for solar heating and cooling applications and to outline and discuss recommended actions which should be taken for the early development and implementation of draft and national consensus standards for solar heating and cooling systems, subsystems and components.

As required, the plan will be revised and updated in consultation with interested members of the building community and implemented so that needed *draft standards and national consensus standards* can be developed, or existing standards revised, in order to

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[3] D. Waksman, J.H. Pielert, R.D. Dikkers, E.R. Streed, *Plan for the Development and Implementation of Standards for Solar Heating and Cooling Applications,* NBSIR 76-1143, National Bureau of Standards, Washington, D.C., August 1976.

aid architects, engineers, manufacturers, regulatory agencies, financial institutions, builders, consumers and other members of the building community in the acceptance (design, evaluation and installation) of solar heating and cooling systems, subsystems and components. The identification of standards needs on a systematic basis will require consideration of previous solar experience gained in related fields; e.g. heating, ventilating and air-conditioning (HVAC). It will also be important to coordinate standards development activities to ensure the timely and efficient development of solar standards, avoiding both gaps and duplication of efforts.

ANSI Steering Committee.

As a result of discussions with other government agencies, standards-writing organizations and industry, NBS recommended to the American National Standards Institute (ANSI) that a Steering Committee on Solar Energy Standards Development be established. In January 1976, such a committee was established by the ANSI Executive Standards Council. The scope and purpose of this committee is as follows:

> Without engaging in standards-writing activities, identify needs and formulate specific tasks leading to the development of national consensus standards for the utilization of solar energy for heating and cooling. Assign standards development projects to competent standards-writing organizations, and maintain a continuous overview of their activities in order to assure an orderly and effective process which will avoid duplication of effort and conflicting standards.

Current organizations represented on the ANSI Solar Steering Committee include: Air-Conditioning and Refrigeration Institute; American Gas Association; American Institute of Architects; Architectural Aluminum Manufacturers Association; American Society of Heating, Refrigerating and Air Conditioning Engineers; American Society for Testing and Materials; Consumers Action Now Council on Environmental Alternatives; Department of Housing and Urban Development; Energy Research and Development Administration; Federal Energy Administration; General Services Administration; Institute of Electrical and Electronics Engineers; International Association of Plumbing and Mechanical Officials; Manufactured Housing Institute; National Aeronautics and Space Administration; National Association of Home Builders; National Bureau of Standards; National Conference of States on Building Codes and Standards; Sheet Metal and Air Conditioning Contractors National Association, Inc.; and Solar Energy Industries Association.

NBS, in cooperation with the ANSI Solar Steering Committee, is identifying needs and priorities for developing standards, and with ERDA and HUD financial support, has established projects for generating draft standards. These draft standards can be utilized by appropriate standards-writing organizations as a starting point for the accelerated generation of national consensus standards (Figure 1).

In January 1977, the ANSI Steering Committee adopted the NBS plan for development and implementation of standards.[4] This action provides a starting basis for coordinated efforts by government and the private sector for the most effective development of needed standards.

Thermal Performance Standards.

To accelerate the development of national consensus standards for determining the thermal performance of solar collectors and thermal storage devices, NBS prepared draft standards which were published in December 1974[5] and May 1975.[6] These NBS draft standards were transmitted to the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE). In 1976, ASHRAE circulated proposed standards based on the NBS draft standards for public review and comments. In February 1977, ASHRAE adopted standards 93-77, "Methods of Testing Solar Collectors Based on Thermal Performance," and 94-77, "Methods of Testing Thermal Storage Devices Based on Thermal Performance," for the testing of solar collectors and solar thermal storage devices.

Materials Standards.

During 1976, NBS initiated five research projects to provide the technical basis for needed standards for materials used in solar heating and cooling systems. These projects have identified materials problems in existing and operational solar systems, and based on previously identified problems and experience from the demonstration programs, will develop draft test standards for sealants, collector

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[4] *Id.*

[5] J.E. Hill, and T. Kusuda, *Method of Testing for Rating Solar Collectors Based on Thermal Performance,*NBSIR 74-635, National Bureau of Standards, Washington, D.C., December 1974.

[6] G.E. Kelly, and J.E. Hill, *Method of Testing for Rating Thermal Storage Devices Based on Thermal Performance,* NBSIR 74-634, National Bureau of Standards, Washington, D.C., May 1975.

cover plates, collector insulation and collector absorptive coatings. The development and preparation of these draft standards will be carried out in close cooperation with the Solar Heating and Cooling Applications subcommittee of the American Society for Testing and Materials (ASTM).

Codes and Code Administrators.

In support of the task outlined in the National Program Plan,[7] NBS has undertaken a study to identify building code problem areas and prepare recommendations for modifications relevant to the installation of solar energy systems. This study will be based on data collected from the residential and commercial demonstrations and an analysis of existing building codes.

Performance Criteria and Standards.

Current federal government activities are primarily concerned with the development and refinement of the interim performance criteria intended for use in various phases of the residential and commercial demonstration programs and with the development of Intermediate Minimum Property Standards for use in HUD housing programs. Over the course of the demonstration programs provided for by PL 93-409, it is expected that these documents will evolve into a document containing definitive performance criteria that can be used to develop recommended building code provisions for incorporation into model or local building codes or both, as well as in federal specifications.

The basic flow for the development of these standards is shown in Figure 2. Although these standards are being prepared under the auspices of the federal government, their development is dependent upon the availability of standard methods of test, specifications and recommended practices that can be incorporated by reference. At the heart of the process of performance criteria development is a body of evaluation techniques or procedures for measurement. These procedures must be able to establish "effectiveness" scores that can be used to evaluate alternative solutions competing for approval or adoption. The measurements must be replicable and effective in responding to established criteria, as well as in producing meaningful results for

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[7] *National Plan for Solar Heating and Cooling (Residential and Commercial Applications), supra* note 1. *National Plan for Solar Heating and Cooling of Buildings, supra* note 2.

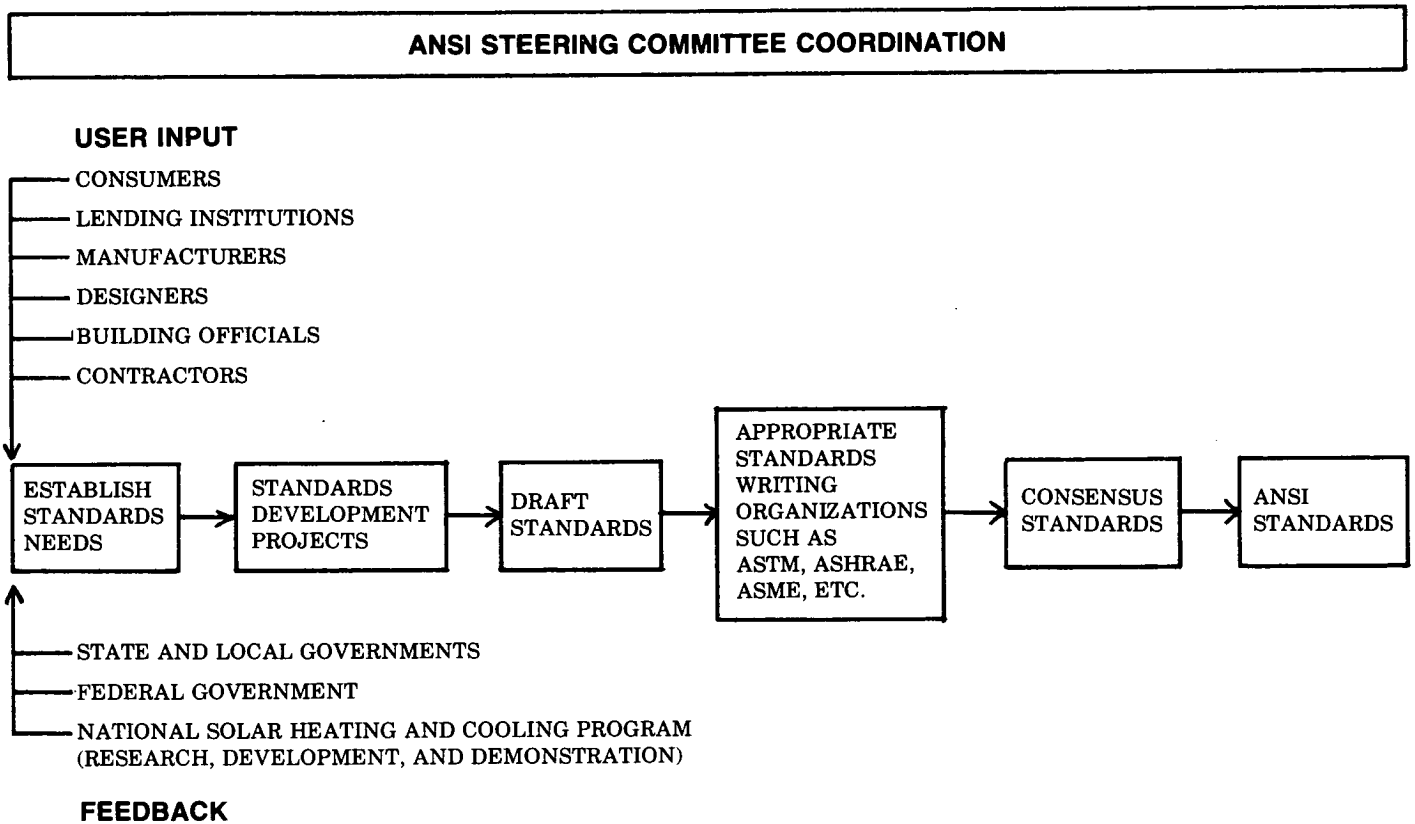

Figure 1 — Solar Standards Development

the designers. The development of definitive performance criteria is contingent upon the availability of validated evaluation techniques or procedures such as those normally developed through the voluntary consensus standards process.

As required by PL 93-409, "Interim Performance Criteria for Solar Heating and Cooling Systems and Dwellings"[8] were prepared by NBS for use by HUD in the residential demonstration program. Similarly, the National Aeronautics and Space Administration (NASA) has developed interim performance criteria for commercial solar heating and cooling systems and facilities for use by ERDA in the commercial demonstration program.[9] Responsibility for the further development of commercial criteria has been assigned to NBS and a revised document, "Interim Performance Criteria for Solar Heating and Cooling Systems in Commercial Buildings,"[10] was published in November 1976. Further revisions will take place on an "as needed" basis when experience gained during the demonstration program makes them desirable.

Standards for solar domestic hot water and space heating systems are currently being developed as a supplement to the existent FHA Minimum Property Standards. These standards, being prepared by NBS for HUD, will serve as the basis for mortgage insurance acceptance of systems or components by HUD/FHA and may be used at a later date to qualify systems or components for acceptance under pending tax credit programs. These standards are based on the current state of the art and will establish requirements, evaluation procedures, and accepted engineering practices for solar hot water and heating systems which will result in performance comparable to conventional equipment.

Initial draft versions of the Intermediate MPS for solar systems were prepared and revised as a result of comments received from a

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[8] *Interim Performance Criteria for Solar Heating and Combined Heating/Cooling Systems and Dwellings,* National Bureau of Standards, Washington, D.C., January 1, 1975 (available through Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402).

[9] *Interim Performance Criteria for Commercial Solar Heating and Combined Heating/Cooling Systems and Facilities,* Document No. 98M1001, George C. Marshall Space Flight Center, Huntsville, Alabama, February 1975.

[10] *Interim Performance Criteria for Solar Heating and Cooling Systems in Commercial Buildings,* NBSIR 76-1187, National Bureau of Standards, Washington, D.C. 20234, November 1976.

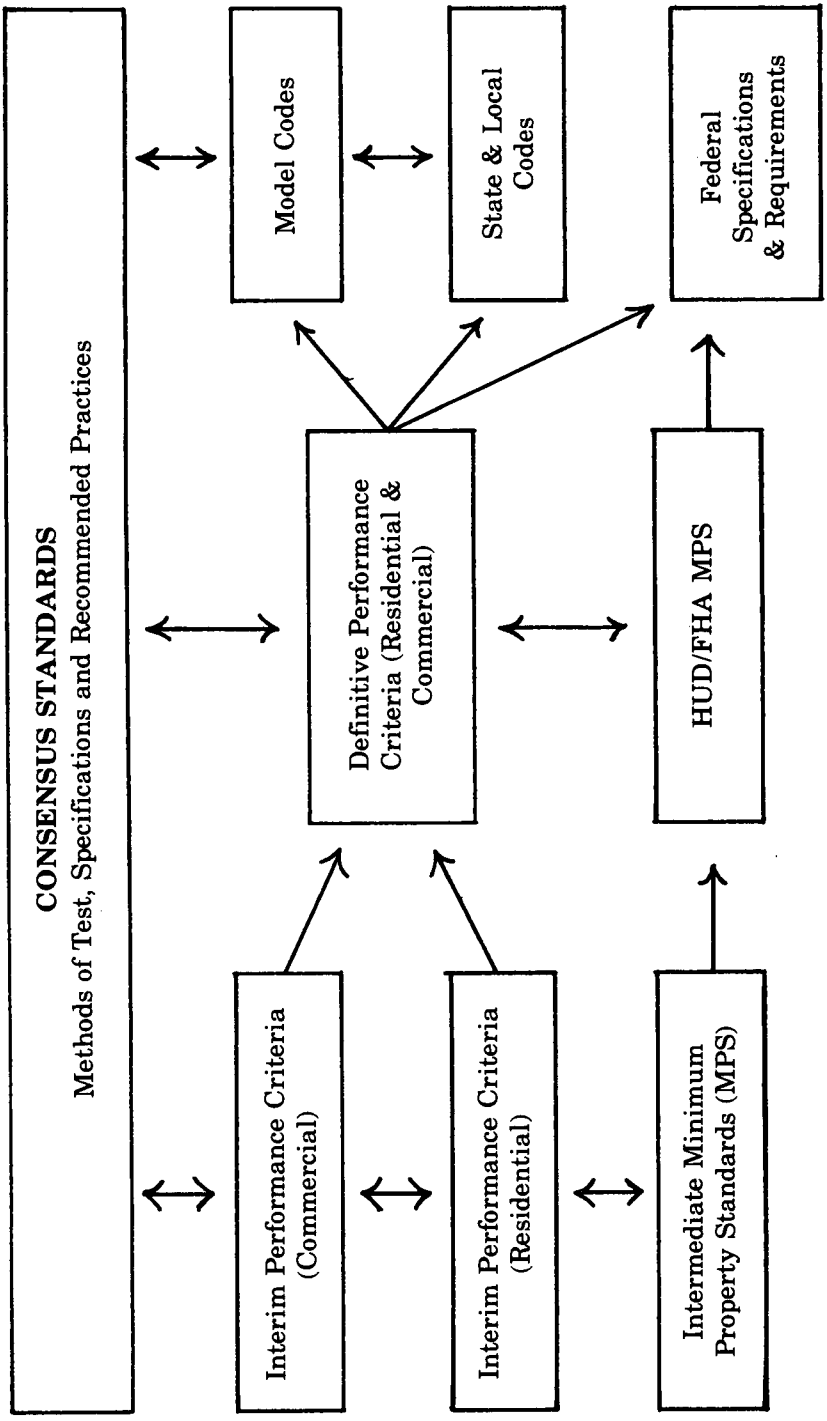

Figure 2 — General Flow for Development of Consensus and Government Solar Standards

selected technical review panel.[11] Public comments on this draft were invited through the publication of a notice in the Federal Register of July 12, 1976. A revised version of this document reflecting the public commentary was submitted by NBS to HUD in March 1977.[12] When issued, this will be a supplement to the FHA Minimum Property Standards. It is intended that this document will be used as the basis for several derivative standards; one for solar domestic hot water systems, one for mobile homes, and a document which may be used independent of the conventional FHA Minimum Property Standards.

Standards Implementation.

The implementation of definitive solar performance criteria and the accompanying standards for materials, components and systems needed for criteria evaluation will require a comprehensive plan to accomplish nationwide deployment through the existing building regulatory system. This is especially critical since the existing system is already burdened with existing commitments. A discussion of various tasks, such as laboratory accreditation, equipment certification, training and educational programs and manuals of accepted practice, is contained in the previously referenced plan.[13]

Conclusions

As described above, current NBS solar energy program activities are primarily focused on the development and implementation of standards and performance criteria for solar heating and cooling applications. It is an important and challenging role which needs to be carried out in an expeditious and effective manner in cooperation with many organizations and individuals in the public and private sectors so as to help in stimulating the creation of a viable solar heating and cooling industry which can thereby aid in reducing the demand on present fossil fuel supplies.

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[11] *Intermediate Minimum Property Standards for Solar Heating and Domestic Hot Water Systems,* Interim Report, NBSIR 76-1059, National Bureau of Standards, Washington, D.C. April 1976.

[12] *Intermediate Minimum Property Standards for Solar Heating and Domestic Hot Water Systems,* Final Report, NBSIR 77-1226, National Bureau of Standards, Washington, D.C., March 1977.

[13] Waksman, *supra* note 3.

The Quid Pro Quo for Sunshine

GAIL BOYER HAYES*

Although I view myself as a sun struck solar enthusiast, I believe that what is often said to be the major advantage of solar energy — that sunshine is free fuel — is an error. A recent lead editorial in the *Washington Post* is an example. "Solar energy," the piece said, " . . . does not pollute, nor does it deplete. It streams down, absolutely free, so to speak (although) the plumbing is not."[1] Contrary to popular belief, sunshine will not be a free fuel. One of the most common misapprehensions about solar energy is that the only real costs involved are the costs of designing, fabricating, and installing a solar system; that is, that all the costs are first costs. Statements to this effect can be found sprinkled throughout articles on environmental and energy matters. Unfortunately, and more seriously, this mistaken notion is also the unstated premise on which all suggested federal bills to protect solar collectors from shadows are based.

Although it is true that sunshine may not cost a solar system owner anything, there will often be externalized costs that must be borne by society at large. The type and amount of these costs will be largely determined by the kind of solar access laws we adopt.

I would like to illustrate this problem with a real-life example.

A friend of mine has installed one of the first solar hot water sys-

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[1] "Let It Shine", *Washington Post*, April 4, 1977, Section A, at 22, Col. 1.

tems in Washington, D.C. on the roof of a renovated town house in the northeast section of the city. Her experiences are almost a case study in frustration. She encountered many of the problems discussed earlier today by Professor Vittek, William Donovan and John Holton. For example, she could not find a solar hot water system that came with a performance guarantee. In fact, the firm that designed and installed her unit was unwilling to sign even a very general statement promising only that *some* hot water would be produced! Financing was incredibly difficult, partly because the solar system was included in a renovation project. Loans at tolerable interest rates are almost nonexistent for such projects, so would-be renovators apply for as many credit cards and bank accounts with automatic loan plans as they can get. All of their sources are squeezed dry. Only when the renovation is complete is it possible to get permanent home financing from a savings and loan.

In addition to money troubles, leaks developed, damaging the roof. After alterations and considerable additional expense, my friend finally had a working solar system. She estimates that it will take a minimum of seventeen years for it to pay for itself. Nevertheless, she was satisfied, as she and her family get a lot of psychological satisfaction from saving energy. There are also social benefits from having a solar system—the compliments and many questions from friends provide a considerable incentive to "go solar." In fact, I have heard that in California inexpensive fake solar collectors are sold as status symbols.

So my friend was happy until last month when she heard that the owner of an old brick warehouse adjacent to her property on the south had applied for a building permit. He wants to convert the warehouse into apartments, and perhaps add a story or two in the process. If he does, my friend's collectors will be shaded in the afternoon. The zoning in this area allows four-story apartments.

My friend, quite correctly, felt that it would be very unfair to her if the warehouse owner is allowed to shade her hard-won collectors. She asked me what her legal rights were, and I had to tell her that she had none. Under present law in the United States, property owners have no right to sunlight that slants over neighboring property before reaching their own. The fact that she had spent hours and dollars installing collectors, and that the solar system had been in operation for over a year, is irrelevant.

The warehouse owner, of course, probably has a very different perspective. His property would be much more valuable with additional stories. If there were a law prohibiting construction that would

shade existing collectors—the type of law now before the U.S. Congress—the warehouse could not expand upward. Its owner would argue that the price he paid for the warehouse reflected the possibility of expansion.

Furthermore, he might argue, his proposed construction would save more energy than it blocks, because the extra stories would allow more persons to live in the heart of the city, close to their jobs. Thousands of gallons of gasoline would thus be saved that would otherwise be burned in cars.

And furthermore, his argument might continue, multi-story structures like the one he plans to build are usually more energy efficient. As the ceiling of one unit is the floor of another, there is less exterior surface area through which heat may be wasted.

As a parting salvo he might ask whether it is fair that his parcel become so much less valuable than another identical building next to it which does not shade a collector and thus is not restricted in height.

There are, of course, other arguments that both sides in this dispute could advance. Both sides make some good points. In the discussion that follows, it will help you to evaluate suggested solutions to the sun-rights problem if you keep the factual situation we have just discussed in mind, and ask yourself, "Would this idea solve the problem in a manner that is fair to both parties and to society as a whole?"

There are some developmental situations where I do not anticipate that solar access will be a serious problem. For instance, in new residential subdivisions, industrial parks or shopping centers, careful advance planning can prevent conflicts from arising. Good land use planning is one extremely important tool in these situations. Dave Engel has done some very good thinking on this subject and will share his ideas with us later this afternoon.

There are legal tools, already available, which can also help in new developments. Restrictive covenants are an example; this simply means that an appropriate clause is inserted in each deed when lots in a development are sold or leased. In these clauses, the owners promise to not use their property in a manner that would thwart a neighbor's reasonable use of solar enery. Promises of various sorts are already quite common in deeds. They are used to protect land values by ensuring some—but not too much—homogeneity in a neighborhood. They may, for instance, prevent lot owners from painting their driveways a shocking pink. Any owner of a lot in the subdivision who

would be harmed by a breach of a covenant may sue to prevent a forbidden act from occurring.

In existing subdivisions, and other disperse, low-rise developments, solar access will often be less of a problem than sometimes feared. Aerial photographic surveys of one community showed that most homes' roofs were shadow-free during crucial hours. We need more empirical evidence on how great a problem shading actually is in *existing* suburbs (as well as in other developmental situations). I know of only two communities that have obtained and studied aerial photographs of themselves for this purpose. We contacted the U.S. Geological Survey to find if appropriate photos were already available of other areas. Although some photos are routinely taken at quite low altitudes, they are not apparently available at specified times of day. Providing good aerial evidence of the extent of solar access may be a most appropriate role for the federal government. Assuming that there is a problem, and that particular persons who want to retrofit their homes for solar power have shaded roofs, what can, or should, be done?

The first, most obvious, approach is to try to settle problems by private agreement—for example, by the purchase of express easements. This means that the neighbor of a solar structure promises not to use his or her land in a way that would unreasonably block sunlight. In exchange for this promise, the neighbor may receive money or perhaps other consideration.

Airspace easements are enforced by the courts nearly everywhere, although it is possible that there may be problems getting solar easements recorded in the land records in some states (we have not heard of any actual problems). A few states have recently passed laws explicitly recognizing such agreements. The enactment of such laws also helps to assure that solar easements will be regarded as *appurtenant,* rather than *in gross,* so subsequent owners will clearly be bound by the promises.

This approach would probably not help my friend. The warehouse owner may flatly refuse to sell her an easement (such easements are purely voluntary; you cannot force a neighbor to sell one to you). Or, he may agree to sell an easement, but may ask more money in exchange for it than my friend is willing to pay.

It would probably be futile for my friend to try to have the proposed apartment building declared a public nuisance. Courts will seldom call a particular use of property a "nuisance" if zoning laws specifically authorize it.

Since existing law is of little help in these situations, it will be

necessary to make new laws. I would like to talk first about sun-right laws that have already been proposed as legislation, and then review some suggestions found in the literature. Some of the latter are of very dubious value, but contain elements worthy of serious consideration.

Proposed Federal Legislation

All federal legislation proposed so far is essentially the same poorly conceived bill—only the sponsors' names and the session number change. This proposed law bluntly says that state and local governments must prevent the construction of any building that would interfere with the sunlight needed by existing solar energy equipment. The heart of this proposed law is the following sentence:

> No state or local zoning law, regulation, ordinance, or other provision may permit the construction of any building or other object within the jurisdiction of such state or locality in any location or manner which would obstruct or otherwise interfere with sunlight necessary for the operation of any solar energy equipment, which is in use on any building or structure on the date on which any permit or other authorization for such construction is issued . . .

Although on the surface such a bill sounds good—and its sponsors are very will intentioned—if passed, it may deal a stunning blow to the solar plexus.

First, this law preempts state authority in an area of law that has been jealously guarded by the states. States, of course, have in turn often delegated building permit and zoning responsibilities to localities. I believe the U.S. Congress has the *power* to pass such a law under the constitutional authorities to provide for national defense and to regulate interstate commerce. The latter of these powers has expanded over the years until it is now almost limitless.

Although Congress probably has the power, it is questionable whether federal preemption is necessary in the foreseeable future. Federal water pollution laws were necessary, for instance, because of the very real possibility that pollution from one state would create problems in another, or that states would try to steal industry from one another by passing lenient pollution laws. These problems really do not exist with solar utilization. Another argument against federal intervention is that states and localities are more sensitive to regional needs and plans. The topography, latitude, availability of alternative energy sources, and long-term growth plans may vary greatly from area-to-area, and all such factors should be reflected in good solar

access laws. In the early stages of solar energy use, it may actually be helpful to test several promising legal approaches. Laws often have unwanted side effects that even lawyers fail to foresee. Furthermore, the building trade is highly localized, and enforcement of solar laws will be on the local level.

These are arguments against any federal sun-rights bill. I would now like to criticize the particular legislation that has been proposed First, it lacks some important elements. For instance, the bill does not define "solar energy equipment." Does the term mean only flat plate collectors, or does it include, for example, a south-facing picture window that reduces the heating needs of a home or vertical walls designed to capture and store heat? If not, it may provide no protection for passive-type solar systems, and this would be a grievous mistake as passive components are essential to the success of any solar building.

Another serious omission is the complete absense of any enforcement provisions. It is not clear what will happen to states or localities that do not comply. Nor is it clear whether states would be held responsible for localities within their jurisdiction that do not comply.

Some analysts believe that vegetation will prove to be the greatest cause of shading in residential areas, but the proposed federal legislation does not even mention this issue. The entire bill is only about 250 words long. I have seen legislation where a single sentence was as long as this entire bill. The brevity of the federal bill suggests that it was intended more as a trial balloon than as serious legislation, which may explain the lack of some crucial elements.

But in addition to these omissions, there are further problems with this particular bill. The underlying, unstated premise of this legislation is "first come, first served." There are many areas of the law where this principle is apparent; for example, the prior appropriation doctrine in water law or staking out a claim to mineral deposits. But it is not the best approach for solar rights, since the objective of granting such rights is to benefit society at large, not lucky individuals. It is also inappropriate because careful planning may often make it possible for neighbors to share access to the sun.

Second, this legislation would force premature development, as property owners would try to build while they still could. It would also encourage "hopscotch" development — a type of land-use that is energy wasteful. It may even encourage solar blackmail — in other words, it may encourage unscrupulous sorts to stick collectors on their roofs, even if the device contributes very little to their heating

system, in order to exact a large payoff from a lot owner to the south who wants to develop his or her property. This bill is not limited to the protection of only reasonably sized, located and angled collectors.

A third criticism is that this law may be unconstitutional on the grounds that it takes property without compensation. For instance, imagine two identical vacant lots—lot one and lot two—in a downtown area that is rapidly becoming densely developed. To the north of lot one, an eccentric millionaire erects a solar-heated chicken coop in the south side-yard of his brownstone. There is no way the owner of lot one can erect anything higher than twenty-five feet without shading the chicken coop. The value of his lot is thereby reduced, while the value of lot two is increased. Such unequal, arbitrary, and spotty valuing of property may well be unconstitutional.

Proposed State Legislation

Better legislation has been proposed on the state level. A bill in Massachusetts[2] uses the building permit system to protect sun-rights. Under this proposed law, those wishing to erect active or passive-type solar energy units would have to reasonably locate and angle their equipment so as to minimize the possibility of future interference with it. To get a building permit, the equipment would also have to be reasonably sized relative to the structure. The problem of vegetation on adjoining property would still have to be solved by express easement.

If the land is zoned for developments of over four stories, a person wanting to install solar equipment would be denied a building permit if neighboring property owners have already received a building permit of their own, or have spent at least $500 on plans or construction. Furthermore, the municipal planning agency and the municipal governing body would have to approve the proposed solar structure. And, before a non-solar structure could receive a building permit under this legislation, the records would have to show that there was no interference with an approved solar collector.

A Minnesota bill suggests a very different legal approach.[3] It would simply grant solar easements to any collector owner. If anyone erected an object that shaded the system, he would have to pay the solar homeowner three times the actual cost of implementing an alternative energy system. Having lived in Minnesota, I know how cold

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[2] Senate No. 296, (1977).

[3] Minnesota H.F.2064 (1976).

the winters can get, and how the residents of that state depend on their heating systems. But this bill is a little extreme, and much too vague.

Colorado legislation will test the commitment of solar enthusiasts who are also environmentalists, since it would forbid property owners to allow their trees and shrubs to grow enough to shade another's solar collector between 9:00 a.m. and 3:00 p.m.

Finally, the tiny town of Kiwa, Colorado, has actually passed a law declaring shadows on collectors to be public nuisances. I would not recommend this approach as injunctive relief may not be available, and because you would have no certainty of protection before you installed a collector and won a lawsuit. The late William Prosser—a leading authority on torts—has said:

> There is perhaps no more impenetrable jungle in the world than that which surrounds the word 'nuisance'.

When alternative legal routes are open, it makes no sense to try to hack a new path through this jungle.

Other Suggested Approaches

I would like to briefly discuss some other suggestions that individuals have advocated as solutions to the sun-rights problem.

One attorney from a state near this one, a state noted for its tall buildings, suggests that there really is no problem since mirrors hung on buildings could reflect sunlight onto collectors. My gut response is that this is not such a bright idea, but as a lawyer, not a scientist, I do not feel qualified to comment further on this proposal.

Another legal scholar has suggested that the water laws used in the arid west — states which apply the prior appropriation doctrine — be applied to solar access as well. I like the idea of viewing sunlight as a natural resource, but there are many reasons why I do not think this approach would work. The first come first served theory that underlies the prior appropriation doctrine does not achieve optimal results in the solar field. Extensive litigation would be required to prove one's right, and no compensation would be given for lost development rights. Since there are other, less strained approaches available, it makes sense to use them.

Solar zoning is often suggested as a solution. I expect Dave Engel will discuss this alternative, so I will not go into it except to say that it has many possibilities.

The last idea I would like to mention is the suggestion that the old English doctrine of ancient lights be revived. I would like to talk

about sun-rights without mentioning this doctrine, but it is nearly impossible to do because this doctrine has become almost a cocktail party kind of topic. This doctrine, which still exists in a revised form in Great Britain and parts of the Commonwealth, provides that if sunlight has been passing, unobstructed, through your window for twenty-seven years, then you have a right to continue to receive a reasonable amount of light in your room.

Although this old doctrine was rejected by United States courts on public policy grounds, and public policy may now be changing, I believe it would take legislation to revive the doctrine here in a useful form. Even if it were revived in fact, it would not be a good law. Who wants to wait twenty-seven years before he is sure his collector will remain unshaded? This time period could be shortened. But, if it were, this one approach could force premature and energy inefficient types of development. Nor would it provide any compensation to those denied the right to develop their land.

I do not think an ideal sunrights law has been proposed. The Massachusetts bill is fairly good, but too broad in some respects and too narrow in others. A combination of approaches may be best, using whatever approach is most suitable to a particular developmental situation.

In summary, then, it is worth remembering that one person's solar chicken coop is another person's blue spruce; one person's south-facing picture window is another's second story or home near his job; and that the sum of everyone's energy losses and gains must be borne by us all.

Developing Solar Land-Use Plans

DAVID ENGEL*

There are a number of legal concerns such as product warranty and safety standards which raise issues related to solar energy, but which are not issues that are unique to solar. Rather, they are legal issues that relate to the introduction of any new technology in the housing industry.

However, the right of access to sunlight is purely a solar question. This concept involves totally new planning and zoning techniques and new ways of viewing property rights.

Property rights are generally defined in terms of borders within which one exercises control. When we talk about solar access we are talking about crossing over those borders.

Indeed, one of the difficulties with this area of law is that we have incorrectly defined the problem. Numerous articles and papers have been written on the problems of "sun rights," and a long series of complicated legal theories have developed to justify such "rights."

Some people have dug up ancient legal theories and proposed new legislation which would completely change our property laws and possibly wreak havoc with generally adopted concepts of property rights. I am frightened by such proposals because I am afraid of what they will mean to solar energy development.

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At present, solar energy is supported by many types of people. In fact, this energy source has very few overt enemies. However, under much of the solar access legislation that has been proposed the present consensus would break down rapidly. Homeowners would be fearful of the effect such legislation would have on their property values; builders would be fearful that new regulations would be unreasonably restrictive. In short, it is imperative that we rewrite our laws only when we positively determine that such a need exists.

The important issue is not "sun rights," but rather, the need for reasonable — and I emphasize reasonable rather than absolute — assurance of access to sunlight. The first thing we have to do is determine to what degree access will or will not be available under existing methods of controlling property in this country. Remember, development of an actual right to sunlight is only one approach; there are a variety of traditional approaches which might also be followed.

Again, the first step is to determine the sort of circumstances in which access to sunlight might be impeded. This issue has been largely ignored to date. The Pheonix project in Colorado Springs, Colorado is the only instance I know where aerial photographs were taken of a region for purposes of determining how shaded the area was. The photographs showed that very little of Colorado Springs was, in fact, shaded. This sort of finding is bound to make solar land use plans easier to develop.

I am a little disturbed that so few other regions have taken this approach. I think one explanation is that the subject of access to sunlight has, for too long, been preserved solely for lawyers writing law review articles. Lawyers address esoteric legal theories — such as the doctrine of ancient lights or riparian rights — in the hope that they will be published in law journals. As such, the legal community has offered us very little actual analysis of present day facts and current problems.

It is generally recognized that we cannot — and I really think should not — think in terms of all property owners having a guaranteed "right to sunlight." Under such a scheme a homeowner might install a solar collector and then order the owner of a ten story office complex to tear down his building. Obviously, the owner of the taller building should not be required to comply with such an unreasonable request.

Consider a less absurd situation. Two neighboring properties are both vacant. One is zoned R1, a typical residential zone; the other is already zoned C1, a typical commercial zone allowing construction of two and three story commercial buildings. The owner of the plot

zoned C1 plans to construct a three story building; but before he can do so the owner of the plot zoned R1 builds a house with a solar collector. Should the owner with the commercial property be prevented from building on his land since the residential owner built first? I doubt under existing law that this would happen; I also doubt that there is any existing legal theory or legislation that could be enacted which would be upheld in court which would bar the owner of the property zoned C1, without compensation, from building on his land.

Consider one more example. Two properties are both zoned R1 — again typical one story residential, perhaps quarter acre lots. One owner installs a solar collector. The second property owner subsequently seeks a rezoning of his property to C1 so that he might build a multi-story office building. Legislation restricting zone changes under circumstances where the change would impair another owner's access to the sun would probably be upheld by the courts. However, the right to request a zoning change cannot be eliminated entirely, even in a situation where a zoning change might render useless another owner's collector. One solution to this dilemma would be to place the heavier burden of proof on the owner seeking rezoning; but again, I emphasize that the right to request a zoning change cannot be absolutely taken away.

Hence, I cannot conceive of a situation where the right to sunlight would be absolute. However, by phrasing the question in terms of "reasonable access to sunlight," a whole series of options become available.

It is my view that in most new — and I emphasize "new" because it is a limitation — developmental situations, particularly residential, in which solar access is necessary, access can be provided through the use of existing zoning controls and does not require the use of esoteric, innovative, or revolutionary land-use tools. Some of these existing controls are zoning, land-use planning, and site planning. In using these planning tools — tools which are now available to state, and particularly to local governments — two separate developmental situations must be separately addressed.

The first situation is where the builder or homeowner is planning to construct a solar home. The builder or homeowner is choosing his site plan and location and hence he can control the situation. On the other hand — and this is the second situation — most subdivisions are now being built without solar energy in mind.

The question which needs to be carefully studied is whether there is any way to assure that these developments are designed so that solar systems can be adapted in the future? If the market penetration

estimates are correct, hundreds of thousands of housing units will be built in the near future. Many of these units could be designed now so that they can be easily adapted to solar use in the future.

The Department of Housing and Urban Development has awarded a contract to the American Society of Planning Officials (ASPO), which is going to develop just these types of planning tools. Within a year they will have developed a handbook, for use by local planning officials and developers, designed to help them protect solar access for the future.

A few words of caution about certain protective mechanisms are in order. I have seen some zoning ordinances and some covenants covering small solar subdivisions which are quite restrictive. For instance, "You shall in no way impede solar access." If a homeowner wished to build a second story addition to his house or plant a big Colorado blue spruce on his property line, I think he could successfully contest such an ordinance or covenant. He would argue: "I do not know what this language means; someone should have defined to me what areas I could or could not build on when I purchased this property; someone should have explained to me when I purchased this property the ways in which I might impede my neighbor's solar access." Without such an accompanying explanation most of the provisions being enacted will probably be knocked out for vagueness and lack of adequate notice.

Zoning and planning officials also need systems for evaluating the sufficiency of existing side-yard and height requirements so that they might determine whether housing constructed pursuant to the local zoning ordinances will impede a neighbor's access to sunlight. Local building officials need clear and simple compilations and guidelines which will indicate, for instance, which types of trees will grow to what heights, when their leaves will change, and when new leaves will appear. These are important factors to consider when determining where to place certain trees. Until these guidelines are developed — hopefully by next year — local planning officials are just going to have to use plain common sense. Indeed, common sense may be the most crucial element in the entire solar energy planning process.

Solar access cannot become the sole determinant of planning decisions; there are other problems which must be dealt with. We could guarantee solar access tomorrow by employing five acre zoning. The result would be urban sprawl, higher land development costs, and increased use of energy for commuting.

Accordingly, rather than thinking in terms of an absolute guarantee of solar access, there is a need to educate the planner, zoning

official, and builder to consider solar access along with all of his other concerns.

In fact, there are a number of changes which might be made now by local planning officials. For example, I think it would be a good idea to include in appropriate state legislation, and also within the preamble of local zoning laws, a specific statement that says: "A valid purpose of zoning and planning decisions is to provide direct solar access."

Of course, such a provision may not be needed since most zoning officials already have the authority to consider solar access. However, I think adoption of such a provision is important if for no other reason than it will draw attention to the issue. Furthermore, such a provision would provide legislative authority for other, more exotic innovations that might become necessary in the future.

Much can also be done to revise existing subdivision control platting ordinances. For example, local governments should encourage platting which would maximize north-south orientation. In situations where this is not possible, zoning codes ought to be amended to permit a change in the orientation of buildings so the fronts of all of the buildings in a complex do not have to face the street; buildings should always be positioned in such a way as to maximize access to the sun.

Planned Unit Development (PUD) is another planning tool which needs to be reviewed. Basically, the PUD concept dispenses with traditional density, lot lines and setback requirements, and focuses on development of the entire unit. The advantage of this tool is that it gives planners greater flexibility than traditional Euclidian zoning.

It is important that local governments make solar access an integral part of the PUD review process; the builder should consider solar access just like he considers school placement and traffic patterns. Furthermore, a provision could be enacted which would give a developer a slight bonus for considering solar access in a subdivision; perhaps he would be allowed to build more densely than builders installing traditional heating and/or cooling systems. Additionally, zoning officials must begin to examine their zoning requirements to determine whether side-yard, height, and setback requirements impede solar access.

Within existing residential districts, particularly those built since World War II, structural interference with solar access will not be a severe problem; rather, foliage will cause the major problem.

I think there is legal authority to control foliage. But, any restriction must be very specific. As I explained before, a statute must say more than: "You shall not plant a tree in such a way as to impede your neighbor's access to sunlight."

Other problems arise when different zones border each other. If solar access is to be assured to buildings, some sort of buffer zone will be necessary — at least between residential and commercial zones. For instance, there might be special setback requirements applicable to commercial buildings bordering residential zones. One question which arises, then, is who will bear the cost of providing the vacant land — let us call it a green strip? Will it be the government, or the owner of the commercial property? Additionally, it must be determined whether protecting solar access for several homes warrants setting aside a sizeable piece of property as a green strip.

Finally, there is the whole question of subsequent rezoning; even if solar access statutes are enacted, rezoning cannot be absolutely barred. Let us assume for a moment that we could prohibit the building of additions or subsequent construction. Such an attempt to protect solar access would freeze current patterns of development. Do we want to do this? Tracts that today are low-density residential areas might be better used tomorrow as commercial or industrial areas. Surely we do not want to so encumber properties that they cannot be changed or modified due to changing circumstances.

As far as marketing is concerned, the private builder or developer should be encouraged to list solar access along with all the other factors which he lists when advertising his subdivision; just as a developer advertises "broad streets," he can also advertise that his subdivision is planned for solar access.

Additionally, language should be included in subdivision controls to restrict the power of homeowner associations to decide whether an individual can install a solar collector on his roof. Almost all large, new developments have homeowner associations and architectural review committees. Generally, no architect sits on the architectural review committee; too often, members are residents who have nothing to do but spend their time watching whether a neighbor is putting up a clothesline which would spoil the aesthetics of the community.

In Reston, Virginia — a new town outside of Washington — a family started to use a clothesline to dry its clothes in an attempt to reduce its gas bills; and sure enough there was a provision in the Reston covenants which prohibited homeowners from hanging clothing in their yards. Hence, this couple had to take in its clothes and dry them in the clothes dryer. Clearly then, covenants which might interfere with the installation of solar systems ought to be discouraged; and homeowner associations ought to be denied authority to interfere with the installation of a solar system by a homeowner.

In conclusion, providing for solar access must be integrated into the entire fabric of land-use laws and land-use planning, and must compete with all the other planning agendas that are before local governments and developers. Development of new solar rights, while important, should only be a last resort and should be undertaken only with a serious awareness of the implications and complications of property law.

Foreign Commerce Regulation Under the Lanham Trademark Act: False Designation of Origin*

PAUL STEPHEN DEMPSEY**

Trademark law has its historical roots in the common law of unfair competition. Under the common law, "unfair competition" was a limited concept referring primarily to the palming off of one's own goods as those of a rival trader, but its scope has been extended to the selling of another's product as one's own.[1] Today, it is well settled that an actionable claim for unfair competition arises whenever there is a "likelihood of confusion," in that there exists the possibility that the public will be deceived,[2] or whenever the operator of one business believes that his goodwill is being appropriated or diluted by

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[1] A.L.A. Schechter Poultry Corp. v. United States, 294 U.S. 495 (1934). Early English courts provided a cause of action to one injured by a merchant's false use of a well known trademark to pass off goods from an unknown source. Protection of consumers was later expanded by English courts to enable firms to make extensive use of symbols even before they became well known. Treece, *Developments in the Law of Trademark and Service Marks*, 58 CALIF. L. REV. 885 (1970).

[2] American Foods, Inc. v. Golden Flake, Inc. 312 F.2d 619 (5th Cir. 1963).

another's business.[3]

In the United States, federal legislation in this area began with the Trademark Act of 1870,[4] which was invalidated by the Supreme Court nine years later in the *Trade-Mark Cases*.[5] Congress next enacted the Trademark Act of 1881[6] which was superseded by the Trademark Act of 1905[7] which, as amended in 1920,[8] was in turn superseded by the Trademark Act of 1946,[9] as amended in 1962.[10]

Section 43(a)[11] of the Lanham Trademark Act of 1946 is concerned with false designation of origin in general. Broadly speaking, this section prevents one from conducting his business in such a way as to unfairly or unnecessarily interfere with or injure that of another in destroying a basis of genuine competition by preventing a consumer from judging fairly between rival commodities. One commentator has divided Section 43(a) into four basic requirements: (1) that the defendant's advertisement is false in fact; (2) that it actually deceives or has a tendency to deceive a significant segment of its audience; (3) that such deception is material, in that it is likely to make a differ-

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[3] Long, *Unfair Competition: The Magic of Names and Marks,* 22 ALA. L. REV. 611 (1970).

[4] Act of July 9, 1870, ch. 230, 16 Stat. 198.

[5] 100 U.S. 82 (1879).

[6] Act of Mar. 3, 1881, ch. 138, 21 Stat. 502.

[7] Act of Feb. 20, 1905, ch. 592, 33 Stat. 724.

[8] Act of Mar. 19, 1920, ch. 104, 41 Stat. 533.

[9] Act of July 5, 1946, ch. 540, 60 Stat. 427.

[10] Act of Oct. 9, 1962, Pub. L. No. 87-772, 76 Stat. 769. For a history of trademark legislation, *see* 4 R. CALLMANN, THE LAW OF UNFAIR COMPETITION, TRADEMARKS AND MONOPOLIES § 97.1 (3rd ed. 1970).

[11] 15 U.S.C. § 1125a (1970):

> Any person who shall affix, apply, or annex, or use in connection with any goods or services, or any container or containers for goods, a false designation of origin, or any false description or representation, including words or other symbols tending falsely to describe or represent the same, and shall cause such goods or services to enter into commerce, and any person who shall with knowledge of the falsity of such designation of origin or description or representation cause or procure the same to be transported or used in commerce or deliver the same to any carrier to be transported or used, shall be liable to a civil action by any person doing business in the locality falsely indicated as that of origin or in the region in which said locality is situated, or by any person who believes that he is or is likely to be damaged by the use of any such false description or representation.

ence in the purchaser's decision; and (4) that the particular plaintiff bringing suit has been or is likely to be injured as a result of the foregoing, either by direct diversion of sales from himself to the deceiving competitor, or by a lessening of the good will which his own product enjoys with the public.[12]

Although at its inception, Section 43(a) of the Lanham Trademark Act was praised as a significant supplement to existing common law doctrines,[13] many early decisions restricted the scope of the new provision.[14] Indeed, it was not until 1954, in a landmark opinion by Judge Hastie in *L'Aiglon Apparel, Inc. v. Lana Lobell, Inc.*[15] that those decisions[16] construing Section 43(a) as a mere codification of the preexisting common law which provided relief against false and misleading advertising were rejected.[17] This marked the beginning of the expansion of the applicability of Section 43(a), with some courts declaring that, with respect to false advertising, a federal statutory

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[12] Weil, *Protectibility of Trademark Values Against False Competitive Advertising,* 44 CALIF. L. REV. 527, 537 (1956).

[13] Callmann, *The New Trademark Act of July 5, 1946,* 46 COLUM. L. REV. 929, 931 (1946).

[14] Chamberlain v. Columbia Pictures Corp., 186 F.2d 923, 925 (9th Cir. 1951); Dad's Root Beer Co. v. Doc's Beverages, Inc., 193 F.2d 77 (2d Cir. 1951); California Apparel Creators v. Weider, Inc., 162 F.2d 893 (2d Cir. 1947), *cert. denied,* 332 U.S. 816 (1947); Samson Crane Co. v. Union Nat'l Sales, Inc., 87 F. Supp. 218, 222 (D. Mass. 1949), *aff'd per curiam,* 180 F.2d 896 (1st Cir. 1950).

[15] 214 F.2d 649 (3rd Cir. 1954). In this case, defendant was enjoined from use of a photograph of a plaintiff's dress in its advertising of its own inferior, dissimilar and lower priced dress.

[16] *Supra* note 14.

[17] Judge Hastie stated: "We find nothing in the legislative history of the Lanham Act to justify the view that this section is merely a declaration of existing law.... Perhaps this statutory tort bears closest resemblance to the already noted tort of false advertising to the detriment of a competitor, as formulated by the American Law Institute out of materials of the evolving common law of unfair competition. See Torts Restatement, Section 761, supra. But however similar to or different from preexisting law, here is a provision of a federal statute which, with clarity and precision adequate for judicial administration, creates and defines rights and duties and provides for their vindication in the federal courts. For illuminating discussions of Section 43(a) and its relation to precedent law, see Callmann, *False Advertising as a Competitive Tort,* 1948, 48 COLUMBIA L. REV. 876, 877, 886 (1948); Bunn, *The National Law of Unfair Competition,* 1949, 62 HARV. L. REV. 987, 998-1000 (1949)." L'Aiglon Apparel Inc. v. Lana Lobell Inc., 214 F.2d 649, 651 (3rd. Cir. 1954).

tort, *sui generis,* had been created.[18] Later courts agreed that a new federal remedy had been created to provide relief for a specific type of unfair competition: the use of a false designation of origin.[19]

It is therefore at least somewhat remarkable that until recent years, Section 43(a) has endured a large measure of inactivity. Judge Clark remarked in 1956 that, "there is indication that the bar has not yet realized the potential impact of this statutory provision."[20] Another commentator noted as late as 1965 that

> [s]o few cases have been brought under this Section since its enactment that . . . it cannot be forseen that any increased utilization of this Section . . . will be of substantial benefit in helping to establish a federal law of unfair competition in the absence of amending legislation.[21]

Since 1965, however, there has been a remarkable increase in the amount of litigation instituted under Section 43(a). This increase has had the effect of expanding the section's applicability,[22] as a probable result of the growing emphasis on consumer protection, to an extreme which has led several commentators to protest the number of situations for which actions under Section 43(a) may now be instituted, and for which the section was not originally intended.[23]

Subsection (a) of Section 43 provides relief for that type of unfair competition which is analogous to misappropriation or misuse of

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[18] This new federal remedy does not require one seeking injunctive relief, profits and damages to demonstrate that the false representation or description was willful or intentional. Gold Seal Co. v. Weeks, 129 F. Supp. 928 (D.D.C. 1955), *aff'd sub nom.,* S.C. Johnson & Son, Inc. v. Gold Seal Co., 230 F.2d 832 (D.C. Cir. 1955), *cert. denied,* 352 U.S. 829 (1956).

[19] Iding v. Anaston, 266 F. Supp. 1015 (N.D. Ill. 1967).

[20] Maternally Yours, Inc. v. Your Maternity Shop, Inc., 234 F.2d 538, 546 (2d Cir. 1956) (concurring opinion); see Derenberg, *Federal Unfair Competition Law at the End of the First Decade of the Lanham Act: Prologue or Epilogue?,* 32 N.Y.U. L. REV. 1029, 1039 (1957).

[21] Peterson, *The Legislative Mandate of Sears and Compco: A Plea for a Federal Law of Unfair Competition,* 69 DICK. L. REV. 347, 371 (1965).

[22] Jurisdictional requirements have been relaxed; the class of possible plaintiffs has been expanded to include all commercial parties affected by alleged violations; the requisites of Section 43(a) have been classified; the types of situations to which the section applies have been broadened; and some indication concerning available remedies has appeared. Germain, *Unfair Trade Practices Under Section 43(a) of the Lanham Act: You've Come a Long Way, Baby – Too Far Maybe?,* 49 IND. L. J. 84 (1973).

[23] *Id.; cf.* Derenberg, *Consumerism and "Old-Fashioned Commercial Honesty",* 15 IDEA 45 (1972).

trade names and trademarks.[24] Any "false description or representation" or use of a mark which is likely to deceive purchasers as to the source or origin of such goods is actionable.[25] This section provides protection against false representations involving unregistered trademarks or certification marks.[26] The statutory language of Section 43(a) specifically prohibits "a false designation of origin," a phrase which is not limited in applicability to geographic origin. Rather, this statutory language "covers any representation with respect to the origination of the product, i.e., a particular source of manufacture by a certain business."[27] Even prior to the enactment of the Lanham Act, it was recognized that where a geographical name had come to be associated by the public with a standard of quality of articles manufactured at that location, a cause of action on the grounds of unfair competition arose where one who carried on a business elsewhere, placed inferior articles on the market under such geographical name.[28] Thus, for example, the sale of domestic Swiss cheese under an imported Swiss cheese label was held to be unfair competition.[29]

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[24] Geisel v. Poynter Products, Inc., 283 F. Supp. 261 (S.D. N.Y. 1968). Common law courts provided relief against "passing off." Thus, for example, a manufacturer of goods who aided or encouraged his distributors to defraud customers by palming off its goods as those of another was liable for the ultimate injury caused. 2 T. MCCARTHY, TRADEMARKS AND UNFAIR COMPETITION § 25 (3rd ed. 1973). However, proof of actual palming off is not a requirement for recovery under Section 43(a). L-Aiglon Apparel, Inc. v. Lana Lobell, Inc., 214 F.2d 649 (3rd Cir. 1954); Glenn v. Advertising Publications, Inc., 251 F. Supp. 889 (S.D.N.Y. 1966); General Pool Corp. v. Hallmark Pool Corp., 259 F. Supp. 383 (N.D. Ill. 1966). And Section 43(a) of the Lanham Act provides that a seller who deliberately passes off his goods as those of his competitor has falsely designated origin of the goods within the meaning of this section. Sutton Cosmetics, Inc. v. Lander Co., 445 F.2d 285 (2d Cir. 1972).

[25] *See* Societe Comptoir de L'Industrie Cotonniere Etablissements Boussac v. Alexander's Dept. Stores, Inc., 299 F.2d 33 (2d Cir. 1962); Norwich Pharmacal Co. v. Hoffman-La Roche, Inc., 180 F. Supp. 222 (D.N.J. 1960). The general theory upon which many of the decisions are based is that anyone who, while purporting to sell merchandise that equals the quality of competing goods, actually sells products of reduced quality and cost to him, gains an unfair advantage over competitors. H.A. Friend & Co. v. Friend & Co., 276 F. Supp. 707 (C.D. Cal. 1967), *aff'd*, 416 F.2d 526 (9th Cir. 1969).

[26] *See* Florida v. Real Juices, Inc., 330 F. Supp. 428 (M.D. Fla. 1971).

[27] *See* 1 R. CALLMANN, THE LAW OF UNFAIR COMPETITION, TRADEMARKS AND MONOPOLIES § 18.2b (3rd ed. 1967); Federal-Mogul-Bower Bearings, Inc. v. Azoff, 313 F.2d 405 (6th Cir. 1963).

[28] *See* 174 ALR 507.

[29] Schweizerishe Kaeseunion Bern v. Saul Starck, Inc., 162 Misc. 485, 293 N.Y.S. 816 (1937).

An injunction was granted on the grounds of unfair competition against the use of the word "Plymouth" on gin not manufactured in Plymouth.[30] And, the sale of flour under the labels "Minneapolis" and "Minnesota" by a Wisconsin corporation was enjoined.[31] One English court[32] went so far as to enjoin the importation into Britain of a product labeled "Spanish Champaigne," holding that the term "champaigne" designates spirits which have a geographic origin in France, saying

> [t]here seems to be no reason why — such license should be given to a person, competing in trade, who seeks to attach to his product a name or description with which it has no natural association, so as to make use of the reputation and good will which has been gained by a product genuinely indicated by the name or description . . . [i]t ought not to matter that the persons truly entitled to describe their goods by the name and description are a class producing goods in a certain locality, and not merely one individual. The description is a part of their good will and a right of property.[33]

The court disregarded the defendant's argument that any geographic connotations were negated by the adjective "Spanish" and that the danger of confusion was thereby eliminated.[34]

Because Section 43(a) of the Lanham Act is not limited to false representations concerning geographic origin, but has been extended to all types of misrepresentations, including those of origin or manufacture or source,[35] the section is used as a supplement to existing remedies under common law or federal trademark actions against trademark or trade name infringement.[36] Indeed, the section has been described as a cumulative of common law remedies for unfair competition.[37] Thus, Section 43(a) provides federal jurisdiction over many types of common law trademark infringement where the defendant's activities substantially affect interstate commerce.[38] A

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30 Collinsplatt v. Finlayson, 88 F. 693 (S.D. N.Y. 1898).

31 Pillsbury-Washburn Flour Mills Co. v. Eagle, 86 F. 608 (7th Cir. 1898), *cert. denied,* 173 U.S. 703 (1899).

32 The High Court of Justice, Chancery Division.

33 Bollinger v. Costa Brava Wine Co., R.P.C. 16, 31 (1969), 1 W.L.R. 227 (1961).

34 *Id.;* for a look at the approach of the courts of other common law jurisdictions, *see* Southern and Reynolds, 12 L.T.N.S. 75 (1865); Canada Foundary Co. v. Bacyrus Co., Can. S.C. 484, 10 DLR 513, *aff'd,* 14 Can. Exch. 35, 8 DLR 920 (1912).

35 Federal-Mogul-Bower Bearings, Inc. v. Azoff, 313 F.2d 405 (6th Cir. 1963).

36 *See* Sutton Cosmetics v. Lander Co., 455 F.2d 285 (2d Cir. 1972).

37 Scarves by Vera, Inc. v. United Merchants, 173 F. Supp. 625 (S.D. N.Y. 1959).

38 2 T. McCARTHY, TRADEMARKS AND UNFAIR COMPETITION § 27.7 (3rd ed. 1973).

number of courts have articulated the principle that subsection (a) of Section 43 was designed to protect consumers and competitors against all forms of misdescription and misrepresentation of products and services in commerce.[39]

The commerce requirement stems from the "Interstate Commerce Clause" of the Constitution, under which Congress possesses the authority to "regulate Commerce . . . among the several states."[40] Section 45 of the Lanham Act specifically defines "commerce" to mean "all commerce which may lawfully be regulated by Congress."[41] The jurisdictional restraints of the "commerce" requirement were significantly diminished in *Scotch Whisky Ass'n v. Barton Distilling Co.*[42] In *Scotch Whisky,* the defendant (hereinafter Barton) entered into an agreement with a Panamanian corporation for the exclusive distribution of Barton's products in Panama and the Canal Zone. Bottles and labels, which were shipped from the United States, and vatted Scotch malts, which were shipped from Scotland, were, as provided under the agreement, supplied by Barton to its Panamanian licensee for the production of certain peculiar spirits, which were distributed by the licensee under Barton's "House of Stuart Blended Scotch Whisky" label. The licensee produced a spurious Scotch whisky,[43] which was created by mixing the vatted Scotch malts with local Panamanian spirits. Although the agreement provided that Barton was to inspect and control the nature of the product, Barton

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[39] Yameta Co. v. Capitol Records, Inc., 279 F. Supp. 582 (S.D.N.Y. 1968).

[40] U.S. CONST. art. I, § 8; Trade Mark Cases, 100 U.S. 82 (1879).

[41] Lanham Act, 15 U.S.C. § 1127 (1970).

[42] Scotch Whisky Ass'n v. Barton Distilling Co., 338 F. Supp. 595 (N.D. Ill. 1971), 489 F.2d 809 (7th Cir. 1973). The Seventh Circuit upheld the District Court's injunction, while overruling its award to plaintiff of reasonable attorney's fees, following the general rule of American courts that such fees are not ordinarily recoverable in the absence of a statute or enforceable contract providing therefore, as articulated in Fleischmann Corp. v. Maier Brewing, 386 U.S. 714, 717 (1967) (which held that, in view of the enumeration of available compensatory remedies contained in the Lanham Act, a mark could not recover attorney's fees). Although the Seventh Circuit noted that limitations to this general rule could be found in Fleischmann Corp. v. Maier Brewing, *supra* at 718-719, Mills v. Elec. Auto-Lite, 396 U.S. 375, 392 (1970), and Walker v. Columbia Broadcasting System, Inc., 443 F.2d 33, 35 (7th Cir. 1971), the court held that the present case did not fall within any of the exceptions. Scotch Whisky Ass'n. v. Barton Distilling Co., 489 F.2d 809, 813 (7th Cir. 1973).

[43] The term "Scotch Whisky" designates whisky which has a geographic origin in Scotland. Scotch Whisky Ass'n. v. Barton Distilling Co., 338 F. Supp. 595, 596 (N.D. Ill. 1971).

took no action to prohibit its licensee's activities prior to the institution of the action by plaintiffs,[44] who argued that such sale constituted false designation of geographic origin in violation of Section 43(a) of the Lanham Act and the International Convention for the Protection of Industrial Property.[45] Barton argued that since the challenged goods were both produced and distributed by its licensee in Panama, this activity did not constitute interstate or foreign commerce "which may lawfully be regulated by Congress."

While federal courts may assume jurisdiction over one who mislabels goods in the United States and exports them for sale in foreign nations,[46] as well as one who mislabels goods in a foreign nation and imports them for sale into the United States,[47] the Seventh Circuit in *Scotch Whisky* was faced with a different question: May federal courts assume jurisdiction over merchants who produce and market mislabeled goods in a foreign nation while such activity only indirectly affects American commerce?

The foundation for the resolution of this issue was laid down in *Steele v. Bulova Watch Co.*[48] in which the Supreme Court, while construing another section of the Lanham Act,[49] upheld a broad construction of "commerce."[50] In *Steele,* the Bulova Watch Co. manu-

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[44] All plaintiffs-appellees were corporations organized under the laws of the United Kingdom. The Scotch Whisky Ass'n. is comprised of distillers, blenders and brokers of Scotch whisky; James Buchanan & Co. is a blender and exporter of Scotch whisky; and Justerini & Brooks Ltd. is engaged in the business of producing whisky in Scotland.

[45] International Convention for the Protection of Industrial Property, Mar. 20, 1883, as amended June 2, 1934, 53 Stat. 1748; 15 U.S.C. § 1126b. (1970).

[46] Hecker H-O Co. v. Holland Food, 36 F.2d 767 (2d Cir. 1929).

[47] *See* Branch v. Federal Trade Commission, 141 F.2d 31 (7th Cir. 1944). For example, in Roquefort v. William Faehndrich, Inc., plaintiffs, who were French manufacturers and producers of blue-mold cheese, which had for centuries been made from sheep's milk and cured in the limestone caves of Roquefort, France, and who had obtained a certification mark under Section 4(e) of the Lanham Act, were *held* entitled to relief against defendant producers of sheep's milk blue-mold cheese from Italy and Hungary, who had labeled their product "Imported Roquefort Cheese" without indicating the true place of origin. 198 F. Supp. 291 (S.D.N.Y. 1961), *aff'd,* 303 F.2d 494 (2d Cir. 1962).

[48] 344 U.S. 280 (1952).

[49] 15 U.S.C. 1114(1) (1970).

[50] An analagous expansion of the concept of interstate commerce in the movement of goods and services can be seen in cases which have arisen under the Sherman Act, the Clayton Act, the Robinson-Patman Act, and the Federal Trade Commission Act. *See* Eiger, *The Commerce Element in Federal Antitrust Legislation,* 25 FED. B. J. 282 (1965). 1 R. CALLMANN, THE LAW OF UNFAIR COMPETITION, TRADEMARKS AND

factured, advertised and marketed watches under its BULOVA trademark, registered in the United States under the Lanham Act. The defendant, Steele, imported parts from the United States and assembled and marketed watches in Mexico under the trademark BULOVA. Although the defendant did not itself import watches into the United States, many spurious Bulova watches were purchased by Americans in Mexico, and many dissatisfied owners brought the watches to jewelers in the United States for repair. The Supreme Court, while emphasizing that Congress, in prescribing standards of conduct for American citizens, may project the impact of its legislation far beyond the territorial boundaries of the United States,[51] noted that the defendant's "operations and their effects were not confined within the territorial limits of a foreign nation,"[52] since the defendant purchased component parts in the United States, and his subsequent activities in Mexico had a detrimental effect on plaintiff's reputation both in the United States and abroad. The Supreme Court emphasized that no principle of international law prohibits the United States from governing the conduct of its own citizens upon the high seas or in foreign nations when the rights of other nations are not infringed.[53] This is in contrast to the principle articulated by

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MONOPOLIES § 11.1a (3rd ed. 1967). In these areas, certain distinctions have been drawn, such as between "affecting commerce" and "in commerce," whereas these sophisticated classifications have not yet been enunciated in trademark cases. Like all law concerning unfair competition, trademark law stems from equity jurisprudence. Thus, courts of equity are less receptive to a defense that the infringement occurred only in intrastate commerce, thereby precluding federal relief. Sutton, *The California "Model" Act: A Comparison With the Lanham Act,* 58 TRADEMARK REP. 305, 308 (1968).

[51] Steele v. Bulova Watch Co., 344 U.S. 280 (1952). Congress possesses the power to regulate the activities of citizens of the United States outside this nation's territorial jurisdiction, regardless of whether the act occurred within the territory of a foreign nation. Vermilya-Brown Co. v. Connell, 335 U.S. 377 (1948); Blackmer v. United States, 284 U.S. 421 (1932). Judge Minton, in a suit involving unfair competition states, "Congress has the power to prevent unfair trade practices in foreign commerce by citizens of the United States, although some of the acts are done outside the territorial limits of the United States." Branch v. Federal Trade Commission, 141 F.2d 31, 35 (7th Cir. 1944).

[52] Steele v. Bulova Watch Co., 344 U.S. 280, 286 (1952).

[53] *Id.* at 285; *see* Skiriotes v. Florida, 313 U.S. 69, 73 (1941); Cunard S.S. Co. v. Mellon, 262 U.S. 100 (1923). International law does not prohibit the exercise of jurisdiction by a state over its nationals, since they remain under the state's personal supremacy. Rather, it is a question of municipal law establishing the duties of a citizen in relation to his government. Blackmer v. United States, 284 U.S. 421 (1932).

early American courts, that a state's jurisdiction is absolute within its own territory, and cannot be restricted by any external source without its own consent.[54]

In *Scotch Whisky,* Barton pointed out that whereas in *Steele*[55] the defendant personally sold watches in Mexico under an infringing mark, Barton sold mislabeled whisky in Panama only vicariously.

> If a manufacturer or wholesale dealer willfully puts up goods in such a way that the ultimate purchaser will be deceived into buying the goods of another, it is no defense that he does not deceive, and has no intention of deceiving the retailer, to whom he himself sells the goods. The question is whether the defendants have or have not knowingly put into the hands of the retail dealers the means of deceiving the ultimate purchaser.[56]

In *Scotch Whisky,* the Seventh Circuit extended the applicability of this principle to the relationship between a licensor and licensee, where, as here, the licensor places the means of deception into the hands of the licensee and fails to reasonably police the licensee's use.[57]

In *Scotch Whisky,* the entire transaction was viewed as a whole, and the court found that the "commerce" involved began with Barton's acts in the United States and continued to the ultimate distribution of the spurious whisky.[58] The Seventh Circuit, while acknowledging the principle that extraterritorial application of the Lanham Act against *foreign* nationals acting under a presumably valid trademark registration in a foreign country is precluded,[59] pointed out that had Barton made identical arrangements with an American licensee who packaged the mislabeled whisky in the United States and shipped it to Panama, there would be no question but that Barton had caused the spurious goods to enter commerce. Relying on *Steele,*[60] the court emphasized that the underlying purpose

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[54] Schooner Exchange v. McFaddon, 11 U.S. (7 Cranch) 116, 136 (1812). Indeed, the application of national jurisdiction to encompass acts performed outside a nation's territory was extended slowly, even when detrimental effects within the territory were realized as a result of the extraterritorial activity. *See* The Appollon, 22 U.S. (9 Wheat.) 362, 370 (1824); Report on Extraterritorial Crime and the Cutting Case, 1887 Foreign Rel. U.S. 757 (1888).

[55] Steele v. Bulova Watch Co., 344 U.S. 280 (1952).

[56] Federal Trade Commission v. Winsted Hosiery Co., 258 U.S. 483, 494 (1922).

[57] Scotch Whisky Ass'n v. Barton Distilling Co., 489 F.2d 809 (7th Cir. 1973); *accord,* Waltham Watch Co. v. Federal Trade Commission, 318 F.2d 28 (7th Cir. 1963).

[58] Scotch Whisky Ass'n v. Barton Distilling Co., 489 F.2d 809 (7th Cir. 1973).

[59] Vanity Fair Mills, Inc. v. Eaton, 234 F.2d 633 (2d Cir. 1956), *cert. denied,* 352 U.S. 871 (1956), *reh. denied,* 352 U.S. 913 (1956).

[60] Steele v. Bulova Watch Co., 344 U.S. 280, 287 (1952).

of the Lanham Act (to make actionable the deceptive use of false designations of origin) should not be evaded by the simple device of procuring a foreign licensee.[61] Although legislation enacted by Congress will not ordinarily be extended beyond the territorial boundaries of the United States unless a contrary legislative intent appears,[62] the Seventh Circuit held that, in light of the broad jurisdictional grant of the Lanham Act, Barton's activities were encompassed within the intent of Congress in enacting Section 43(a).

As world trade increases, the concurrent growth in the false designations of origin of goods will ultimately demand increased application of the remedies against trademark infringement and unfair competition. With the expansive interpretation given the jurisdictional applicability of Section 43(a) in *Scotch Whisky,* the Lanham Act will now play an active role in the war against extraterritorial infringements, which many businesses may be forced to wage.

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[61] Scotch Whisky Ass'n v. Barton Distilling Co., 489 F.2d 809, 813 (7th Cir. 1973).

[62] Steele v. Bulova Watch Co., 344 U.S. 280, 285 (1952); Foley Bros., Inc. v. Filardo, 336 U.S. 281, 285 (1949); Blackmer v. United States, 284 U.S. 421, 437 (1932).

THE ROYALTY ADJUSTMENT ACT: The Excavation of an Old Statute Authorizing Administrative Settlement of Claims Pertaining to Inventions

H. M. HOUGEN*

The Royalty Adjustment Act of 1942[1] gave authority to the head of any government department or agency for administrative settlement of claims against the United States accruing under the Act or any other law and arising from the manufacture, use, sale, or other disposition of an invention, whether patented or unpatented, which was ordered by the agency.[2] For more than 20 years, the entire Royalty

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1 Act of Oct. 31, 1942, ch. 634, 56 Stat. 1013 [hereinafter Royalty Adjustment Act or Act].

2 Royalty Adjustment Act § 3, formerly 35 U.S.C. § 91, [hereinafter Section 3] provides:

> The head of any department or agency of the Government which has ordered the manufacture, use, sale, or other disposition of an invention, whether patented or unpatented, and whether or not an order has been issued in connection therewith pursuant to section 1 hereof, is authorized and empowered to enter into an agreement, before suit against the United States has been instituted, with the owner or licensor of such invention, in full settlement and compromise of any claim against the United States accruing to such owner or licensor under the provisions of this Act or any other law by reason of such manufacture, use, sale, or other disposition, and for compensation to be paid such owner or licensor based upon future manufacture, use, sale, or other disposition of said invention.

Adjustment Act was treated within the government as an artifact of ancient history,[3] a tool created to serve a specific need during World War II and discarded at the end of the Korean War. The compilers of the United States Code no longer printed its provisions as law, having decided that the statute had expired.[4] The language of the Royalty Adjustment Act has been kept on museum display in its entirety among the repealed portions of the old patent laws in the United States Code Annotated.[5]

In 1973, the Department of Transportation sought the blessing of the Comptroller General on a plan to use Section 3 to settle administratively a claim for patent infringement; instead the Comptroller General followed the prevalent view and expressed the opinion that Section 3 was of no present effect.[6] That claim then made its way to the United States Court of Claims where the existence of authority to settle claims administratively was directly in issue on the question whether the statute of limitations was tolled by reason of active consideration of the claim by an agency having authority to settle such claims.[7] The Court of Claims followed the reasoning of Trial Judge Colaianni that statutes are not repealed by implication, by mistaken belief, nor by the errors of codifiers. The Court applied the clear language of the original and subsequent statutes and relevant legislative history to find that Section 3 was still the law and provided current authority for the settlement of claims.[8] It is not the purpose of this discussion to take issue with that decision. This look at the Royalty Adjustment Act assumes that the Act is presently valid law.

The Interim Authority

During the dormant period of Section 3, the principal authority for administrative settlement for past patent infringement was that specific authority granted to the military departments[9] at the time of the premature burial of Section 3. Infringement claims involving

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[3] *But see* General Counsel of the Navy, Navy Contract Law § 1.24 (2d ed. 1959); 37 Comp. Gen. 199, 115 U.S.P.Q. 151 (1957).

[4] Vol. 8 U.S.C., p. 8809 (1970 ed.), Distribution Table, Title 35 — Patents.

[5] 35 U.S.C.A. App. II, §§ 89-96 (1954 ed.).

[6] 52 Comp. Gen. 761, 178 U.S.P.Q. 370 (1973).

[7] *See* 35 U.S.C. § 286 (1970).

[8] ITT v. United States, 536 F.2d 1361, 191 U.S.P.Q. 739 (Ct. Cl. 1976).

[9] 10 U.S.C. § 2386 (1970).

other government agencies may well have been precluded or circumvented by the timely procurement of future patent rights with an incidental provision for release of any past infringement claims. Indeed, the general patent procurement authority granted to the National Aeronautics and Space Administration[10] and the Atomic Energy Commission[11] has been interpreted to include the power to settle claims for past infringement of patents.[12] Most of the civilian government agencies were considered to be without administrative settlement authority.

At first blush, the effect of the Court of Claims decision is merely to allow those remaining government agencies to settle such infringement claims prior to suit, just as the military departments have been doing for years. There would then be a general administrative remedy applicable to all agencies, parallel to and coextensive with the waiver of sovereign immunity and judicial remedy for patent infringement by the United States.[13] The various statutes providing settlement authority for infringement use differing language, however, and the scope of each statute differs accordingly. Section 3 creates new boundaries of settlement authority, both for those agencies newly empowered and for those who have long been acting under other statutes. It is appropriate to look at these boundaries to see what changes, if any, may result.

Statutory Differences

As a starting point, it is helpful to compare the language of the various statutes quoted in Table I.

The distinctions between potential claimants under the various statutes is probably negligible. A "licensor" having any present statutory basis for a claim under Section 3 would in fact stand in the position of an owner, as an exclusive licensee. The term might even be limited by statutory construction to apply only to those licensors who had suffered an involuntary wartime reduction in royalties and therefore obtained rights to recover for their loss under the now-expired provisions of Sections 1 and 2 of the Royalty Adjustment Act.

While Section 3 does not have language disqualifying government

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[10] 42 U.S.C. § 2473(b) (3) (1970).

[11] 42 U.S.C. § 2201(g) (1970).

[12] 14 C.F.R. § 1204.506-1(a) (10) (1976); The George Washington University, Government Contracts Monograph No. 10, Patents and Technical Data 79 (1967).

[13] 28 U.S.C. § 1498(a) (1970).

employees as claimants, like that found in 28 U.S.C. § 1498(a), neither does 10 U.S.C. § 2386. Thus, the administrative settlement authority relating to employee claims is the same for both statutes. In fact, the government has a shop right in the inventions of its employees,[14] coextensive with its business requirements.[15] The statutory disqualification of government employees found in 28 U.S.C. § 1498(a) was merely intended to articulate that right.[16] It is unlikely that any government use of an invention which would otherwise meet the requirement of a statutory basis for liability and give rise to a claim under Section 3 would exceed the government's powers to use the invention of an employee under its shop right.

The difference in the identity of potential settlement authorities is obvious. That right now extends to all agency and department heads or their delegees,[17] including the civilian agencies and those Department of Defense agencies other than the military departments.

While the measure of the remedy is described in different language, there is little practical difference. After negotiation of a settlement amount satisfactory to enable a military department to acquire a release, the parties would in fact have arrived at an amount acceptable in full settlement and compromise of the claim as the phrase is used in Section 3. Neither statute has a provision for partial payment with a right to file suit for the remainder such as can be found, for example, in 35 U.S.C. § 183. Therefore, the payment under either administrative claim authority would be for reasonable and entire compensation.

The addition of the term "sale" to the list of government actions which can give rise to liability under Section 3 as compared with the list in 28 U.S.C. § 1498(a) represents a distinction without a difference. The government is primarily a consumer rather than a seller of goods; any sale of an infringing device in the context of government operations would normally involve use or manufacture by or for the United States. One exception is in the area of foreign military sales, where the benefit to foreign relations could arguably not be a use "for" the United States. The Court of Claims has resolved that problem area[18] by grafting the provisions pertaining to government liability for

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[14] United States v. Dubilier Corp., 289 U.S. 178 (1933); Gill v. United States, 160 U.S. 426 (1896); Solomons v. United States, 137 U.S. 342 (1890).

[15] Grip Nut Co. v. Sharp, 150 F.2d 192, 66 U.S.P.Q. 391 (7th Cir. 1945).

[16] 45 Cong. Rec. 8757, 8768, 8772, 8784-85 (1910).

[17] Royalty Adjustment Act § 5, formerly 35 U.S.C. § 93.

[18] Hughes Aircraft Co. v. United States, 534 F.2d 889, 192 U.S.P.Q. 296 (Ct. Cl. 1976).

TABLE 1
COMPARISON OF STATUTORY LANGUAGE

	Statutory waiver of immunity: 28 U.S.C. § 1498(a)	Section 3, Royalty Adjustment Act	Administrative authority of military departments: 10 U.S.C. § 2386
Claimant	the owner's remedy [with some exceptions for government employees]	such owner or licensor	—
Settlement authority	the Court of Claims	the head of any department or agency of the government which has ordered the manufacture, use . . .	a military department
Remedy	reasonable and entire compensation	full settlement and compromise	acquire . . . releases
Subject matter covered	invention described in and covered by a patent of the United States	inventions, whether patented or unpatented	patents
Grounds for recovery	used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same	any claim against the United States accruing . . . under the provisions of . . . any other law by reason of such manufacture, use, sale, or other disposition	past infringement

patent infringement and disclosure of technical information from the Foreign Assistance Act of 1961[19] onto the Foreign Military Sales Act.[20] The Foreign Assistance Act includes authorization for the administrative settlement of claims, and any such claim can be settled without looking to Section 3. In addition, the statutory definition of infringement includes sales.[21] While that definition is not expressly applicable to the government's activities, it presents good interpretive authority for the meaning of the term "infringement" as used in 10 U.S.C. § 2386.

The use of the term "other disposition" creates more difficulty. For example, the improper disclosure of protected technical information creates liability on the part of the government under the Foreign Assistance Act.[22] During World War II, the War Department apparently, if gratuitously, applied that phrase to the injury caused by placing secrecy orders on patent applications in the interest of national security and by use of such inventions, so as to authorize administrative settlement of claims resulting from the secrecy order. This is discussed more fully below.[23] The term "other disposition" is very broad and would probably encompass any activity otherwise meeting the criteria of a statute waiving sovereign immunity, so long as it pertained to "inventions."

The extension of Section 3 to "inventions, whether patented or unpatented" is clearly more broad than the scope of 10 U.S.C. § 2386, which is limited to patents, or the even narrower scope of 28 U.S.C. § 1498 (a), which is limited to United States patents. This represents the greatest departure from the scope of other statutory provisions. The legislative and regulatory history is helpful in determining the intended scope of the language.

Legislative History

The Royalty Adjustment Act was drafted by the War Department and introduced in the 77th Congress simultaneously as S. 2794 and H.R. 7620.[24] Section 3 of the original draft was applicable to "an in-

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[19] 22 U.S.C. § 2356 (1970).

[20] 22 U.S.C. § 2751 *et seq.* (1970).

[21] 35 U.S.C. § 271 (1970).

[22] 22 U.S.C. § 2356 (1970).

[23] See text at notes 32 and 37-38.

[24] Adjusting Royalties for the Use of Inventions for the Benefit of the United States: Hearings on H.R. 7620 before the House Comm. on Patents, 77th Cong., 2d Sess. 1 (1942) [hereinafter H.R. Hearings]; Senate Committee on Patents, Adjustment of

vention described in and covered by a patent or an application for a patent."[25] Sections 1, 6, and 8 of the original draft were similar in scope, although Section 1 and 6 contained additional limitations to patents "of the United States." At the beginning of the House hearings on the bill, the War Department presented an amendment changing the above-quoted language at each of the four places where it occurred to make the sections apply to "inventions, whether or not patented."[26] In response to Congressman Lanham's question whether that change was related to the Committee's recent work on secrecy orders, which would prevent patent applications from ripening into patents while the government was using them, the War Department representative agreed, but Colonel Patterson added that the amendment was also aimed at reaching "untested" inventions or inventions for which no patent application had been filed, subsequent improvements related to licensed patents, and engineering services in connection with both patented and unpatented articles.[27] These "secret processes," as Colonel Patterson described them, did form part of the basis for royalty payments which were subject to adjustment under the Act, but they were not closely related to claims for infringement. The War Department amendment was adopted[28] and the scope of all the sections changed in recognition of

> the necessity for broadening the scope of the bill... to cover royalties charged to the United States directly or indirectly on unpatented foreign or other inventions, as well as inventions described in patents granted by the United States or in applications therefor.[29]

The reference to "foreign" patents was not otherwise discussed. Although the limiting reference to United States patents had also been removed from Sections 1 and 6, Section 6 was further amended to state clearly that the waiver of sovereign immunity contained in former 35 U.S.C. § 68, the predecessor of 28 U.S.C. § 1498 (a), was limited strictly to inventions covered by United States patents.[30]

Royalties for the Use of Inventions for the Benefit of the United States, S. Rep. No. 1640, 77th Cong., 2d Sess. 5 (1942) [hereinafter S. Rep.].

[25] S. Rep. at 7.

[26] H.R. Hearings at 5.

[27] H.R. Hearings at 7.

[28] S. Rep. at 7-8; 88 Cong. Rec. 8217 (1942).

[29] S. Rep. at 5.

[30] The reference to 35 U.S.C. § 68 was deleted from the Act in 1951 as part of the enactment of the present provisions of 28 U.S.C. § 1498(a). Act of Oct. 31, 1951, ch. 655, § 54, 65 Stat. 728.

Although the reason for amending the language of the bill was to provide a method for reaching more extensive subject matter for royalty payments, the scope of the claims provisions was changed similarly. If there were statutory liability for use of trade secrets or foreign invention rights, the legislative history would certainly support an administrative claim for that use.

Judicial Interpretation

In a specific effort to define the meaning of the phrase, the Court of Claims determined that:

> The word "unpatented" in the phrase "whether patented or unpatented" used in Sections [1 and 6 of the Royalty Adjustment Act] had reference to an invention with respect to which an application had been filed and on which the granting of a patent had been withheld for the reason and in the manner specified in [former 35 U.S.C. § 42, the forerunner of the Invention Secrecy Act, 35 U.S.C. §§ 181-88].[31]

For several reasons, this analysis is not useful in determining the scope of Section 3. First, the Court of Claims avoided referring to the word "unpatented" as it was used in Section 3, notwithstanding the fact that it had been discussing that specific section in the same paragraph. Second, the authority to impose secrecy orders in the interest of national security[32] was limited to United States patent applications, and the language of the original bill prior to insertion of the word "unpatented" was already broad enough to cover United States patent applications. So, the amendment inserting the word "unpatented" should not have been treated, either by the legislature, the judiciary, or the government agencies, as intending to refer to such applications. And finally, the law allowing the imposition of secrecy orders as it was in effect at the time of enactment of the Royalty Adjustment Act, contained its own waiver of statutory immunity and authority to settle claims administratively, at least during the duration of the War while the power to impose secrecy still existed. The opinion of the Court of Claims is incorrect and of no assistance in analyzing the scope of Section 3. The actual decision in that case turned on the lack of any statute waiving immunity for the particular act alleged; the court therefore found that it had no jurisdiction.

While rejecting a claim in a similar case on the grounds that there was no statutory liability on the part of the government, the Court of

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[31] Patton v. United States, 75 F. Supp. 470, 474, 76 U.S.P.Q. 262, 266 (Ct. Cl. 1948).

[32] Act of Jul. 1, 1940, ch. 501, 54 Stat. 710, *as amended* by Act of Aug. 21, 1941, ch. 393, 55 Stat. 657, *as amended* by Act of Jun. 16, 1942, ch. 415, 56 Stat. 370.

Claims also rejected an argument that the Royalty Adjustment Act in combination with other statutes created extraterritoriality for the patent infringement laws.[33] Thus, 28 U.S.C. § 1498 (a) was limited to recovery for infringement occurring in the United States and involving United States patents; the Court of Claims determined that statutory liability was not extended to reach acts overseas or acts involving foreign patents. As to Section 3, it would thus appear that there is no authority to settle claims based on the use of unpatented foreign inventions, in spite of the language in the legislative history, in the absence of specific authority waiving the immunity of the government.

Regulatory Interpretation

Since the Royalty Adjustment Act, including Section 3, was primarily intended for the use of the military departments, it is appropriate to look to the regulations of those departments for insight into the scope of Section 3.[34]

Authority to settle infringement and other claims administratively, predicated on Section 3, was first inserted by the Army in its procurement regulation, effective as of December 1944.[35] Paragraph 1115.1 (6) of the 1944 regulation provided:

> [Section 3] grants power and authority to settle claims or liabilities arising under the ["Act of 1910" and the "Secrecy Order Act"], and to settle claims or liabilities arising under the ["Air Corps Act"] insofar as they are based upon a design which is believed to be inventive in character.

The "Act of 1910"[36] to which the regulation refers is the predecessor of 28 U.S.C. § 1498 (a). As noted above, Section 6 of the original draft of the Royalty Adjustment Act limited the scope of liability to the infringement of United States patents. That limitation is now contained in 28 U.S.C. § 1498 (a).

The reference to the "Secrecy Order Act" in the 1944 regulation is pure surplusage. By the time of enactment of Section 3 and sub-

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[33] Yassin v. United States, 76 F. Supp. 509, 76 U.S.P.Q. 466 (Ct. Cl. 1948).

[34] The Navy implementation was very general, merely reciting that the Secretary had authority to settle and compromise claims under the Royalty Adjustment Act, without discussing the scope of such claims. Sec. Nav. ltr PLD/RS/mlh NPD 13,851, of 1 Mar. 1943, printed in Navy Procurement Directives P. 13,856 (1943 ed.) and P. 16-101.6 (1952 ed.).

[35] Procurement Regulation No. 11, P. 1115 (revision of Nov. 10, 1945, changed as of Jan. 11, 1945) [hereinafter PR 11].

[36] Act of June 25, 1910, ch. 423, 36 Stat. 851.

sequent promulgation of the regulation, the Act of October 6, 1917[37] had been expressly amended[38] to authorize the defense agency heads to settle claims accruing by reason of the imposition of secrecy orders and for the use of the inventions covered by such orders. Thus, the administrative settlement authority contained within the secrecy statute was already at least as broad as the statutory liability created for imposition of a secrecy order, and Section 3 did not extend the administrative authority otherwise available.

The "Air Corps Act"[39] is an excellent example of the use of Section 3 for settlement of claims pertaining to unpatented inventions. Dating from the early days of military aviation, the Air Corps Act provided a remedy in the Court of Claims for one whose "designs hereafter developed relating to aircraft or any components thereof are used or manufactured by or for any department of the government without just compensation."[40] The Court of Claims has refused to extend the provisions of the Air Corps Act to unpatented inventions which are only tangentially related to aircraft, such as parachute camouflage methods[41] or apparatus for fire fighting which could be used on aircraft fires.[42] The 1944 procurement regulation noted that the language of the Air Corps Act itself extended to government liability for designs "whether or not inventive in character,"[43] but the regulation obviously recognized that the administrative settlement authority of Section 3 was more narrowly limited to inventions. With slight modification, a successor[44] to that statute presently imposes government liability for the use of aircraft designs, without regard to the existence of a patent. Section 3 would therefore currently apply to the administrative settlement of claims thereunder.

Similar language regarding the scope and applicability of Section 3 was carried through various revisions of the Army procurement regulations[45] until 1955. By then, the "Act of 1910" had been replaced

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[37] Ch. 95, 40 Stat. 394.

[38] Act of Jul. 1, 1940, ch. 501, 54 Stat. 710, *as amended* by Act of Aug. 21, 1941, ch. 393, 55 Stat. 657, *as amended* by Act of Jun. 16, 1942, ch. 415, 56 Stat. 370.

[39] Act of Jul. 2, 1926, ch. 721, 44 Stat. 780.

[40] Act of Jul. 2, 1926, ch. 721, § 10(i), 44 Stat. 786. Prior to the codification of Title 10, this was found at 10 U.S.C. 310(i).

[41] Fulmer v. United States, 77 F. Supp. 927, 77 U.S.P.Q. 532 (Ct. Cl. 1948).

[42] Mamlin v. United States, 77 F. Supp. 930, 77 U.S.P.Q. 535 (Ct. Cl. 1948).

[43] PR 11, P. 1115.1 (4).

[44] 10 U.S.C. § 2273 (1970).

[45] Army Procurement Regulation 8-301 (Nov. 1, 1947) [hereinafter APR]; Army Procurement Procedure 9-402 [hereinafter APP] (1951 ed.); APP 9-1602 (1954 ed.).

by 28 U.S.C. § 1498(a). The "Secrecy Order Act" had been replaced by the current provisions of the Invention Secrecy Act;[46] the 1954 revision of the procurement regulation expressly recognized for the first time the internal authority in the Invention Secrecy Act allowing for settlement of administrative claims.[47] However, the regulation still purported to apply the authority of Section 3 to settlement of all three categories of claims: patent infringement under 28 U.S.C. § 1498(a); secrecy orders under the Invention Secrecy Act; and use of designs under the Air Corps Act.[48]

In 1955, the Army procurement regulations dropped all reference to Section 3.[49] Authority to administratively settle claims for patent infringement was predicated strictly on the provisions of former 31 U.S.C. § 649(b), which was derived from the Department of Defense Appropriations Act of 1954[50] and was later codified in 10 U.S.C. § 2386. Authority to settle claims arising from the operation of the Invention Secrecy Act or the Mutual Security Act of 1954[51] was limited for the first time to the authority expressly contained in those acts. References to the Air Corps Act and designs thereunder disappeared from the procurement regulations and have not since reappeared. General acceptance of the demise of the entire Royalty Adjustment Act had caused the Army to cease reliance on Section 3.

The Armed Services Procurement Regulations of 1948 left to the individual military departments the power to regulate the settlement of administrative claims, but as late as the revision of December 31, 1953[52] there remained a specific recognition of Section 3 as authority therefor. All reference to any statutory authority was dropped by the 1955 edition of ASPR.[53]

Subsequent Legislative History

The comparative differences between Section 3 and 10 U.S.C. §

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[46] 35 U.S.C. §§ 181-88 (1970).

[47] APP 9-1602.3 (1954 ed.).

[48] APP 9-1602.6 (1954 ed.).

[49] Change 12, May 4, 1955, APP 9-105 (1954 ed.).

[50] Act of Aug. 1, 1953, ch. 305, § 609, 67 Stat. 350.

[51] Act of Aug. 26, 1954, ch. 937, § 506, 68 Stat. 852. The claims settlement authority in this statute is similar to that in the Mutual Security Act of 1951, Act of Oct. 10, 1951, ch. 479, § 517, 65 Stat. 382, to which the Army procurement regulations never referred.

[52] Armed Services Procurement Regulations 9-109(a) [hereinafter ASPR] (1948 ed.).

[53] ASPR 9-105 (1955 ed.).

2386 are not explained by the legislative history surrounding the enactment of the latter statute. The House Report on the 1954 Military Appropriations Act[54] recites that the authority to use funds for the acquisition of releases for past infringement of letters patent was new to appropriations acts, but it does not otherwise explain the reason for its inclusion or the choice of language. The action of the House was contemporaneous with the flurry of Congressional action surrounding the temporary extension of the several wartime powers, including Sections 1 and 2 of the Royalty Adjustment Act, noted by the Court of Claims in the *ITT* case.[55] Presumably, the House perceived a need to allow the military departments to continue to settle patent claims administratively and enacted legislation to permit that activity, without great concern for recording explanations for the changes in scope which the legislation involved.

Claims for Implied Contracts

Immunity is also waived for claims founded upon express or implied contracts under the Tucker Act.[56] Contract claims resulting from express contracts are amply covered under the various provisions of government contracts, even if the subject matter of the contract concerns an invention. Contracts which are implied in fact are a different matter. Such implied contracts have been relied upon to sustain liability on the part of the government for the consensual use of a patented invention,[57] the consensual use of an invention prior to the issuance of a patent,[58] and the use of data and other unpatentable trade secrets contrary to the agreement under which the material was submitted.[59]

The government's willful, nonconsensual use of unpatented information submitted as an unsolicited proposal was recently used by a Court of Claims trial judge to establish an implied contract and resultant government liability.[60] Although the facts in the case more

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[54] H.R. Rep. No. 680, 83d Cong., 1st Sess. 55 (1953).

[55] ITT v. US, 536 F.2d 1361, 191 U.S.P.Q. (Ct. Cl. 1976).

[56] 28 U.S.C. §§ 1346(a) (2) and 1491 (1970).

[57] United States v. Bethlehem Steel Co., 258 U.S. 321 (1922); United States v. Palmer, 128 U.S. 262 (1888).

[58] Talbert v. United States, 25 Ct. Cl. 141 (1890), *aff'd*, 155 U.S. 45 (1894).

[59] Padbloc Co. v. United States, 161 Ct. Cl. 369, 137 U.S.P.Q. 224 (1963).

[60] Grismac Corp. v. United States, opinion of Court of Claims Trial Judge Bernhardt, Apr. 22, 1976, discussed in 278 P.T.C.J. A-1 (1976).

closely resembled an implied-in-law contract, for which their is no Tucker Act waiver of immunity, than an implied-in-fact contract, the Court of Claims rejected the trial judge's findings on other grounds. Instead of looking to the nature of the contract, it applied a very narrow scope to the language of 10 U.S.C. § 2386 and found the unsolicited proposals to be mere "suggestions" rather than protectable intellectual property. Since the Court found no statutory authority for an express contract to purchase suggestions, it found no authority for creation of an implied contract and no government liability.[61] The court gratuitously took issue with those government proponents of administrative settlement who had interpreted the scope of 10 U.S.C. § 2386 broadly enough to encompass the government's use of this unsolicited proposal. That dicta does not weaken the conclusion that implied-in-fact contracts are within the Tucker Act and would therefore constitute sufficient liability to justify administrative settlement.

Since implied-in-fact contracts do give rise to claims "against the United States accruing . . . under the provisions of . . . law by reason of such manufacture, use, sale, or other disposition" of an invention, Section 3 would appear to be explicitly applicable thereto. Thus, there should be sufficient authority to settle these claims administratively even though the subject matter of the contract is an unpatented invention.

Other Instances of Statutory Liability

The waiver of sovereign immunity for wrongful acts and omissions of government employees[62] would apply to torts involving other intellectual property, if the property were inventive in nature. The administrative authority to settle such claims[63] is coextensive with the liability for authority to settle tort claims, even though part of the changed scope in the original bill was intended to reach the use of trade secrets.[64]

Specific authority permitting suit against the United States for release of information pertaining to atomic energy and contained in a patent application includes internal authority to settle the claim.[65] There is no need to apply Section 3.

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[61] Grismac Corp. v. United States, No. 4-72 (Ct. Cl., decided May 18, 1977).

[62] 28 U.S.C. § 1346(b) (1970).

[63] 28 U.S.C. § 2672 (1970).

[64] See text at note 27.

[65] 42 U.S.C. § 2223 (1970).

The authority for the Tennessee Valley Authority to use information contained in patent applications as well as patents for making fertilizer or power includes a waiver of sovereign immunity and a judicial remedy without concurrent administrative settlement authority.[66] While the use of patents would be no more broad than the general infringement activity covered by 28 U.S.C. § 1498, the use of information obtained from patent applications prior to issuance of a patent would be a use of an unpatented invention. Use of either a patent or a patent application by the Tennessee Valley Authority would thus permit administrative settlement under Section 3.

Severability of Claims for Past Infringement from Future Procurement

There would appear to be no reason to tie administrative settlement for past infringement under the Act to the procurement of future rights in an invention. The discussion of the power to settle is contained in a separate clause of Section 3 from the discussion of the power to compensate for future use.[67] Although the clauses are joined by a conjunction, they would not appear to be mutual prerequisites for settlement authority. Nevertheless, this issue has been raised before[68] and should be put to rest.

Looking again to historical treatment of Section 3 by the Army, no tying requirement seems to have ever been applied. The 1944 Procurement Regulation Number 11 is silent on any such requirement, thereby impliedly negating the requirement. Moreover, a form was established for use in settlement of infringement claims alone without any mention of future rights.[69]

The 1947 Army Procurement Procedure clearly treated the three kinds of claims under Section 3 in the disjunctive. The delegation of authority from the Secretary under the Act was specified on being for:

> effecting a voluntary adjustment of royalties... *or* in settlement and compromise of any claim... *or* for compensation... based upon future manufacture, use... (Emphasis added).[70]

Again, a prescribed contract format was designed for use as a release only, without any treatment of future rights.[71]

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[66] 16 U.S.C. § 831r (1970).

[67] *Supra* note 2.

[68] Saragovitz, *Administrative Claims for Patent Infringement Against Agencies of the U.S. Government,* 42 J. Pat. Off. Soc'y 111, 114 (1960).

[69] W.D. Contract Form No. 33 (Release Involving a Money Payment), Procurement Regulation No. 13, P. 1333 (1945).

[70] APR 8-304.2.

[71] APR 8-306.9.

The 1944 Procurement Regulation 11 noted that contracts for release of past infringement, like other invention rights contracts in which liability is based in part on prior use or other prior activity, were subject to fiscal requirements for availability of allocated funds.[72] This caveat to avoid the pitfalls of the Anti-Deficiency Act[73] does not prevent the conclusion that the infringing agency can settle claims for past infringement irrespective of future invention rights, provided it has money properly appropriated. This budgetary problem does not lessen independent statutory authority.

Summary

The archeological work of the Court of Claims could have a significant impact upon the nonmilitary departments and agencies of the government. They will now be able to entertain and settle administrative claims arising from the misuse of inventions, with or without simultaneous procurement of future rights.

For those agencies which have long been in the administrative claims business, there will be some increase in authority. They now have authority to settle claims pertaining to the manufacture, use, sale, or other disposition of unpatented inventions, including those involving aircraft design and those submitted and used under implied contracts.

For the potential claimant, Section 3 will allow the filing of an administrative claim in a broader range of cases, with the attendant advantages of lower settlement costs and the tolling of the statute of limitations during the investigation and negotiation period.

The government employees involved in the adjudication of claims will be required to examine and consider more theories of liability, particularly in cases where the subject matter does not involve an issued patent. Within the broad subject area of inventions, every instance involving statutory waiver of immunity and existence of a judicial remedy has an equivalent administrative remedy.

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[72] PR 11, P. 1115.13(1).

[73] 31 U.S.C. § 665(a) (1970).

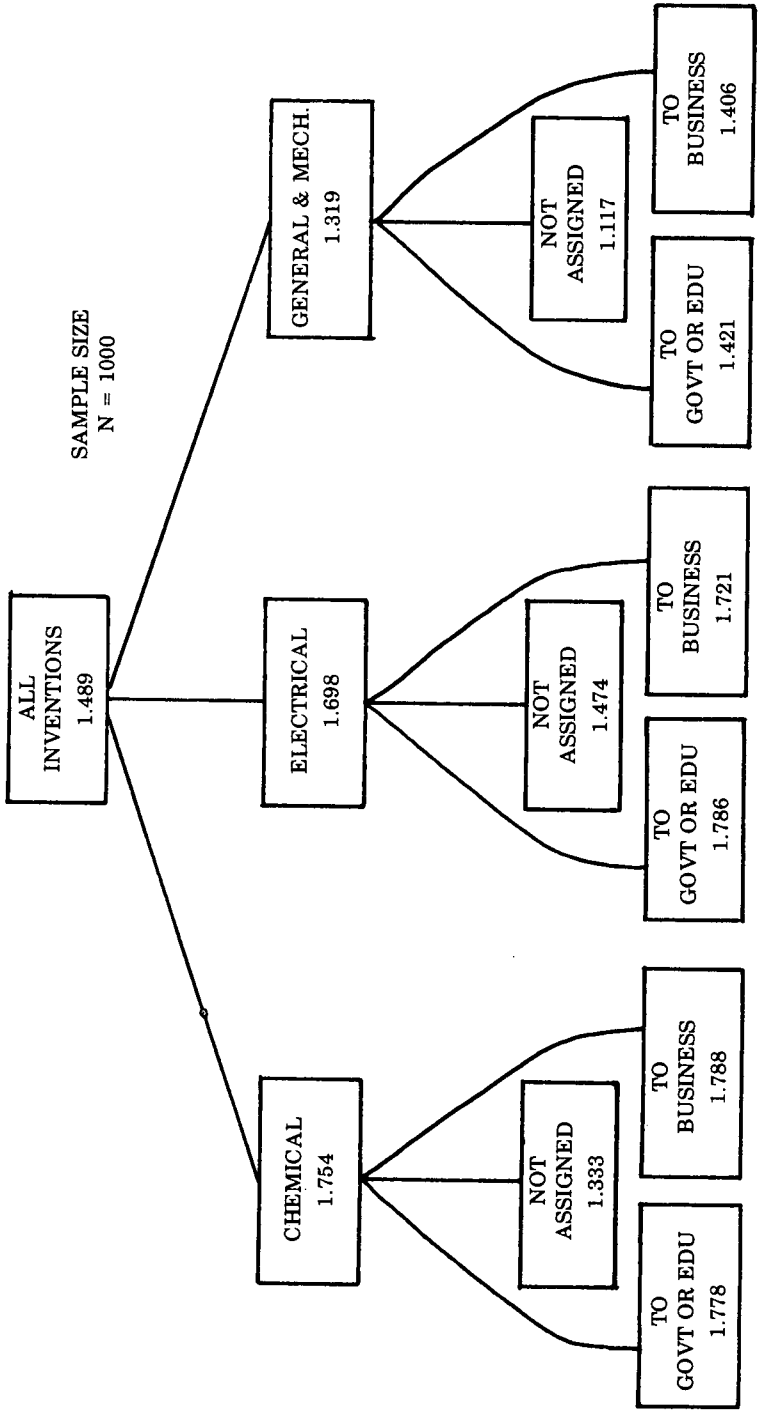
The Inventor Profile

One of a series of monographs based on the PTC — Academy of Applied Science Inventor Profile Research Project. See IDEA, Volume 18 #2, pp. 45-54, and James F. O'Bryon thesis therein referred.

Group Invention

There is strong evidence that the proportion of inventions being patented by multiple inventors and inventors working as members of larger research teams is expanding. Between 1968 and 1973, the percentage of patents awarded to multiple inventors rose from 28.2% to 40.2%. The average number of inventors per patent rose from 1.38 to 1.60 over the same time period. This would seem to indicate a trend away from individual invention toward a more formalized group invention process.

The incidence of group effort varies by invention classification. General/mechanical patents, which often do not have a high technology component, had the lowest overall inventor/patent ratio of 1.319. Electrical patents had a ratio of 1.698, perhaps reflecting a more sophisticated level of technology; chemical patents had the highest inventor/patent ratio — 1.754. In all fields, assigned patents had higher ratios than unassigned patents because a large fraction of assigned inventions are made by employed inventors. This would tend to show that employed inventors rarely work alone. Figure 1 shows the average number of inventors per invention by classification and assignment.



NUMBER OF INVENTORS PER PATENT VS. INVENTION CLASS AND ASSIGNMENT

FIGURE 1

Although the overall average number of inventors per patent was 1.49, the average size of the working group was 3.9 individuals. When polled, the inventors indicated that although 32% worked alone, 55% worked in groups of 2 to 5 people. (8% of the working groups were between 6 and 15 people and 4% were larger.) It is interesting to note that, although the number of patentees per invention increased almost 20% between 1968 and 1973, there was no significant change in the distribution of working group size over the same time period. It is not clear whether this is due to greater participation of group members in the innovation process or to a tendency to give more credit to participation. Table 1 compares the working group size with the number of inventors cited.

COMPARISON OF WORKING GROUP SIZE WITH NUMBER OF INVENTORS CITED IN PATENT

PROJECT TEAM SIZE	1	2	3	4	≥5	TOTAL
1	31%	1%	—	—	—	32%
2-5	28%	19%	6%	2%	—	55%
6-15	6%	2%	1%	—	—	*8%
>15	3%	1%	—	—	—	4%
TOTAL	68%	*24%	*6%	2%	—	100%

TABLE 1

*Totals are not exact due to rounding.

This table shows that inventors, working in isolation, still produce about one third of the U.S. patents issued. At the other extreme, the larger working groups produce only 12% of the patents issued. Even where the group size is large, the number of inventors cited never exceeded four. This seems to indicate that the larger groups play an insignificant role and that large working groups are inefficient.

The data supports John Rockett's suggestion that most successful innovations come from development programs with working groups of three or four persons.[1] 55% of the inventions studied were produced by groups of two to five. But even in these small groups, more than half the inventions were attributable to only one person.

Figure 2 shows the variation in the size of the working group by class of invention.

In the general and mechanical classification, 40% (24%/57%) come from inventors working alone, compared with 23% for electrical patents and 16% for chemical patents.

For foreign inventors, working groups averaged the same size as for the United States. However, the distribution in group size was much more concentrated, with fewer inventors working alone (24% as compared to 34% domestically) and fewer working in large groups of over 15 (2% as compared to 4%). This can perhaps be explained by the fact that the distribution of foreign patents tends to have a higher proportion of electrical and chemical patents than the domestic distribution, and that these areas have larger working groups in general.

[1] Rockett, *Introducing New Products from the Top,* INNOVATION, #12 (1970).

PROJECT GROUP SIZE VS. INVENTION CLASS

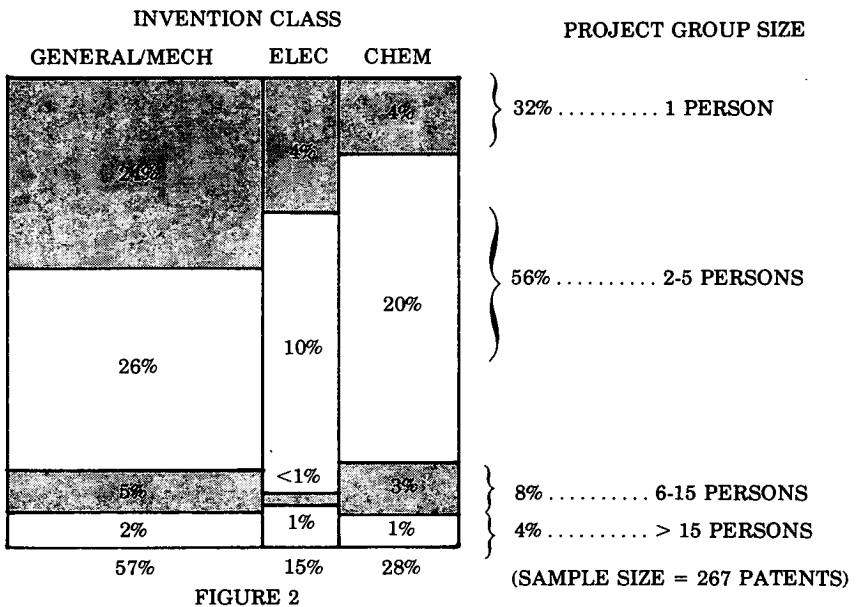


FIGURE 2

Law Center Report

This issue goes to press following two significant and highly successful conferences furthering the service of the Law Center to the technical business community and its interfaces with the law: the first, our interchange between representatives of a cross section of American industries and the current principal administrators of the European Economic Community law bearing upon business (antitrust, environment, patent, product liability)[1] — and the second, concerned with medical devices and legal responsibilities, particularly in connection with the FDA medical device amendment of 1976.[2]

Detailed reports on the contributions to and the results of these meetings are expected to appear in coming issues of IDEA.

Participants from abroad at the EEC conference on European Trading and Technology Transfer included Mr. Jean Verges, Director General for Competition (EEC); Mr. L. Krämer, Counsel for the Consumer Protection Service, Commission of European Communities; Mr. Bryan Harris, Head of Intellectual Property Division of the Commission; Mr. Norman W.P. Wallace, Vice President of the European Patent Office; Mr. S. P. Johnson, Head of Division of Prevention of Pollution and Nuisances of the Commission's Environment and Consumer Protection Service; Professor Francois Savignon, Co-

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[1] See IDEA, Vol. 18 #4, p. 155. Co-sponsored by our PTC Research Foundation, the European Economic Community, The Academy of Applied Science, the University of Strasbourg Law School CEIPI, and the Max Planck Institute at Munich concerned with competition and intellectual and industrial property law, October 5-7, 1977.

[2] Co-sponsored with the Massachusetts Institute of Technology Biomedical Engineering Center for Clinical Instrumentation, October 26, 1977.

Director of CEIPI, University of Strasbourg Law School; and Dr. A. Pagenberg of the Max Planck Institute for Patent, Copyright and Competition Law at Munich.

In particular connection with our growing relationship with the Max Planck Institute, we are pleased to announce a new series of publications of the Institute, supplemental to their *IIC Journal* entitled *IIC Studies* and embracing indepth reports on significant research studies of the Institute. The first of the *IIC Studies* is now available. It is a study by Dr. H. Ullrich presenting a most interesting comparison of American and West German approaches to the concept of "obviousness" of invention as an ultimate test of patentability.

In addition to industrial officials and their counsel, and Law Center faculty and student participants, the conference was addressed by Dr. Thomas Meloy, Chairman of Meloy Laboratories; Mr. Andrew Mulligan, Director of Media and Information of the Washington delegation of the EEC; Mr. Anthony Albrecht, Director of the Office of Atlantic Political-Economic Affairs of the U.S. Department of State; and Mr. Howard I. Forman, Deputy Assistant Secretary for Product Standards of the U.S. Department of Commerce.

As a result of the EEC conference and needs that it seems to have begun to meet, we are engaged with faculty from the Harvard Law School and administrators of the EEC in planning a joint summer institute in EEC law at the Law Center in May, 1978.

The medical devices symposium represents a first major activity in a commitment of the Law Center to interdisciplinary study, teaching and research in health and food and drug law. Panel participants included Law Center faculty members, Professors Michael S. Baram and Thomas G. Field, Jr.; Director David M. Link of the Bureau of Medical Devices and Diagnostic Products of the Food and Drug Administration; Carnegie Mellon's Dr. Alvin S. Weinstein, Professor of Mechanical Engineering and Public Policy; Mr. Harry DeNeau, Assistant Secretary of the Travelers Insurance Companies; Robert W. Mann, MIT, Whitaker Professor of Biomedical Engineering; Woodie C. Flowers, Associate Professor of Mechanical Engineering at MIT; Dr. Philip A. Drinker, Director of Clinical Engineering, Peter Bent Brigham Hospital; and Dean Henry C. Meadow of the Harvard Medical School.

Robert H. Rines
President

The International Trademark System and the Developing Countries

PETER O'BRIEN*

I. INTRODUCTION

Few areas of economic policy have received such scant attention as the trademark system. The neglect is both surprising and serious. It is surprising because the expansion of transnational enterprises is widely recognized to be running on the twin motors of technological dominance and superior marketing. The latter accounts for a progressively increasing share of total outlays, even in the technologically intensive industries and corporations.[1] The neglect is serious because the major initiatives taken in the past three years to revise the indus-

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[1] A recent survey of foreign investment in the manufacturing industry states:

> It has become obvious that where marketing can promote the brands of particular firms successfully, regardless of the technological intensity of the industry and the innovative prowess of these firms, the market power created serves as a powerful inducement to international expansion [and generalizes that] superiority in marketing seems to be an even more fundamental precondition for multinational expansion than superiority in technology, despite the strong stress laid on technology in the literature on MNCs; without a marketing advantage, high technology industries may not expand production abroad, while with such an advantage, even very low technology industries may go multinational.

trial property system could reach the conference table before a critical element of that system has been thoroughly examined.

This paper offers an analysis of the trademark system with special reference to its impact on the developing countries. Given that the development of these countries is conditioned by the processes of change in the developed nations, the study draws on evidence pertaining to the developed countries. Forty years ago, Chamberlin tried to elaborate a theory of monopolistic competition in which a pivotal role was assigned to product differentiation and "non-price" forms of competition.[2] Twenty years later, the works of Packard, Whyte and Galbraith criticized the highly wasteful practices of advertising, and discussed ways in which more socially beneficial structures could arise.[3] Today the same system is still under fire in the industrialized countries, as consumer, anti-monopoly, environmental and other special interest groups seek to curb what they see as abuses of market power. This study tries to assess how trademarks, which provide legal protection for an indefinite duration at very low cost, can contribute to market power and the effects this has on the developing countries. The legal and institutional setting within which brand names[4] are

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See Loll, *Theories of Direct Private Foreign Investment and Multinational Behaviour*, 1976 ECON. & POL. WEEKLY 1335, 1336. Of course, marketing embraces more than the advertising of brand differentiated items, especially in high technology industries where identification of the *producing corporation* may be the main consideration (the name of Boeing, for example, carries greater weight than those of specific aircraft types). Yet, a legally protected identification symbol is the pivot on which marketing efforts rest — and for a very wide range of products that symbol is the trademark.

[2] *See* E.H. CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION (1934).

[3] *See* V. PACKARD, THE WASTE MAKERS (1960); W. WHYTE, THE ORGANIZATION MAN (1956); J.K. GALBRAITH, THE AFFLUENT SOCIETY (2d ed. 1969).

[4] *Registered* or *registrable* trademark is a term applicable only to those trademarks which have been or will be accepted for registration by the Registrar of Trade Marks under the provisions of the Trade Marks Act. A *brand name* is only a popular term used to mean one or another of the specific legal terms.

Economic Council of Canada, *Report on Intellectual and Industrial Property* 181 (Jan. 1971) [hereinafter cited as Economic Council of Canada]. I shall use the terms trademark and brand name interchangeably in this study to refer to those marks which are registered. Of course, it is possible, even in the absence of a trademark law, for a person who employs a mark that has become identified with him to bring an action or other legal proceeding to prevent another person from using the same mark. I am grateful to P.B. Venkatasurbrahmanian for pointing out to me that, although there was no statute law regulating trademarks in India prior to 1940, the Law Reports indicate there was considerable litigation on the subject. He has

granted needs consideration in order to understand how they function in the developing world, and to see whether the arguments traditionally advanced in their favor are relevant and valid in that context. Since what happens internally is strongly influenced by international pressures and conventions, this paper looks at the growth and features of both national and multilateral arrangements.

Section II sketches briefly the historical antecedents of product identification devices to show both the variety of items used and the kinds of arguments employed to justify them. This leads directly to the spread of national trademark laws and a look at their principal features which are discussed in Section III. Section IV describes the growth of the international trademark system and its principal characteristics, paying particular attention to the limited role of developing countries. With the legal *cum* institutional context established, Section V proceeds to an empirical overview of the system. Finally, the legal and economic information in the earlier sections provides the basis for a summary of the problems in Section VI.

II. HISTORICAL AND ANALYTIC PERSPECTIVE

The cogent features of the development of trademarks have been summarized by the Economic Council of Canada:

> In Egypt, the use of marks on jars, tools and building stones was prevalent for 30 centuries before the Christian era.... In their original use, trademarks were probably simple marks of ownership, but they soon came to assume the role of identifying the maker of the goods to which they were attached. It was in this capacity that trademarks were used by the guilds to guarantee quality and to control entry to particular trades.... The uses of marks, however, was relatively limited as long as most purchases were made directly from the maker. It was not until the nineteenth century that they gradually began to expand their modern role as items of commercial property or assets used in the process of production and distribution. In this role, they may sometimes have considerable asset value — a reflection of the goodwill associated with the mark.[5]

Situating the significance of goodwill firmly in the context of industrial and social change the Council concluded that:

> Trademarks did not possess a strong role as symbols of goodwill so long as producer and consumer were in close contact. It was not until the second half of the nineteenth century, when the Industrial Revolution was well

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also emphasized that sometimes manufacturers and traders might deliberately de-register their marks for commercial reasons; apparently this happened quite recently in India when an excise duty was imposed on ready-made apparel sold under brand names and the traders concerned took advantage of brand names being defined as *registered* marks to de-register and thereby avoid the tax.

[5] *Id.* at 182.

> advanced, that trademarks received recognition from governments by statutes establishing registration systems .... One reason for passing trademark statutes was for the express purpose of making it easy to afford protection to traders at less expense and less trouble.[6]

From this summary the following points should be borne in mind:

(1) The use of trademarks to indicate ownership (the so-called propriety marks) is of no significance today.

(2) Identification of the source of production continues to be stressed by manufacturers as both a guarantee against fraud and a guarantee of quality. There are many methods of assuring standards of products without granting industrial property privileges, however, (certificates from government recognized institutes of standards being one example); and it is worth noticing, as Diamond has pointed out, that a "trademark does not necessarily guarantee good quality. What it does guarantee is consistency."[7]

(3) The barrier to entry aspect of trademarks continues to occupy a pivotal role in the system, although it is never advanced explicitly as one of the functions of trademarks.[8] The market power is exercised in three ways, all of them relevant to developing countries: (a) the position of strength consolidated around the mark reduces competition among producers and distributors in the developed countries, thereby limiting the options available to would-be purchasers in developing countries; (b) when a producer in a developing country uses a foreign brand name it will be subject to contractual conditions which will usually restrict freedom of maneuver in several senses, *e.g.*, proportion of turnover to be

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[6] *Id.*

[7] Diamond, *The Historical Development of Trademarks*, 65 TRADEMARK REP. 289 (1975) [hereinafter cited as Diamond].

[8] A trademark right does not confer on its holder a dominant position on the market in question unless the products covered by a particular trademark are not in effective competition with other trademarks or with other substitute products. Under trademark law the trademark owner has the exclusive right to use the mark in commerce. This right is, however, subject to the principle of territoriality. By granting licenses for a certain territory or by registration of the trademark either in his own name or in the name of a foreign subsidiary or distributor in other countries, the trademark owner may restrict the distribution of his product so as to give either himself, his subsidiary, or a distributor an exclusive right to distribute the product in a particular territory. This may be done with respect to the home market and — the more frequent case in practice — with respect to the exportation of the product to other countries.

OECD, *Market Power and the Law*, P. 444 (1970).

spent on advertising may be fixed by the owner of the trademark, export to third markets of items bearing the mark may be forbidden; and (c) however long the developing country producer has spent building up the domestic market, he cannot enter as an independent producer using that same trademark due to the possibility of unlimited renewal of the mark by the original holder. It follows that the more successful the local producer has been in establishing a market for the foreign mark, the harder it will be for him to diffuse one of his own in the same field. In addition, that very success may encourage the licensor to refuse renewal of the contract and instead make a takeover bid for the developing country firm. In short, the more successful the domestic entrepreneur, the more vulnerable he becomes.[9]

(4) The producer and consumer are further separated by the attendant use of advertising. Writing in the mid-1960s, Johnson commented that "modern advertising, by which is meant particularly advertising by the manufacturer of products directed at a national audience of consumers, can be traced back only about seventy-five years to the 1890s."[10] He argued that the spread of advertising was "connected partly with the development of large-scale production and distribution but much more with the development of media of mass communication which have been impersonal selling cheap... relative to personal selling."[11]

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[9] Helleiner has argued in the same vein:

> Except for that small part of the market which may have encountered the mark abroad or in foreign publications, or in those countries where tourist demands may be a significant input into the pattern of "local" demand, it carries no meaning to local purchasers and therefore, little value to potential owners. Any goodwill accruing to the trademark in a country in which it is new will be the product of the performance of the trademarked product in that particular market, and therefore *should* be the property of the local developer of that market who has thereby earned it. Whether it eventually carries local value or not will depend upon its *local* success. Yet under present conventions not only are payments made for the use of the mark from the first day of its use but goodwill is also considered to belong to the owner, not the user, of the mark; when the user's license expires, he must either renew it — at a price — or acquire a new mark.

See Helleiner, *The Role of Multinational Corporations in the Less Developed Countries' Trade in Technology*, 3 WORLD DEVELOPMENT 161, 164 (1975).

[10] H.G. JOHNSON, THE CANADIAN QUANDARY: ECONOMIC PROBLEMS AND POLICIES 271 (1963).

[11] *Id.* at 275.

(5) Goodwill is closely connected with advertising. Half a century ago, in a critique on trademarks which is as valid now as it was then, Schechter stated that the "true functions of the trademark are, then, to identify a product as satisfactory and thereby to stimulate further purchases by the consuming public."[12] He was in no doubt, even at that time about the crucial importance attached to habit creation in consumption.

> ... [T]oday the trademark is not merely the symbol of goodwill but often *the most effective agent for the creation of goodwill* .... The mark actually sells the goods. And, self-evidently, the more distinctive the mark, the more effective is its selling power. (emphasis added)[13]

The creation of the brand-name/advertising/habit nexus becomes a still more potent source of profit when, as is currently the case, the consumption patterns of a country are biased towards external images. Just as in production, the external technologies may be ill-suited to the resource availability and the development objectives of a country, so too in consumption, the external pressures may simply serve to create demands for products which only a fraction of the population can afford. If the products are directed towards mass consumption, chances are they will seek to replace local items which were hitherto satisfactory.

(6) The legal basis for trademarks was consolidated only in the nineteenth century. According to Diamond:

> The beginning of legal protection for trademarks as such generally is traced to a 1783 dictum in an English case, stating that an action for damages would lie based upon fraud. The shift to an equitable remedy based upon the invasion of a property right did not come until the nineteenth century.[14]

At that time the conception of public interest in the system was little mentioned. If in the case of patents the notion of private rights was a paramount consideration, for trademarks it was the only one.

A modern trademark is "any word, name, symbol or device or any combination thereof adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured

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[12] Schechter, *The Rational Basis of Trademark Protection,* 60 TRADEMARK REP. 337 (1970).

[13] *Id.* at 337, 338.

[14] Diamond, *supra* note 7, at 287, 288. Note that "[t]he right represented by a trademark is in the device or symbol itself and not in the idea or the wares with which the mark is associated ...." As far as the trademark legislation alone is concerned, anyone is free to make identical wares or perform similar services; the exclusive right applies only to the use of the particular mark in association with these wares or services. Economic Council of Canada, *supra* note 4, at 183.

or sold by others."[15] As such it provides a recognizable and legally protected basis on which advertising and publicity expenditures can be made to promote demand for the brand name item rather than its competitors, including the generic product. These considerations suggest trademarks are likely to be important in all those industries, whether they manufacture producer or consumer goods, where differentiated oligopoly is the dominant market form. These are precisely the industries which have been notable for the expansion of direct foreign investment in recent years.[16] The advertising does not have to be undertaken directly by the trademark-owning corporation since specialist agencies can be retained to do the job. The spread of these agencies across countries has likewise been a characteristic of advertising during the past decade.[17] Given that many firms, and especially the transnationals, are multi-product concerns, there can be spillover effects for a firm that successfully markets one of its brand name items in a given country. Since products generally carry the name of the producing firm as well as the mark, consumers are likely to associate the product with the firm and, provided they are satisfied with the purchase, will more readily buy other articles (whether or not brand name) which carry the firm's label. The long-run costs of market expansion are thus lowered and the firm's overall position in that market is reinforced.

Practically all of the analyses cited above ignore the impacts of the trademark system where production, distribution and marketing are notable because of their international character and their oligopolistic organization. Johnson did refer to the latter and discussed the possibility that access to little advertised, lower priced goods could be severely reduced through market power exercised by the dominant corporations. His conclusion was unequivocal:

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[15] Diamond, *supra* note 7, at 288. He cites the definition in the 1946 Lanham Act.

[16] *See, e.g.,* Caves, *International Corporation: The Industrial Economics of Foreign Investment,* 38 ECONOMICA 1 (1971).

[17] At the present time, a dozen American publicity agencies dominate the world marketing scene and firmly control a good part of the information system in Western Europe and elsewhere that American capital has penetrated. J. Walter Thompson, the world's largest agency, was obtaining, in 1971, 45% of its income from abroad. Young and Rubicam, another American publicity giant, obtained 37% and McCann-Erickson, 60%.

See Schiller, *Les Mécanismos de la Domination Internationale,* LE MONDE DIPLOMATIQUE (Dec. 1974) [author's translation]. Elsewhere in the dossier *L'Impérialisme Culturel,* of which that article forms part, it is noted that "65% of all the messages which circulate in the world are products of the United States" and that even in France, eight of the twelve leading publicity agencies are of American origin.

> This possibility is realized when a monopolistic firm uses heavy advertising expenditure to maintain and expand its market, and much more commonly when the production of a commodity is concentrated in the hands of a few firms, who compete with each other by heavy advertising of trivially differentiated varieties of the product — what economists call oligopoly with product differentiation. Cigarettes, soap and gasoline are typical examples. In these cases, advertising clearly involves economic inefficiency and an unnecessary waste of resources, and may contribute to the retardation of technical progress. In this context, advertising poses essentially the same problem for policy as the patent system — both are in principle devices for stimulating progress, which may in fact lend themselves to the support of monopoly and resistance to change. The fundamental problem in these cases, however, is not advertising as such but the oligopolistic situation which the use of advertising reinforces, and the solution would seem to rest with combined policy rather than intervention in advertising. Unfortunately, oligopoly has proved much more difficult for combined policy to deal with than monopoly.[18]

The policy dilemmas when the phenomenon takes on an international dimension are evidently more severe.

This brief perspective would not be complete without some mention of the distinction between brand names and generic products. Generic names can either be created for the purpose or acquire the status of "standard words" through repeated and familiar usage; the former has occurred in the extremely important example of the pharmaceuti-

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A still more recent study has shown that of the world's twenty largest independent advertising agencies in 1973 (agencies, that is, with total billings in excess of $200 million), fifteen were from the United States, two were jointly owned by groups involving United States companies, two came from Japan and one from France. All of the companies except the Japanese had at least one quarter of their billings abroad — for the Japanese companies the percentages were three and one, which may suggest that the trademark/advertising knot in that country is almost entirely national (and thus conforms to the familiar picture of Japan as a country employing Western methods but under strong domestic ownership and control). Of the world's fifty leading agencies, thirty-four are based in the United States and eight in Japan, with the remainder having their location in Western Europe or Canada; not a single agency has its parent company located in the Third World. The strength of the American penetration on a global scale is underlined by the fact that the twenty leading American agencies have, on average, more than 45% of their business abroad and in thirty-nine of a sample of seventy-three countries (again referring to 1973) the largest single agency was wholly or majority owned by American agencies while in another six countries the largest agency in each showed a minority equity interest held by American firms. *See* Sauvant, *Multinational Enterprises and the Transmission of Culture: The International Supply of Advertising Services and Business Education,* 13 JOURNAL OF PEACE RESEARCH 49 (1976). Operations of the agencies cover an impressive range of media. For example, it has been estimated that in Columbia advertising expenditures in television media are equal to four times the entire television budget. *See* de Cardona, *Multinational Television,* 25 JOURNAL OF COMMUNICATION 122 (1975).

[18] JOHNSON, *supra* note 10, at 281.

cal industry.[19] Drugs can be defined by a chemical name consonant with standard nomenclature in chemistry. In many instances the resulting names are very long and involved. With the increase in numbers and complexity of drugs, names simpler than the chemical ones were adopted and included in national pharmacopoeias, such as those of the United Kingdom and the United States. International distribution of drugs, however, resulted in a situation where different names were employed in different countries — a situation both confusing and potentially dangerous. The World Health Organization was thus requested to assist in the establishment of a list of acceptable "International Non-Proprietary Names." The list was drawn up and has been adopted by most countries and quoted in the national pharmacopoeias.[20] These non-propriety names are known as generic names, and the drugs sold under these names are known as generic drugs. Some fairly well known examples are tetracycline, chloramphenicol and diazepam.

It is against this background that brand names in the pharmaceutical field must be seen, for the laboratories, whose work provided the basis for the selection of generic names, also invented the brand names. Solomon Garb, professor of pharmacology at the Albany Medical College, testifying before the Kefauver Committee, described the origin of generic names:

> Not only are the generic names creations of drug companies themselves, but after making them complex and unpronounceable, these same companies proceed to cite their complexity as an argument for the use of their simple trade names![21]

Thus the confusion which the generic names were originally intended to eliminate has been reintroduced on a greatly amplified scale through the proliferation of trademark names. As Walter Modell, editor of the journal, *Clinical Pharmacology and Therapeutics,* observed during the Kefauver Committee hearings:

> Trademark names often introduce confusion in an already difficult and complex subject by providing more than one name for the very same drug. Sometimes there are as many as 25 proprietary names for the same thing,

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[19] A detailed examination of trademarks in this sector is presented in O'Brien, *Trademarks, the International Pharmaceutical Industry, and the Developing Countries,* JOURNAL OF THE ASSOCIATION OF THIRD WORLD ECONOMISTS (forthcoming).

[20] For the most up-to-date version see World Health Organization, *International Nonproprietary Names (INN) for Pharmaceutical Substances Cumulative List No. 4,* Geneva (1976).

[21] As quoted in, *In Defense of a National Drug Industry,* 1976 ECON. AND POL. WEEKLY 498.

> occasionally more. As a matter of fact, it is virtually impossible, even for experts, to always know all the proprietary synonyms which have been created for the nonproprietary names of drugs they use. Thus, it is possible in a discussion between two specialists in the same field for neither to know that each is talking about the same drug. Imagine the dilemma this can create for the less expert, the student and the general practitioner.[22]

The second way in which an item can become generic is through common use — what started off as a trademark might lose its distinctive character. Plasseraud has described the process succinctly:

> By virtue of this principle a mark, even registered and used by its owner, can lose its distinctive character if it comes to be regarded in the eyes of the public as the usual and generic denomination of a certain kind of product. From the time when the buyer can no longer designate the product concerned by a term other than the denomination in question, the judge will consider that the mark has become a common name with the public domain, consequently being able to be freely used by anyone.[23]

There are problems in deciding at what point a mark becomes generic — problems which have been tackled by the courts on a case by case basis.[24] For the purposes of this study that point is reached when an item can be identified by a phrase understood by all. Firms will have to expand resources trying to show that their version of the item (*e.g.*, a motor car) is superior to the rest, and this publicity effort will rotate around a trademark.

III. SPREAD OF NATIONAL TRADEMARK LEGISLATION

Table 1 describes the introduction of national laws on trademarks over the past century. Seven countries had legislation in 1876; 123 have laws today. By 1900, only four developed market-economy countries were without trademark statutes. The last to promulgate a law was the Republic of Ireland in 1927, shortly after its independence. Even there, the English law had been in force prior to that date. At the turn of the century fourteen developing countries had laws. The number trebled in the first half of the century and doubled again after 1950, mostly due to the accession to independence of many African states. At present, all the Latin American countries have

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[22] *Id.* at 498, 499.

[23] Plasseraud, *La Marque de Specialite Pharmaceutique,* CBI INFORMATIONS 7 (1975) [author's translation].

[24] A detailed discussion of legal disputes (between parts of the same companies) in Canada and the United States regarding the use of the word 'Thermos' in relation to vacuum flasks has been provided in *Working Paper on Trade Marks Law Revision,* prepared for the Canadian Department of Consumer and Corporate Affairs, Ottawa (Jan. 1974).

trademark statutes as do the substantial majority of African nations. The position is less clear in Asia where information is not readily available in several cases. Nevertheless, the majority of states there belong to the trademark system.

Whereas only one of the western countries (Switzerland) retains today the same basic law as that initially enacted,[25] there is far less evidence of change in the legal systems of developing countries. In Africa only seven of the thirty-five countries for which there is information have altered their laws; in Asia seven out of twenty have made alterations. Latin America, as might be expected in view of the longer periods of independence there, shows much more evidence of flexibility with changes in fifteen of the twenty-five countries. To give a sharper picture of change, the average age of trademark laws in

TABLE 1
THE SPREAD OF NATIONAL TRADEMARK LEGISLATION, 1876-1975

GROUPS OF COUNTRIES	1876	1900	1925	1950	1975
Developed Market Economy Countries	5	16	19	20	20
Socialist Countries of Eastern Europe	1	1	5	6	7
Southern European Countries	0	1	2	4	4
China	0	0	0	1	1
Developing Countries	1	14	35	42	86
of which:					
Africa	0	2	10	13	35
Asia	1	2	6	16	20
Latin America	0	9	18	21	25
Others (a)	0	1	1	2	6
Other States (b)	0	0	1	3	5
Total World	7	32	62	86	123

Source: Derived from World Intellectual Property Organization data.

(a) Cyprus, Fiji, Malta, Romania, Western Samoa, Yugoslavia
(b) Vatican, Liechtenstein, Monaco, San Marino, South Africa.

[25] There have been amendments to the law.

each group has been calculated; to avoid biasing the average by very old laws, those coming from the nineteenth century have been omitted. The averages are: fourteen years for the Eastern European countries, sixteen for the developed market economies, twenty for Africa, twenty-eight for Latin America (even with the inclusion of Mexico, which altered its statutes recently and thus counts zero), and twenty-nine for Asia. While these indicators are only approximate, they are strongly suggestive of a legal framework in developing countries powerfully conditioned by philosophies prevailing a few decades ago and thus ill-fitted to present conditions either regarding external forces or internal development objectives.

One of the striking features of trademarks is that, unlike patents, they can be maintained in force for an indefinite period through the simple administrative procedure of renewal. No country in the world directly limits trademark life. So heavy is the emphasis on granting easy conditions for regularly extending the validity of a mark that only one country, Colombia, has a renewal period (five years) shorter than in initial grant (ten years). Both in Asia and Latin America the most common provision is to make the first grant for ten years and all subsequent ones for the same duration. In Africa the period most commonly found is twenty years in each case. The administrative fees levied in return for the granting of these privileges in perpetuity are derisory in most countries, especially the developing ones, and it is doubtful whether actual administrative costs are covered.[26] This situation reflects the prevailing philosophy that a *right* to legal protection is at stake and that those seeking the right should have to pay as little as possible. Private individuals rarely seek trademarks; and the corporations which do are ready to pay fees to trademark agents. This seems to have had no influence on rates charged by the administrations; developed and developing countries alike continue to provide a service to users for which they pay very little.

A few features of trademark laws and their operation are worth stressing as a background to the discussion in later sections:

(A) The only limits on what can be registered for trademark protection appear to be natural ones; that is, items which, by their nature, cannot be easily given a distinctive label.[27] This does not mean that

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[26] However, the Economic Council of Canada, *supra* note 4, at 187, indicates that in the 1960s the revenues were sometimes as much as $300,000 in excess of expenditures.

[27] A vital example is offered by the supply of blood and blood products. Questions of appropriate use, quality control and accuracy of information furnished by the indi-

all other sorts of products are usually registered — military weapons, except for some kinds of small arms, are one major exception.[28] The International Classification of Goods and Services for the Purposes of the Registration of Marks — the so called Nice Union which currently has thirty-one members — divides articles into thirty-four main classes and lists more than 20,000 individual products. Registered marks can correspond to any one of these categories.[29]

(B) There is a broad division between countries where trademark rights are held to accrue to use of the mark (in general, this is the position in the English-speaking countries, whether developed or developing) and countries where it is the first registrant who acquired exclusive rights. In countries where the use criterion prevails it is usually defined so as to allow the applicant a brief period after registration in which use can begin. In Canada, for example, the mark must either be in use at the time of registration or proposed to be used within six months of registration. Which ever approach is adopted in the law, there remains the problem of how to handle non-use over long periods. In the United States, the Lanham Act of 1946 requires the proprietor of a registered trademark to make a declaration of use five years after registration. If at that time the mark is not

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vidual supplying blood are critical to the effective operation of a blood supply system. Nobody can put a trademark on his blood, but it can be either *donated* or *sold*. R. TITMUSS, THE GIFT RELATIONSHIP: FROM HUMAN BLOOD TO SOCIAL POLICY (1972), has made a comparative analysis of systems where donation is the rule as against those where sale is operative. His results amount to a damning indictment of the commercial system which results in:

(i) far higher wastage of blood;
(ii) supply for far more infected blood;
(iii) much greater damage to the health of suppliers;
(iv) the virtual impossibility of blood replacement for those in most need;
(v) greater administrative inefficiency;
(vi) grave distortion of research, since resources are poured into devising things which would be quite unnecessary in a donor system.

Thus we are faced with the *commerciogenesis of ill-health*. At a different level, M. MCLUHAN and Q. FIORE, THE MEDIUM IS THE MASSAGE (1967), invited us to reflect on the revolutionary consequences of a situation where, by means of a no-contact, no-pressure printing technique, a trademark could be printed on a raw egg yolk. The point of the example was to underline the manifold implications of technical changes such that everything was given a trademark.

[28] Kaldor, *The Military in Development*, 4 WORLD DEVELOPMENT 468 (1976), explains how the weapons system has become a focal point and that "... each weapons system was the product of a particular company and the centre of a military unit."

[29] There are also eight categories for service marks.

in use and the declaration thus cannot be made, the mark is removed from the register.

(C) In most legislation the mark may be licensed for use by someone other than the registered owner. Also, ownership may be transferred separately from the goodwill of a business. This means that trademarks are intimately involved in the contractual agreements which have been the focus of so much attention in recent years.

IV. THE INTERNATIONAL SYSTEM

As national trademark laws were introduced, pressures from groups and countries interested in "internationalizing" patent protection were building up for the establishment of an international convention whose key component would be the notion of equal treatment; that is, nationals of any country of the Union would enjoy, in all countries of the Union, the same protection granted to nationals. This principle was embodied in the Paris Convention for the Protection of Industrial Property, concluded in 1883 and entered into the following year.[30] Trademarks formed an integral part of the Paris Convention and it has remained by far the dominant international agreement on the subject.

In 1891, an agreement aimed at easing the international registration of trademarks was concluded at Madrid, and came into force in 1892. Membership of the Union for the International Registration of Marks, as the Madrid Union is officially called, is conditional upon prior membership in the Paris Union and thus can never exceed Paris Convention membership. In fact, it has always been far less. At present eighty-two countries belong to the Paris Convention and only twenty-four to that of Madrid.[31] Moreover, whereas fifty-six developing countries have signed the former agreement, only six have joined the latter (four African nations, one Asian, none from Latin America, and Yugoslavia). Membership in the Madrid Union has increased very slowly (there were seventeen members in 1925 compared to twenty-four today), compared to the rapid expansion of the Paris Convention, shown in *Table 2*. This, plus the absence of key trademark holding nations, such as the United States, Japan and the

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[30] The full text is given in *Paris Convention for the Protection of Industrial Property*, World Intellectual Property Organization, Document 201 (E), Geneva (1974) [hereinafter cited as *Paris Convention*]. All subsequent references are to that text.

[31] The above figures, and those in the remainder of this paragraph, are calculated from *Member States*, World Intellectual Property Organization, Document 410 (E), Geneva (1976).

TABLE 2
GROWTH OF MEMBERSHIP OF THE PARIS CONVENTION, 1884-1976(a)
(Cumulative number of members in the given year)

GROUPS OF COUNTRIES	1884	1900	1911	1925	1934	1967	1976
Developed Market Economy Countries	6	11	13	18	19	20	20
Southern European Countries	2	2	2	4	4	4	4
Socialist Countries of Eastern Europe	—	—	2	6	6	7	7
Developing Countries	5	3	5	9	9	42	46
of which:							
Africa	1	1	1	2	2	23	24
Asia	—	—	—	2	2	8	10
Latin America	4	2	4	4	4	8	9
Others (b)	—	—	—	1	1	3	3
Other States (c)	—	—	—	—	1	5	5
TOTAL	13	16	22	37	39	79	82

Sources: UNCTAD, *The Role of the Patent System in the Transfer of Technology to Developing Countries*, New York 1975; World Intellectual Property Organization, *Member States*, Document 410 (E), Geneva, June 1976.

(a) Data given for years relating to the evolution of the Paris Convention, thus 1884: entry into force of the Convention: 1900, 1911, 1925, 1934, 1958, 1967 — revisions of the Convention: 1976 — present status (as of June).

(b) Cyprus, Malta and Yugoslavia. Note that Romania, which (along with Malta) was admitted into the Developing Countries Group of 77 at the Manila Ministerial meeting of January/February 1976, has been classified throughout as an Eastern European country.

(c) Vatican, Liechtenstein, Monaco, San Marino and South Africa.

United Kingdom from the Madrid accord, has led to a strong movement for a new multilateral treaty on trademarks within the framework of the Paris Convention. Thus, at Vienna in 1973, the Trademark Registration Treaty was concluded. Though not in force at the time of this writing (fourteen states have signed so far, none of which are developing countries), its method of development and its objectives are essential to an appreciation of the forces at work in this field.

The push for multilateralism has always come from the industrialized countries since their use of trademarks is international. The drive has emanated from that small group of industrial countries with significant interests in international investment. For developed market economy countries not in the center, the situation parallels that of the developing countries. In his study of the relevance of the Trademark Registration Treaty to Ireland, Goggin has stated:

> In recent years the main impetus for international registration has come from the great multi-national companies. For these companies the obvious advantage of securing very wide cover at the cost of a single application is not a significant factor; but international registration would allow them to secure an all-embracing monopoly with which to deter competition from lesser undertakings .... It is difficult to see what advantages this country [Ireland] could obtain from joining TRT as a full member. On the one hand, the number of Irish filings abroad is small (263 applications abroad in 1971) and most Irish exporting companies send their goods to comparatively few countries. The direct benefits to Irish industry would therefore be minimal, amounting perhaps to a total annual saving of some £ 10,000 in the cost of applications made abroad. On the other hand, an immediate consequence of becoming a member would be a greatly increased flood of applications from abroad. This would place an unacceptable burden on the Patent Office if they are to maintain their present high standard of examination. As presently envisaged under TRT, registration in a designated country would be automatic unless the National Office raised an objection within 15 months of the application; even at the present level of filings the results of the official examination of an application are not produced within this time. It has been estimated that the examining staff at the Patent Office would have to be increased by a factor of four to surmount this difficulty; it is unlikely that this increase could be financed out of Ireland's share of the international fees. Furthermore, as more foreign trademarks were registered in Ireland, the freedom of choice of trademarks available to an Irish industrialist would be correspondingly less.[32]

A system has been meticulously constructed to serve clearly articulated objectives for a small proportion of countries.

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[32] Kevin Goggin, *The Irish Trademark System* [unpublished manuscript] 94, 96, 97, Dublin, Ireland (1975) [hereinafter cited as Goggin].

THE PARIS CONVENTION

Recent examination of the patent system has devoted considerable attention to the Paris Convention and the limited role which the developing countries have played in its formation.[33] Since the Lisbon revision of 1958, which was the fifth of the six revisions in the Convention's ninety-three year history, two-thirds of the present developing country membership has joined; few developing countries had a voice when the salient aspects of the Convention were decided. Some of the most populous developing countries — for example, India, Pakistan, Bangladesh, Ethiopia and six members of the Andean Pact — are not members. In total, more than sixty developing countries, accounting for more than three-quarters of the population of the developing countries and more than half that of the globe, have not joined.

Why devote attention to the Convention if such a large group of developing countries remain outside it? The reason is that the legislation and administration of all countries, members or not, have been powerfully, and often decisively, influenced by the Convention and its underlying philosophy. The degree of legal expertise involved is very high and, from a legal-technical point of view, the drafting of the laws has been extremely able. The point at issue is that the objectives served by the legislation and administrative structures appear to correspond poorly with the goals of developing countries and others confined to the periphery of the system.

It is often maintained that the Convention is a highly flexible legal instrument. Bodenhausen has noted:

> In the field of trademarks, the Convention does not prescribe whether the right to a trademark will be acquired either through registration, or through use, or both. It also leaves the member states free to decide to what extent they desire to submit applications for registration of a trademark to examination. Neither is the scope of protection of a trademark defined in the Convention, except in a few special cases.[34]

Still, protection *has* to be given to marks:

> If a State accedes to the Convention without providing, in its domestic law, for any protection for important subjects of industrial property, such

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[33] *See* UNCTAD, *The Role of the Patent System in the Transfer of Technology to Developing Countries,* United Nations, New York (1975), and UNCTAD, *The International Patent System as an Instrument of Policy for National Development,* Document TD/B/C/6/AC.2/3, Geneva (1975).

[34] *See* G.H.C. Bodenhausen, *Guide to the Application of the Paris Convention for the Protection of Industrial Property* 15, Geneva (1968).

> as *patents* or *trademarks*, it will not be in a position to give effect to substantial parts of the Convention dealing especially with these subjects, and will therefore probably be considered to have implemented the Convention insufficiently in its domestic law.[35]

The flexibility is within limits which are established by a series of articles of the Convention which regulate, or instruct member states to regulate, certain major aspects of domestic law. These features, as far as they concern trademarks, can be stated as follows (the relevant article numbers of the Convention are given in brackets):

> *Equality of Treatment.* [2] Nationals of any country of the Union shall enjoy in all the other countries of the Union the advantages that their respective laws grant to nationals.
>
> *Right of Priority.* [4] Any person or legal entity who has duly filed an application for a trademark in one of the countries of the Union enjoys a right of priority of six months for claiming similar rights in the other countries.
>
> *Use of Trademark.* [5] If, in any country of the Union, use of registered mark is compulsory, the registration may be cancelled only after a reasonable period, and then only if the person concerned does not justify his inaction.
>
> *Independence of Trademarks.* [6] A mark duly registered in a country of the Union shall be regarded as independent of marks registered in the other countries of the Union.
>
> *Nature of Trademark Goods.* [7] The nature of the goods to which a trademark is to be applied shall in no case form an obstacle to the registration of the mark.
>
> *Unfair Competition.* [10 *bis*] Countries of the Union are bound to assure to their nationals effective protection against unfair competition; that is, any act of competition contrary to honest practices in industrial or commercial matters.
>
> *Special National Industrial Property Services.* [12] Each country of the Union undertakes to establish a special industrial property service.
>
> *Special Agreements.* [19] Countries of the Union reserve the right to make separately between themselves special agreements for the protection of industrial property, insofar as these agreements do not contravene the provisions of the Paris Convention.

The equality of treatment provision constitutes the core of the Con-

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[35] *Id.* at 24.

vention. It excludes the idea of reciprocity in the treatment of foreigners and requires not only that there be no discrimination but also that national standards conform with the common standards set by the Convention itself. Equality of treatment makes sense only when the parties involved are in a general way equal; when they are not, the stronger party using the equality rule benefits at the expense of weaker parties. Developing country participation in an agreement based on that premise is therefore of dubious merit.

Right of priority is closely associated with the national treatment principle and would lose much, if not all, of its meaning without that clause. The six-month period which now prevails has been in operation since the 1925 revision of the Convention; proposals for extension of the period of priority were rejected at the revision conferences of London (1934) and Lisbon (1958). Once the national treatment idea is accepted, little is to be obtained from shortening the priority period. The corporations engaged in heavy trademark activity could adjust without too much difficulty even to a reduction of the period by half.

Perhaps the major criticism advanced against the Convention from the side of patents has been the enormous extent of non-utilization in the developing countries. At least 95% of patents are never used in domestic production and serve to create the basis for import monopolies by foreign patent holders.[36] Whether use of these patents would be in the public interest remains an open question since the technologies and organizational structures they create may be counter-productive in a developing country. It is open to question whether use of a foreign trademark is in the interests of a developing country. Bodenhausen has commented that the

> *Working of a patent* in a country may be in the public interest but this is not necessarily true with respect to the *use of a trademark* in such country, because it is, in principle, a matter of indifference whether goods are sold under a certain trademark or not. (emphasis added)[37]

The Convention creates some bias in favor of keeping marks on the register for a fair period, whether or not they are used. The significance of this revolves around what "use" means. It is not defined in the Convention itself. Bodenhausen interprets it to mean sale without reference to where the items are actually produced. The door is thus open for imports unless controlled by other devices.[38]

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[36] *See* O'Brien, *Developing Countries and the Patent System: An Economic Appraisal,* 3 WORLD DEVELOPMENT 72 (1974).

[37] *Id.* at 75.

[38] For the Andean Pact countries, Article 75 of Decision 85 (Regulations for the Appli-

The independence clause in the patent context gives patents distinct lives in all countries where they are registered. The fact that a patent is declared null and void in one country of the Union has no automatic implications for its status elsewhere. Fortunately, the provision on trademarks is more flexible since it refers only to filing and registration. There is no positive statement in favor of information sharing among countries regarding marks which might be expunged from the register for various reasons, but there is nothing proscribing this sort of cooperation.

Article 7 of the Convention, stated verbatim above, appears anodyne, yet properly used could be turned to the advantage of countries which did not want to allow *sale* of certain products even though registration of the brand names could not be refused. A clear instance of the possibilities is revealed in the assessment by Bodenhausen. He says that Article 7

> ... can be compared, to a certain extent, to Article 4 *quat* of the Convention regarding patents. The purpose of these Articles is to make the protection of industrial property independent of the question whether goods in respect of which such protection would apply may or may not be sold in the country concerned. For example, the situation in which a trademark is intended to be used on a pharmaceutical product which has not as such been approved by the competent authorities of a country, and whose sale is consequently not allowed, must not lead to a refusal to register the trademark, because it is of interest to the proprietor to secure his rights in the eventuality that the sale of his product may be permitted later on. The Article under consideration would also apply when the use of trademarks is prohibited for any category of goods or when the sale of goods is subject to a monopoly or a concession.[39]

Evidently this Article plays on the difference between registration and sale. The route is a tricky one for, as the quote implies, once the mark is on the register there may well be persistent pressures to allow sale.

An important clause (10 *bis)* deals with unfair competition. In the Paris Convention the tone is that of protecting private persons, firms or organizations on the implicit basis that what is good for them is good for all. The bulk of the Article reflects the same attitude. It refers to the need to avoid confusion with the goods of competitors.

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cation of the Rules Concerning Industrial Property) provides that:

> The owner of a mark may not oppose the importation or introduction of goods originating in other member countries and bearing the same mark. The competent authorities shall require the imported products to clearly and adequately identify the member country in which they were produced.

[39] Bodenhausen, *supra* note 34, at 128.

However, sub-clause (3)3 speaks of "indications or allegations, the use of which in the course of trade is liable to mislead the public as to the nature, the manufacturing process, the characteristics, the suitability for their purpose or the quantity of the goods."[40]

This embraces misleading advertising, failure (explicit or implicit) to provide relevant information about product quality and myriad ways in which the utility of a product can be distorted.[41] The most satisfactory way to tackle this is not through trademark law but through advertising regulations, provisions on specific industries where practices of this sort are prevalent and related measures which focus clearly on the products. The Convention does not make any clear statement as to how "any act of competition contrary to honest practices" is to be prohibited. It merely states that this is to be done. If the administration of a developing country whose law embodied that notion were prepared, a considerable proportion of advertising abuses could be checked.

The last two points mentioned dealing with special national industrial property offices and special agreements, cover the whole industrial property field and not just trademarks. These offices and agreements accomplish the following:

(A) A distinct administrative existence for industrial property, which removes it from the planning framework in general and the policy thrusts for individual industries in particular, and reinforces the impression that this is neutral with respect to the larger issues of development; and

(B) pre-eminence for the Convention, in that other agreements made among members must not contravene its provisions.

The latter means that developing countries which seek to set up their own organizations might find themselves handicapped since some of the elements (for example, preferential treatment for other developing countries) could run contrary to the Convention.

There is nothing in the Paris Convention on the trademark side, save part of Article 10, which could be of much use to developing countries. There are several parts which create explicit problems for developing country members. Removal or substantial modification of these sections, which include equality of treatment, use, special offices for industrial property and the limitations on making other multilateral accords, is necessary in any process of revision. Those parts which could be turned to advantage depend for their efficacy on actions elsewhere in the government and exist independent of the Convention.

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[40] *Paris Convention, supra* note 30, at 20.

[41] *See* Bodenhausen, *supra* note 34, at 146.

Given that the function of the Convention is to protect industrial property as a legal asset whose relation to economic development is never made explicit, the atmosphere and pressures generated by the Convention make it less likely to serve a positive role.

THE MADRID UNION

The rationale for the Madrid agreement is to allow international registration of marks through a single application. International registrations are renewed every twenty years. Since the system came into existence, more than 400,000 international registrations have been effected. In the early 1970s annual registrations and renewals were running at more than 100,000.[42]

The fact that membership is not greater does not seem to be due to any judgment by the powerful non-members that international registration *per se* is unattractive. Rather, differences of approach led to a different kind of international registration scheme coexisting with the Madrid Union. The Trademark Registration Treaty (TRT) is the result of this fresh effort. For the developing countries, with very limited concern in multiple registration to date, the gains under either scheme are very small compared to the costs. Registration of marks by joint enterprises of developing countries might be a different matter; yet even there the existing multilateral arrangements would be of little help.

THE TRADEMARK REGISTRATION TREATY[43]

Requests for studying the advisability of revising the Madrid agreement date back to 1966. They resulted in a 1970 meeting which led to the creation of three committees of experts on the TRT, which met in 1971, in 1972, and at the Vienna Diplomatic Conference in 1973. The participation of developing countries in these meetings was peripheral. Although members of the Paris Union were invited to attend, at no stage did even half of the developing country members participate. Furthermore, at no stage did developing country participation ever exceed that of the non-governmental organizations involved. Represented at the first committee of experts were ten developing countries and nineteen non-governmental organizations; at the second, seven and twenty-two respectively; at the third, six and fourteen. At the

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[42] World Intellectual Property Organization, *Information Booklet,* Geneva (1976).

[43] Details and data in this sub-section have been drawn from *Trademark Registration Treaty: Post Conference Information,* 920 O.G. Pat. Off. 257 (1974) [hereinafter cited as *Trademark Registration Treaty*].

Vienna Conference the numbers were twenty and twenty-one. All of the non-governmental organizations save one were from Western Europe or North America. They represented industry, law or industrial property associations:[44]

> As in the three preparatory Committees of Experts so also in the Diplomatic Conference all participants, whether representing governments or organizations, had the right and opportunity to participate in the debates. They made ample use of this opportunity.[45]

In these circumstances, it is scarcely surprising that the notions of the international system reflected those of the dominant industrial countries.

A provision was included to offer some sort of preferential treatment to some developing countries:

> Only residents and nationals of Contracting States have the right to file international applications except that, during an initial period of 5, 10 or 15 years, the nationals and residents of certain developing countries may have the right to file international applications even if such countries have not yet acceded to the Treaty.[46]

This provision does not impose any obligation on these countries to accept incoming international registrations made under the TRT. Since registration of foreign marks is always possible country by country, however, the only gains are those in registration costs, which are minimal.

As noted earlier, the TRT has yet to enter into force due to an insufficient number of signatories (at the time of this writing). The process of its formation indicates clearly the location of efforts to shift the international system towards greater ease of operation for the trademark holders. Developing countries, whose involvement hitherto has been chiefly as importers of marks, should be wary of supporting legal instruments whose rationale is that of free trade. It is against this backdrop of legislative and institutional structures that the empirical impacts of the system can be seen.

V. THE EMPIRICAL PICTURE

THE GLOBAL STOCK

At the end of 1973 there were approximately 3.9 million registered

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[44] The only organization not from Western Europe or North America was the Asian Patent Attorneys' Association. Sometimes the same people represent more than one organization.

[45] *Trademark Registration Treaty, supra* note 43, at 261.

[46] *Id.*

trademarks in force in the world. *Table 3* shows the distribution among different groups of countries.[47] More than one million trademarks were in force in developing countries. The most important countries were Argentina, with over 263,000, Brazil with over 108,000 and India with about 60,000. Due to the freedom to register a trademark for the same product in many different countries, and given that the same firm may use distinct trademarks to cover the same item in different places, it is not possible to say how many kinds of goods are covered by the legal protection available. It has been asserted that for the owner of a mark who wishes to secure protection in several states "the number of such states may be very large. More than fifty is not unusual."[48]

Unless legal proceedings successfully challenge the validity of a trademark, or the owner voluntarily allows the registration to lapse, the mark can remain in effect for an unlimited duration. Available data suggest that new registrations equal roughly 5% of the outstanding stock and that renewals of extant marks (renewals which could be for the second time or more) total about 3% of the stock.

THE DIMENSIONS OF CONCENTRATION

By Country

Published statistics distinguish trademarks according to foreign or domestic ownership, with the former defined as marks registered in a country by a physical or juridical person whose legal status is that of a foreigner. This definition fails to allow for marks which are effectively, though not formally, under foreign control. Although this situation arises most obviously when a trademark is registered in the name of a foreign subsidiary located in the country and counted as a domestic legal entity, it also occurs when the marketing policy of the domestic firm is in practice under foreign control. The affect is to underestimate the degree of foreign ownership.

In the right-hand column of *Table 3* the aggregate proportions of foreign ownership by groups of countries are set out. Developing

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[47] The aggregate figures given in this and subsequent paragraphs were calculated from the WIPO document, *Industrial Property: Statistics for 1973*, Geneva (1973). The figure for the world somewhat underestimates the true total since, although more than 100 governments provided data, a few important developing countries, such as Mexico and Nigeria, are not included in the total.

[48] *Trademark Registration Treaty, supra* note 43, at 263.

TABLE 3
DISTRIBUTION OF REGISTERED TRADEMARKS, 1973

REGION AND COUNTRY	PERCENTAGE OF TOTAL STOCK (a)	PERCENTAGE OF FOREIGN OWNERSHIP (a)
Developed Market Economy Countries	71	26
Among them:		
Japan	18	5
Socialist Countries of Eastern Europe	3	44
Developing Countries	26	56
of which:		
Africa	3	83
Asia	7	62
Latin America	16	38

Source: WIPO, *Industrial Property Statistics*.

(a) Figures rounded to nearest percentage point.

countries have 56% of marks under foreign ownership. The situation is most pronounced in Africa, where 83% of all trademarks are registered as foreign (bearing in mind the underestimation noted, the number of marks genuinely controlled by African entrepreneurs may be less than one in ten). The ownership by developing countries of trademarks abroad is very small. This has two implications. First, combining the 26% of the world stock registered in developing countries along with the 56% previously mentioned, it seems that developing countries own no more than 15% of all trademarks in the world. Second, the foreign ownership in developing countries is that of corporations based in a rather small number of industrialized countries.

Table 4 examines the national origin of trademarks granted to foreigners in a sample of thirty-one developing countries during the year 1972. In total, the countries in the sample granted 64,031 marks in that year; that is, around 6 to 6.5% of the stock of marks owned by all developing countries in 1972. The proportion going to foreigners equals 56%, which corresponds with the global figure based on 1973 stock given in *Table 3*. Two developed market economy countries — the United States and West Germany — accounted for over one-half of all marks going to foreigners in the year; and six countries received more than 80% of all foreign marks. The concentration of foreign ownership is high; foreign marks refer mainly to those of corporations from a small number of industrialized countries.

By Corporation

It would be extremely useful to know to what extent this concentration may be magnified by the trademark holdings of individual corporations. Data on this subject is hard to come by, but some odd fragments of information are available. A recent United Nations study noted with regard to transnational corporations that

> ... most of what are considered the powerful trademarks belong to such corporations and ... they play a pivotal role in the marketing of the products of these corporations, especially in the processed food, pharmaceutical and toiletry and consumer durable industries.[49].

The study further noted that Unilever alone has over 100,000 registered trademarks throughout the world.[50] If just nine other transna-

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[49] UNCTAD, *Restrictive Business Practices,* Document TD/B/C.2/159, Para. 29, Geneva (1975).

[50] Even at the turn of the century, Lever Brothers, which was the English-controlled firm that fused with the Dutch-controlled organization of Margarine Unie and Margarine Union in September 1929 to form Unilever, was a pioneer in marketing.

TABLE 4
NATIONAL ORIGIN OF TRADEMARKS GRANTED TO FOREIGNERS IN SELECTED DEVELOPING COUNTRIES, 1972 (a)

COUNTRY OF ORIGIN	PERCENTAGE SHARE OF MARKS GRANTED TO FOREIGNERS (b)
United States	39
Federal Republic of Germany	12
United Kingdom	11
France	8
Japan	7
Switzerland	5
Total of Trademarks Granted to Nationals of above Countries	28,900
Total of Trademarks Granted to Foreigners by the Sample Countries in 1972	35,887

Source: Calculated from WIPO, *Industrial Property Statistics*.

(a) The developing countries included in the sample were:
in *Africa* — Algeria, Egypt, Ghana, Kenya, OAMPI, Tanzania, Zaire, Zambia;
in *Asia* — India, Iran, Iraq, Israel, Lebanon, Pakistan, Phillipines, Singapore, Sri Lanka, Thailand;
in *Latin America* — Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Peru, Trinidad and Tobago, Venezuela.
In this list OAMPI is treated as one unit. The acronym stands for the African and Malagasy Industrial Property Office, which serves as the national office for each of the following states: Cameroon, Central African Republic, Chad, Dahomey, Gabon, Ivory Coast, Madagascar, Mauritania, Niger, People's Republic of the Congo, Senegal, Togo and Upper Volta. On that basis the sample covers thirty-one developing countries.

(b) Figures rounded to nearest percentage point.

tional firms held, on average, one-half of the Unilever figure, a mere ten international corporations would have trademark assets equal to the total held by all corporations of the developing world.

Goggin's study of Ireland analyzed the trademarks advertised in that country during 1971. He found that the 1,789 marks stemmed from 746 companies of which 643 companies (more than 80%) were registered abroad; the foreign companies owned 1,564 of these marks. Sixty-five foreign firms held more than five marks each. Of these Standard Oil Company of New York had fifty; Roch Products Ltd. (the British subsidiary of Hoffman La Roche) held thirty-two; Ciba-Geigy also owned thirty-two; Imperial Tobacco Group held thirty-one; Fabrwerke Hoechst of Germany had twenty-seven; Miles Laboratories held twenty-four; and Pfizer Chemicals Group held twenty. In other words, seven firms held 216 marks. Approximately 13% of the foreign-held marks were in the hands of one percent of the foreign firms. Of the companies registered as Irish, only seven held five or more marks — and of the seven, four were known to be subsidiaries of fourteen companies.[51] These scattered pieces of information suggest that the company concentration is probably high, although it would certainly be useful to have more data.

By Industry

Concentration by country and by corporation has been considered; a third dimension is industry. The three dimensions are inter-related since some industries are located in a handful of countries and are controlled by a relatively small number of firms; concentration has a mutually reinforcing character. Evidence suggests that the principal industries, in terms of total numbers of marks held, are pharmaceuticals, processed food and beverages, electrical machinery, metal-working and other consumer goods, particularly cosmetics and soaps, and tobacco.

A study of Ethiopia found that approximately one-third of all

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> Publicity, just starting at that time, was a decisive weapon in the commercial policy of the company; in fact, it became one of the keys to expansion. In this sense it can be said that Lever Brothers was a genuine innovator since it tried out, with good results, methods of sales promotion and publicity that have persisted up till now.

See Les Multinacionales de la Alimentación, OPINIÓN 94 (Oct. 23, 1976) [author's translation].

[51] Figures calculated from Goggin, *supra* note 32, at 60, 61.

trademarks registered were in the pharmaceutical sector.[52] An analysis of 845 contracts deposited with the National Register of Contracts for the License and Transfer of Technology in Argentina in 1972 and involving trademarks (either alone or linked with patents and technical assistance), showed that the dominant sectors for these contracts were pharmaceuticals, food and drink, vehicles, electrical machinery and other chemicals.[53] In Mexico examination of a random sample of 618 contracts containing trademarks and accepted by the Mexican National Register for Transfer of Technology between 1 February 1973 and 31 March 1975 indicated that nearly one-third of the sample contracts were in the food and drink sector, with an additional 19% in metal-working and almost 10% in pharmaceuticals.[54] The Economic Council of Canada states that

> ... a high proportion of companies in the food and beverage industry, the rubber, chemical, clothing and non-metallic minerals industries owned trademarks. The chemical, rubber, textile, and paper industries reported the highest incidence of licensed users of trademarks owned by foreign companies.[55]

Calculations for Ireland based on the Nice classification referred to earlier show that

> ... on average, registrations for the chemical classes 1-5 together make up about 40% of the total registration each year. This is over twice the number coming forward from any other indentifiable industry grouping (e.g., engineering classes 6-12 include only 15% to 18% of registrations). Even food, drink and tobacco taken together do not produce more than about 20% of annual registrations. Taking individual classes, the number of registrations in Class 5, which includes pharmaceutical substances, has consistently been the largest with a comfortable margin over the next biggest class — Class 3, which includes both detergents and cosmetics .... Trade marks in the pharmaceutical class appear to be uniquely important. The sheer numbers of applications to register in Ireland for Class 5 far outweigh those for any other class — they generally account for around 20% of the total number in any one year.[56]

The industry pattern is not surprising when it is recalled that the trademark usually serves as the focal point of the advertising campaign and that advertising has its economics.

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[52] O'Brien and Faruji, *Industrial Property in Ethiopia,* 10 JOURNAL OF WORLD TRADE LAW 580 (1976).

[53] Instituto Nacional de Tecnología Industrial, *Aspectos Económicos de la Importación de Tecnología en la Argentina en 1972,* Buenos Aires (1974).

[54] Here and later, the figures for Mexico are calculated from information given in Soberanis, *Justificación de una Política que Restrirja el uso de Marcas Extranjeras en México,* COMMERCIO EXTERIOR (August 1976).

[55] Economic Council of Canada, *supra* note 4, at 189.

[56] Goggin, *supra* note 32, at 71, 72, 74.

> For intensive advertising of a product to be worth its cost to the advertiser, the advertised good must either be one that the consumer buys frequently, or one that yields in high profit per unit sold, and in either case consumers must be sensitive to advertising appeals and not highly sensitive to price.[57]

Economies of scale and minimum costs for even limited advertising tend to work in favor of larger enterprises. Recent work in the United States has shown that

> ... absolute outlays vary by medium: sponsoring a half-hour programme on network television in prime time requires an outlay of the order of $50,000 per showing; a full page colour advertisement in *Business Week* costs approximately $14,000; a 30-second prime time spot on television in Los Angeles costs approximately $4,000 ... and a full page advertisement in *The Chicago Tribune* costs approximately $4,000 .... The minimum purchase of television advertising is the 10-second announcement, which is typically 50 percent of the cost of the standard 30-second commercial.[58]

The industry-large firm pattern is repeated in developing countries:

> The multinational firms' proportion of the total messages conveyed through the media in many less developed countries is overwhelming. One of the few studies of this kind uncovered the facts that in Kenya, multinational firms sponsored over 80 percent of radio advertising in the Swahili language, over 75 percent of all newspaper advertising in Swahili and English, and owned the two major local advertising agencies which, by themselves, accounted for 45 percent of all advertising placed in the country and which constituted a major source of marketing influence and advice to locally-owned firms. Advertising played a particularly great role (over 6 percent of sales) in these multinational firms catering to brand-differentiated consumer demands — pharmaceuticals, soaps and detergents, toiletries, etc.[59]

THE COMMERCIALIZATION OF TRADEMARKS

The use of registered trademarks, in the sense that they are commercialized, can take place either by a domestic firm or, when the trademark is under foreign control, through exports, establishment of a subsidiary or through licensing contract with a domestic enterprise. It is very difficult to measure the extent of use with any accuracy. National laws which require "use" as a condition of maintaining the mark often accept very little as "proof of use"; for example, a token sale once every five years or advertising during that time. Also, relative sales figures for brand name products will reflect some of the competition among them so that low sales are not necessarily a good measure for limited use.

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[57] JOHNSON, *supra* note 10, at 272.

[58] Porter, *Interbrand Choice, Media Mix and Market Performance*, 66 AM. ECON. REV. 398, 402 (1976).

[59] Helleiner, *supra* note 9, at 174.

Furthermore, the presence of conglomerates means that sales of one item cannot be considered independently of those of other related items. The contractual surveys in Argentina and Mexico give a rough impression of some aspects of use. For Argentina, trademarks occurred in 61% of the contracts involving transnationals and accounted for 43.5% of the royalties paid by the licensee firms. In Mexico, where the National Register has insisted that if the Mexican-based firm is a wholly-owned subsidiary of the foreign trademark owner, then use of the trademark must be free, 42% of the 618 sample contracts mentioned earlier indicated there was no royalty charge.[60]

Use of at least *some* of a subsidiary's marks is to be expected at any point in time; how many and to what extent will be decided by the parent firm's overall strategy. In the pharmaceutical industry in France, Plasseraud has complained recently that too few of the registered marks are commercialized. He calls for more selective registration:

> Too many marks are deposited with reference to the true number of marks used, the latter besides often being ill defended against imitators, which is why some of them finish by losing their distinctive character. It is therefore necessary to establish a more selective and rigorous policy; have a few marks, but do whatever is necessary for their protection.[61]

A considerable proportion of the foreign enterprises have entered Third World markets via takeovers of domestic enterprises and there seems little doubt that, from both the viewpoint of the developing country and that of the transnational, the prospect of commercializing trademarks through existing distribution networks has been a significant factor in the decision.[62] The takeover approach to commercialization obviously depends, among other things, on product characteristics. In some cases, like Coca-Cola, sufficient control, a continuing stream of profits and a relatively secure business can be obtained by franchise methods:

> "Coca-Cola is the first soft drink any bottler wishes to produce; we provide complete advertising and promotion support; we also provide complete technical assistance. It is all included in the price of the syrup," according to Stul Beckman, a Coca-Cola official in Rio.... The rationale for this policy was suggested by Coca-Cola Co. Chairman J. Paul Austin in a 1973 *Business Week* article which explained why Coca-Cola considers itself relatively immune from the danger of expropriation. "It's a franchise business. If they nationalise the assets, they are nationalising their own peo-

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[60] This is not a formal criterion but is used by the Mexican National Register in evaluating contracts. *See* Soberanis, *supra* note 54.

[61] Plasseraud, *supra* note 23, at 8.

[62] Loll, *supra* note 1, at 1341.

> ple." The only substantial assets the company has outside the United States, according to *Business Week*, are a few company-owned bottling units and 28 plants that produce its concentrate.[63]

Whether it be direct investment, licensing or exporting, however, the consumption pattern in developing countries is still shifted toward items emanating from the industrialized world.

VI. THE DEFECTS OF THE SYSTEM

As commerce evolved, and in particular as foreign trade expanded, manufacturers and merchants emphasized three aspects of the origin and nature of products which seemed essential to a well-functioning market: a means of identification of the producer; a guarantee of consistent quality of the product; and spread of information regarding new products and/or changes in older ones. Gradually the three requirements, all reasonable ones in themselves, were attached to a legal grant of protection to individual manufacturers, almost always companies, and came to be treated as rationale for a trademark system. In the developing countries, but probably to a considerable extent in the developed countries as well, the international trademark system serves the three purposes only in a very unsatisfactory and inefficient way. At the same time, it contributes to the imposition of a wide variety of obstacles to the development process.

Transnational enterprises, with oligopoly power in their markets, are now the dominant holders of trademarks. Their pattern of product

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[63] R. LEDOGAR, HUNGRY FOR PROFITS: U.S. FOOD AND DRUG MULTINATIONALS IN LATIN AMERICA (INTERNATIONAL DOCUMENTATION SERIES 70) 118 (1976). The significance of the trademark in the history of Coca-Cola should not be underestimated.

> It is worth noting that from the very beginning, Coca-Cola was heavily promoted. In the first year of production when the medicinal properties were still being stressed, total sales amounted to $50 and total advertising expenditures to $46, a ratio which might make even a modern product manager blush. The initial trademark, as well as the nickname "Coke" were registered and defended at considerable legal cost against every conceivable encroachment, intended or not. One infringement case even reached the Supreme Court in 1920, with The Coca-Cola Company emerging victorious. Careful attention was given to the shape of soda fountain glasses and the ubiquitous "Coke" bottle, and absolute control was maintained over both national and local advertising. Although exact statistics are unavailable — except for recent years — Coca-Cola has probably been the most heavily advertised product of the twentieth century.

T. HORST, AT HOME ABROAD: DOMESTIC AND FOREIGN OPERATIONS OF THE AMERICAN FOOD-PROCESSING INDUSTRY 20-21 (1974).

innovation and differentiation is geared to the purchasing capacities of the industrialized countries and is transferred, with merely minor modifications, to the more affluent segments of developing societies. Many of the products supplied are inappropriate to the needs of the majority of the population in those countries at the same time as the expansionary thrust of the transnationals generate continual displacement of the activities in those countries which were relevant to genuine development needs.

The process is not a novel one but it has acquired a new breadth and depth. The import bias, a crucial element of the trade doctrine, embraces all dimensions of relations, including the patterns of communication among countries, as all are swept into the single global market. Diversity of any meaningful kind is eradicated and the dominant schema become those of the dominant forces in the most powerful countries. Many things assist the spread and trademarks cannot be seen in isolation from the others; yet the legal monopoly granted can be modified by the developing countries as they see fit. Involving clashes with established interests, an examination of the system as a whole can clarify what the chief difficulties are.

Effects on production structures, consumption patterns and the diffusion of information all belong to a common bundle whose contents are determined by the pattern of transnational development. At the risk of simplifying a complex picture, the effects can be summarized as follows:

1. The import and sale of inappropriate products purchased not only by private consumers but also by public agencies.
2. The distortion of information, through omission and commission, such that the substantive content of publicity is low relative to its commercial content.
3. The displacement of local production for the commercial market and local consumption.
4. The transfer of the risks of market development to developing country enterprises which, due to quality control clauses and the permanence of the trademark, remain in a vulnerable position vis-á-vis the foreign producer.
5. The spillover benefits of market expansion for a multi-product foreign enterprise increase the likelihood that a situation of market power acquired in one sector can spread to others.
6. Social waste and internal "brain drain" result from the employment of substantial resources, often of trained persons, in the advertising business.

7. The conditioning of government decision-making.
8. The loss implicit in occupying a secondary role in a system whose decision-making center is elsewhere.

It is essential that a society should be able to make and use the products it wishes, that their quality should respond to the society's own standards and that objective information on alternatives and product characteristics should be available. While the emphasis persists on private rights rather than public responsibilities, conflicts and contradictions in the pursuit of these objectives will remain severe.

A Petri-Net Representation of Civil Procedure

JEFFREY A. MELDMAN*

The objective of this paper is to illustrate a Petri-net representation for a simplified subset of the Federal Rules of Civil Procedure. Petri nets are a relatively new graphical tool useful for representing well-defined behavior within a system, especially when the system is composed of participants engaged in parallel, asynchronous activities that are logically interrelated.[1] Petri nets have been found to be particularly useful for describing the behavior of computer systems,[2] but recent research suggests that they may also be useful for describing systems involving human activity,[3] and in particular for describing rules of law.[4]

Civil procedure is governed by sets of rules that describe the vari-

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[1] C. A. PETRI, COMMUNICATION WITH AUTOMATA (1962); *see also* A. W. HOLT, FINAL REPORT OF INFORMATION SYSTEM THEORY PROJECT (National Technical Information Service Rep. No. AD 676 972, 1968).

[2] For an excellent survey of Petri net research *see* Peterson, *Petri Nets,* 9 COMPUTING SURVEYS 223 (1977).

[3] Meldman, *A New Technique for Modeling the Behavior of Man-Machine Information Systems,* 18 SLOAN MANAGEMENT REV. 29 (1977).

[4] Meldman and Holt, *Petri Nets and Legal Systems,* 12 JURIMETRICS JOURNAL 65 (1971); *see also* S. J. FOX, THE HOLT-PETRI INFORMATION SYSTEMS THEORY AND LEGAL ANALYSIS (National Science Foundation, 1977).

ous acts that must be performed during the litigation of a case. The plaintiff is generally required to file a writ or complaint to which the defendant is required to respond. There are several possible forms of response (such as answers, motions, demurrers), and a defendant can also include a counterclaim against the plaintiff. Certain issues brought out by the initial documents are heard by the court at preliminary hearings and others go on to an actual trial. Quite often cases are dismissed at an early stage in the proceedings and never reach trial. These events often take place simultaneously and proceed at their own paces (parallel, asynchronous behavior), but they have important logical interactions. The descriptive capabilities of Petri nets are particularly well suited for representing this kind of systematic activity.

A Simplified Version of the Federal Rules

In order to illustrate the use of Petri nets for describing civil procedure, we will work with a simplified subset of the Federal Rules of Civil Procedure in which only the very skeletal aspects of a civil action are included.[5]

Under these simplified rules, a plaintiff begins an action with a complaint. The defendant responds with a motion to dismiss or an answer. The answer may contain a counterclaim. If there is a motion, or if the answer contains certain defenses, a preliminary hearing may be held, and this may result in the case being dismissed. The plaintiff responds to a counterclaim in much the same way as the defendant responds to a complaint. The case is then tried, and a judgment is reached and entered.

The simplified Federal Rules are as follows:

Rule 1: Scope of rules

These rules govern the procedure in . . . all suits of a civil nature . . . .

Rule 2: One form of action

There shall be one form of action to be known as "civil action."

Rule 3: Commencement of action

A civil action is commenced by filing a complaint with the court.

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[5] In the portions of the rules that are included, the exact language was preserved as much as possible.

Rule 4: Process

Upon the filing of the complaint the clerk shall forthwith issue a summons and deliver it for service to the marshal or to a person specially appointed to serve it.

. . . .

The summons and complaint shall be served together.

Rule 5: Service and filing of pleadings and motions

[Every pleading subsequent to the original complaint and every written motion shall be served upon each of the parties. All papers after the complaint required to be served upon a party shall be filed with the court before service.]

Rule 6: Time

When by these rules or by . . . order of court an act is required or allowed to be done at or within a specified time, the court . . . may . . . order the period enlarged if request therefor is made before the expiration of the period originally prescribed or as extended by a previous order . . . .

. . . A written motion, . . . and notice of the hearing thereof shall be served not later than 5 days before the time specified for the hearing . . . .

Rule 7: Pleadings allowed

There shall be a complaint and an answer; [which may or may not contain a counterclaim, and a reply to a counterclaim.] No other pleadings shall be allowed . . . .

Rule 12: Defenses: by pleading or motion

A defendant shall serve his answer within 20 days after the service of the summons and complaint upon him . . . . The plaintiff shall serve his reply to a counterclaim in the answer within 20 days after service of the answer . . . . The service of a motion permitted under this rule alters these periods of time as follows . . . . if the court denies the motion or postpones its disposition until the trial on the merits, the responsive pleading shall be served within 10 days after notice of the court's action . . . .

. . . Every defense, in law or fact, to a claim for relief in any pleading, whether a claim, or counterclaim, . . . shall be asserted in the responsive pleading thereto . . . except that the following defenses may at the option of the pleader be made by motion: (1) lack of jurisdiction

over the subject matter, (2) lack of jurisdiction over the person, (3) improper venue, (4) insufficiency of process, (5) insufficiency of service of process, (6) failure to state a claim upon which relief can be granted.... A motion making any of these defenses shall be made before pleading....

....

[These defenses] whether made in a pleading or by motion... shall be heard and determined [at a hearing] before trial on application of any party, unless the court orders that the hearing and determination thereof be deferred until the trial.

Rule 15: Amended pleadings

A party may amend his pleading once as a matter of course at any time before a responsive pleading is served or, if the pleading is one to which no responsive pleading is permitted and the action has not been placed upon the trial calendar, he may so amend it at any time within 20 days after it is served. A party shall plead in response to an amended pleading within the time remaining for response to the original pleading or within 10 days after service of the amended pleading, whichever period may be the longer....

Rule 40: Assignment of cases for trial

An action shall be placed upon the trial calendar, without request of the parties, after the service of all pleadings and of notice of the court's action in all preliminary hearings.

Rule 41: Dismissal of action

... [A]n action may be dismissed by the plaintiff without order of the court... by filing a notice of dismissal at any time before service by the adverse party of an answer....

....

... The provisions of this rule apply to the dismissal of any counterclaim.... A voluntary dismissal by the claimant [without order of the court] shall be made before a responsive pleading is served....

Rule 55: Default

When a party against whom a judgment for affirmative relief is sought has failed to plead or otherwise defend as provided by these rules... the clerk shall enter his default.

....

... The provisions of this rule apply whether the party entitled to the judgment by default is a plaintiff, [or whether he is a defendant] who has pleaded a counterclaim.

Rule 58: Entry of judgment

[Upon a decision by the court that a party shall be granted or be denied relief, the clerk shall enter the judgment.]

Petri Nets

Petri nets are constructed graphically from circles and rectangles and from arrows that connect the circles to the rectangles. The circles represent *states (i.e.,* the status) of participants at particular times of system activity. The rectangles represent *transitions* between successive states.[6] *Figure 1* is an example of a simple Petri net in which the circles S_1 and S_2 represent two successive states, and the rectangle T represents the transition that ends the first state and starts the second state.

To keep track of which are the current states at a particular time in the system, we place a *marker* (drawn as a large dot) in those states that are currently *holding.* Thus in *Figure 2,* states S_1 and S_2 are currently holding, while states S_3, S_4 and S_5 are not currently holding.

As also can be seen from *Figure 2,* there may be more than one state leading to, or leading from, a particular transition. A transition in a Petri net takes place only when *all* of the states leading to it are holding. Thus the transition T in *Figure 2* cannot yet take place because one of the states leading to it, state S_3, is not now holding. On the other hand, the transition T in *Figure 3* can take place because all of the states leading to it are holding. When a transition does take place, all of the states leading to it stop holding and all of the states leading from it start to hold, as is shown in *Figure 4.*

Sometimes there is more than one transition to which, or from which, a particular state leads. This is illustrated in *Figure 5.* In this situation we say that there is a *conflict* since it cannot be determined which of the alternatively possible transitions will take place (only one of them may). Often these conflicts are resolved by other states in the net. For example in *Figure 6* transition T_2 takes place (and not transition T_1) because state S_5 is holding while state S_1 is holding, whereas state S_4 is not holding.

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[6] In much of the literature a solid bar is used instead of a rectangle to represent a transition.

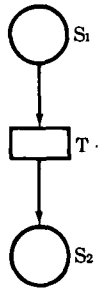

Figure 1

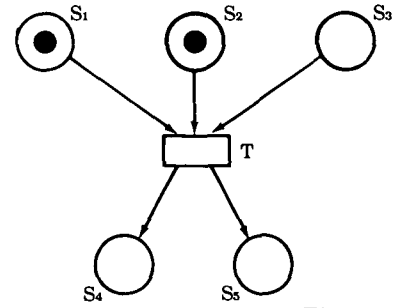

Figure 2

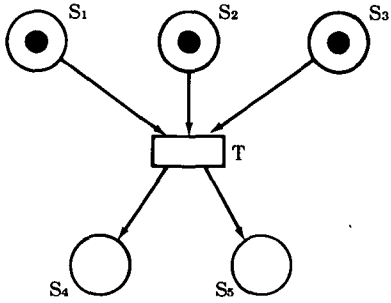

Figure 3

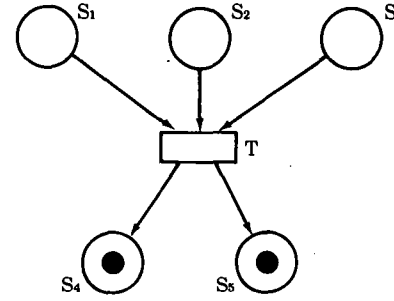

Figure 4

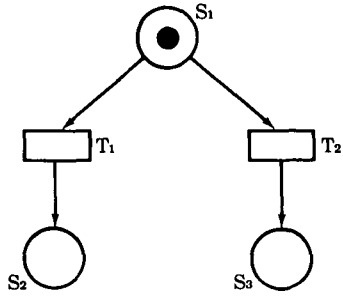

Figure 5

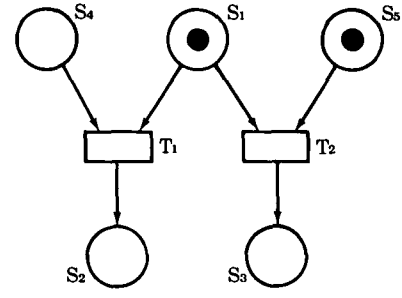

Figure 6

We can simplify the graphics of Petri nets so that they can be understood more easily by those who are not used to dealing with computer-oriented diagrams. Also, because there are certain simple patterns that appear frequently in descriptions of civil procedure, it will be helpful to create easily read symbols to represent them. We will therefore use a somewhat "higher-order" graphical language built out of the simple Petri-net components just described.

Figure 7 depicts the basic elements of this language along with their Petri-net definitions. The most basic element is a *simple event,* symbolized by a box with an input arrow and an output arrow. This represents a simple transition-state pair in a Petri net. (That the state *follows* the transition is an arbitrary choice.) Conjunction upon leaving or entering an event is symbolized by filled circles at the ends of the arrows; disjunction, by the absence of filled circles. Conjunction between events is symbolized by a filled circle; disjunction, by an open circle. Note that the Petri-net equivalent of disjunction upon entering an event contains an extra transition-state pair. This is done in order that there always be a unique transition, within the Petri-net equivalent of a simple event, the taking place of which corresponds to the occurrence of the event.

An event is said to be *ready* as soon as any one of its disjoined preceding events and all of its conjoined preceding events have occurred. A simple event will occur as soon as it is ready.

Figures 8 and *9* illustrate the *optional event.* The optional event is symbolized in the same way as is the simple event, except that there is a pair of parentheses enclosing the name of the event and a person's name just before the parentheses. Such an event functions as follows: As soon as the event is ready, the named person receives an option to perform this event. The event then occurs if and when that person exercises his option. An optional event may have a *cut-off* input and a *default* output as shown in *Figures 10* and *11.* If so, the functioning of the event is altered as follows: If the cut-off input becomes ready (in the same sense that an event becomes ready) before the event occurs, then the named person loses his option (or his ability ever to receive the option) and, instead, the default output behaves as if it were an occurring event. Conflicts arising when the event and the default input become ready at the same time always result in the occurrence of the event itself.

Figure 12 depicts a delay element. A delay element with parameter N behaves just like a simple event except that it takes a marker N days to travel "through" the corresponding transition in the Petri-net equivalent.

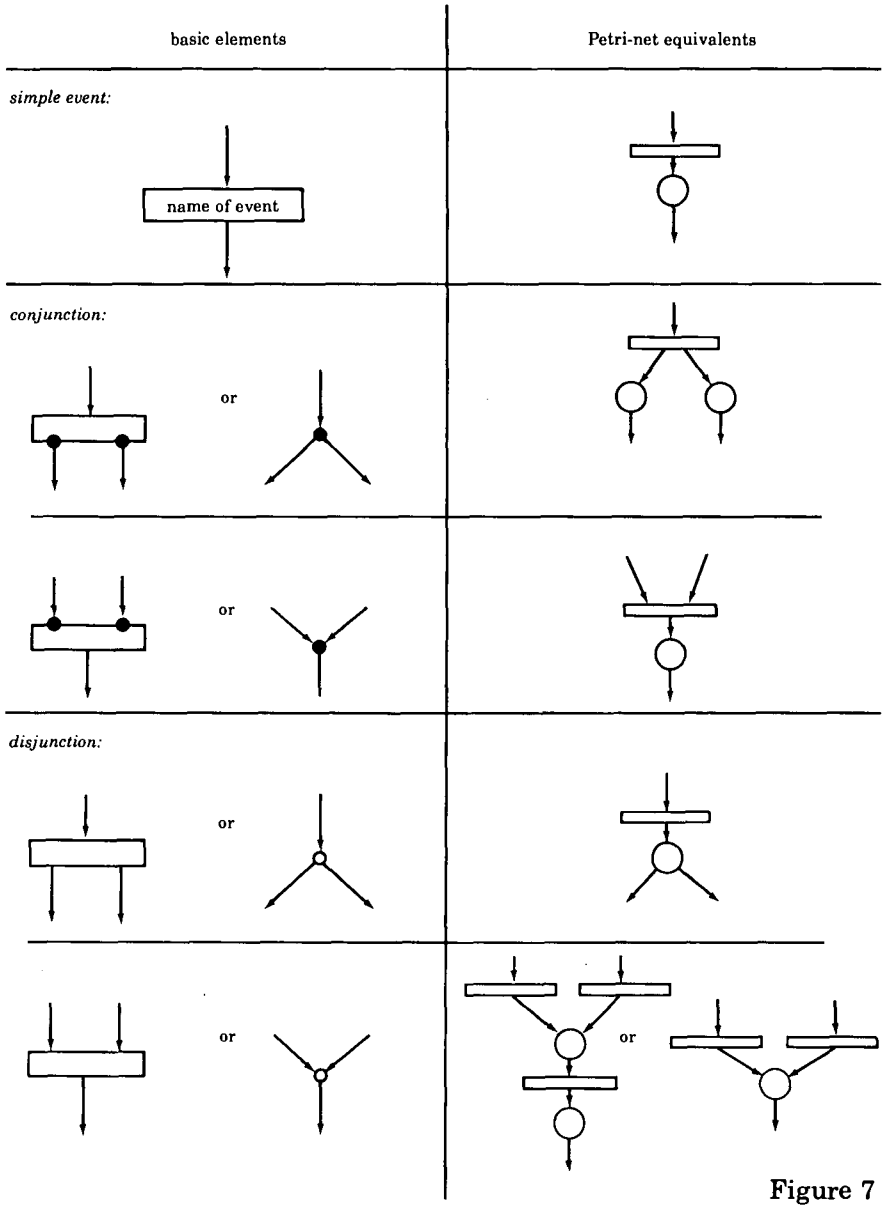

Figure 7

Optional events are included as an element of this language because the pattern of optionality occurs so frequently in the Federal Rules. The parties in an action have many options open to them, and

optional events

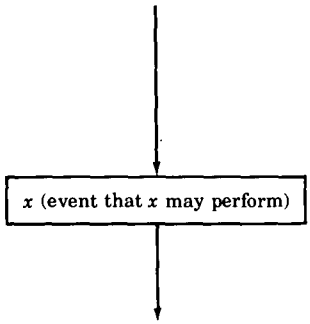

Figure 8

Petri-net equivalents

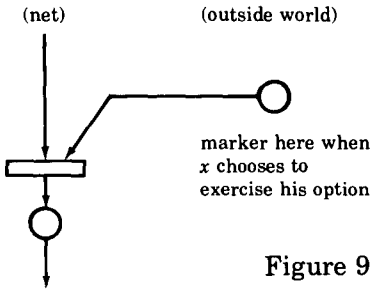

Figure 9

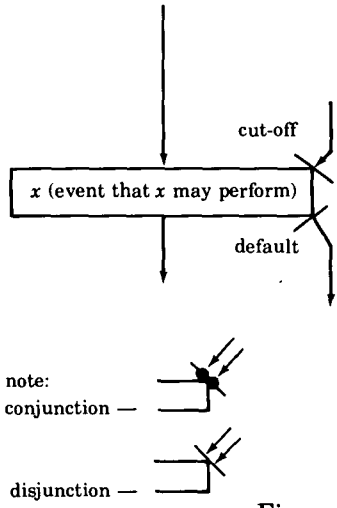

Figure 10

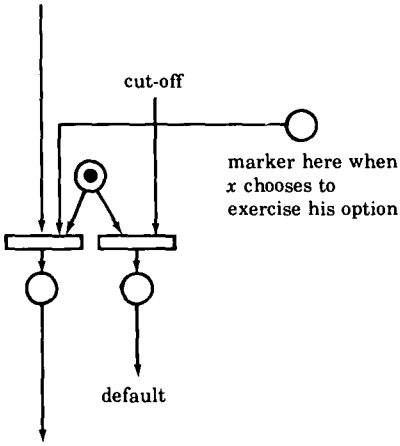

Figure 11

Figure 12

usually there is a set of consequential events that follow from a failure to exercise certain options within specified periods of time. For example, very often a person is given twenty days in which to respond to a certain event or else a default event occurs. With the Petri-net language set forth above, this could be stated as shown in *Figure 13*.

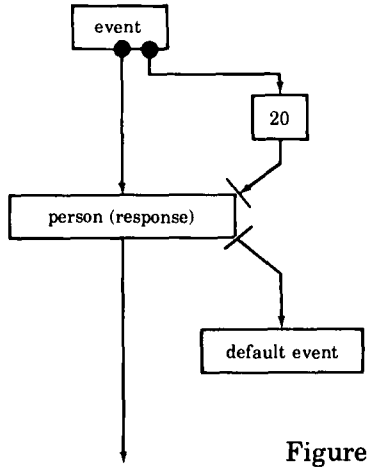

Figure 13

Translation of the Rules into the Petri-Net Language

In order to translate the Federal Rules into a Petri-net description, the following method was used. First a loose translation of each rule was made. It was a "loose" translation in that some of the details of one rule depend on other rules. Also, some common-sense interpolation (assumed by the rules as expressed in natural language) had to be supplied. These rule-by-rule translations were then used as guides for constructing a complete Petri-net description of the entire simplified sub-set of the Federal Rules.

The following abbreviations are used in the diagrams:

P = plaintiff
D = defendant
x = one of the parties; y = the other party
w/ = with
w/o = without
pl = pleading
resp = response
def = defense

ans, answ = answer
cntrclm, countercl = counterclaim
Wherever the named person of an optional event is omitted, it is assumed to be the court.

Rule 3: Commencement of action

A civil action is commenced by filing a complaint with the court.

Rule 4: Process[7]

Upon the filing of the complaint the clerk shall forthwith issue a summons and deliver it for service to the marshal or to a person specially appointed to serve it.

. . . .

. . . The summons and complaint shall be served together. *(Figure 14.)*

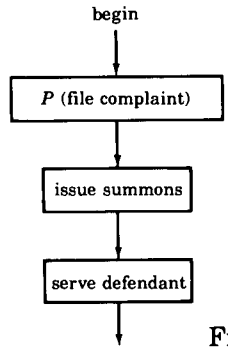

Figure 14

Rule 5: Service and filing of pleadings and motions

. . . [E]very pleading subsequent to the original complaint [and] every written motion . . . shall be served upon each of the parties.

. . . .

[7] As is usually the case with Petri nets, we can specify the description at whatever level we desire according to how we name the events (transitions). In this case we are not particularly concerned with the marshal as a separate entity, so his activity is considered to be part of the named events.

... All papers after the complaint required to be served upon a party shall be filed with the court before service. *(Figure 15.)*

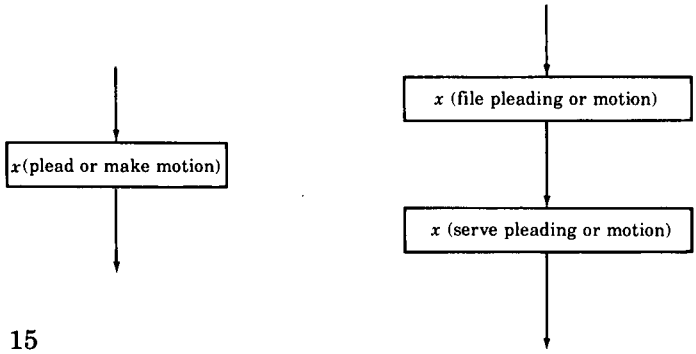

Figure 15

Rule 6: Time[8]

When by these rules or by ... order of court an act is required or allowed to be done at or within a specified time, the court ... may order the period enlarged if request therefor is made before the expiration of the period originally prescribed or as extended by a previous order ....

....

... A written motion, ... and notice of the hearing thereof shall be served not later than 5 days before the time specified for the hearing .... *(Figures 16* and *17.)*

Rule 7: Pleadings allowed

There shall be a complaint and an answer; [which may or may not contain a counterclaim, and a reply to a counterclaim.] No other pleadings shall be allowed .... *(Figure 18.)*

---

[8] Note that the first part of this rule is recursive. Each extension granted by the court can again be extended in the same manner. The recursion ends when a party neglects to ask for another extension or when the court denies such a request. In as much as a recursive subnet can be expanded an infinite number of times, in all further diagrams the symbol T* will be intended to imply the operation of the first part of *Rule 6,* and no further expansion will be explicitly shown.

The first part of *Rule 6* also provides an example of how some common sense must be interpolated into the natural-language exposition of the rules. The arrow from the event "---" back to the cut-off input of the event "request extension" has been included because it would make no sense to request an extension for the performance of an operation after the operation has been performed.

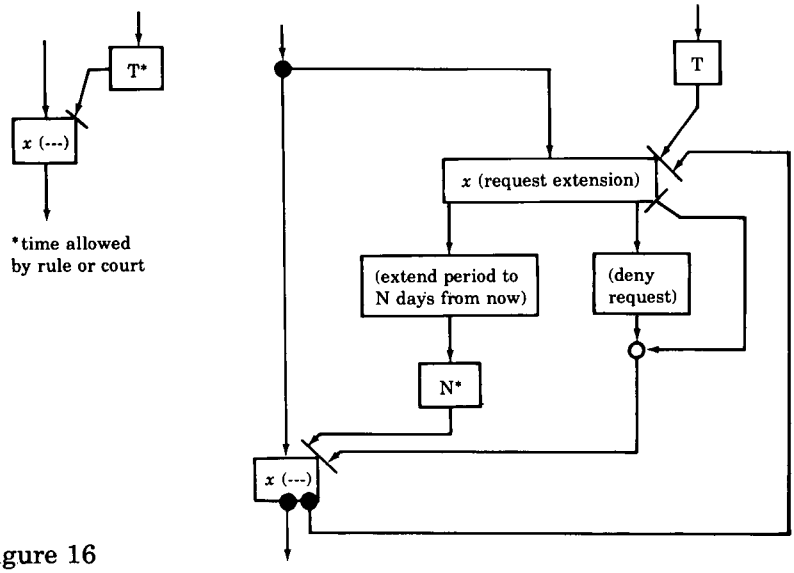

Figure 16

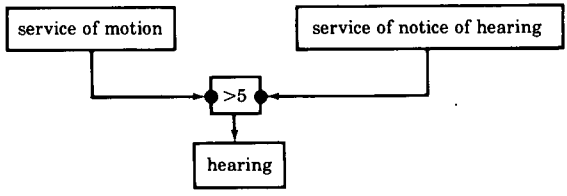

Figure 17

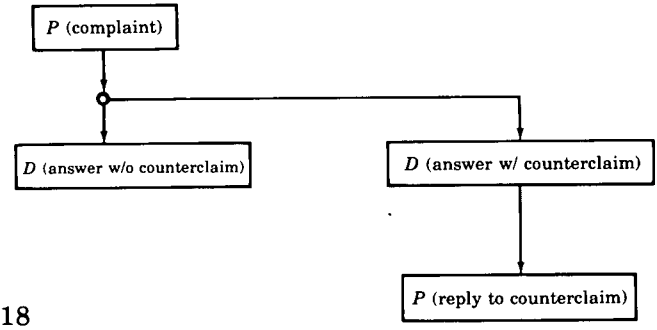

Figure 18

Rule 12: Defenses: by pleading or motion

A defendant shall serve his answer within 20 days after the service of the summons and complaint upon him .... The plaintiff shall serve his reply to a counterclaim in the answer within 20 days after service of the answer .... The service of a motion permitted under this rule alters these periods of time as follows .... if the court denies the motion or postpones its disposition until the trial on the merits, the responsive pleading shall be served within 10 days after notice of the court's action. *(Figures 19* and *20.)*

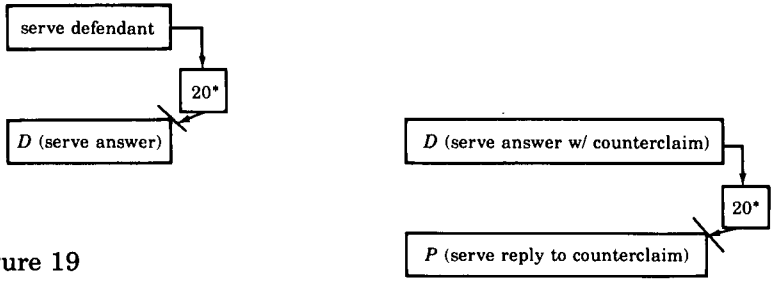

Figure 19

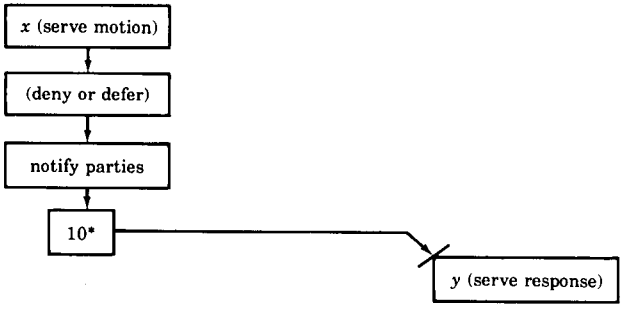

Figure 20

... Every defense, in law or fact, to a claim for relief in any pleading, whether a claim, or counterclaim, ... shall be asserted in the responsive pleading thereto ... except that the following defenses may at the option of the pleader be made by motion: (1) lack of jurisdiction over the subject matter, (2) lack of jurisdiction over the person, (3) improper venue, (4) insufficiency of process, (5) insufficiency of service of process, (6) failure to state a claim upon which relief can be granted. A motion making any of these defenses shall be made before pleading ....

. . . .

[These defenses] whether made in a pleading or by motion, . . . shall be heard and determined [at a hearing] before trial on application of any party, unless the court orders that the hearing and determination thereof be deferred until the trial. *(Figure 21.)*

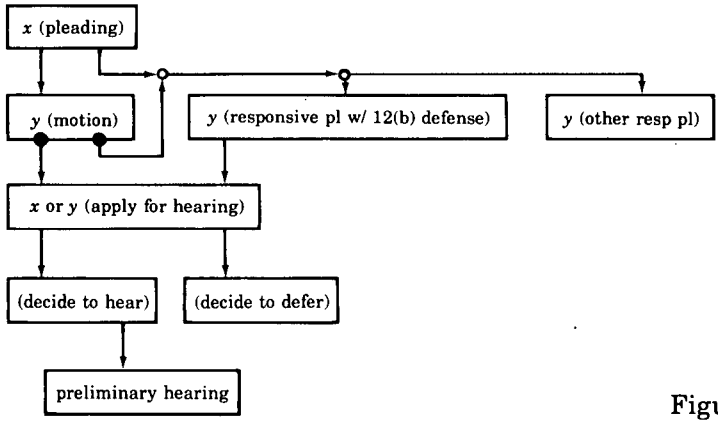

Figure 21

Rule 15: Amended pleadings[9]

A party may amend his pleading once as a matter of course at any time before a responsive pleading is served or, if the pleading is one

---

[9] This rule includes a relatively complex cut-off situation; namely, that portion of the rule which states: "A party shall plead in response to an amended pleading within the time remaining for response to the original pleading or within 10 days after service of the amended pleading, whichever period may be the longer."

As shown in *Figure 22,* when the cut-off input for *y*'s response would originally have become ready, instead, only one of two conjoined cut-off inputs becomes ready. At the same time, *x*'s option to amend his pleading is cut off. Thus if at that time *x* has not yet amended his pleading, this option is defaulted, causing the other of the two conjoined cut-off inputs for *y*'s response to become ready. *Y*'s option to respond is thereby cut off. On the other hand, if at that same time *x* has already amended his pleading, then the other of the two conjoined cut-off inputs for *y's* response does not become ready until ten days after the amended response was made. Thus, *y's* option to respond is cut-off either at the end of the original cut-off period or ten days after *x* amends his pleading (if he does), whichever occurs later.

Again some common-sense interpolation is involved. In the Petri-net language description of this rule, *x* loses his option to amend his pleading at the end of the original cut-off period for *y*'s response, *even if y has not responded by then.* This fact does not appear in the original rule, but it would be senseless for *x* to amend after that time since *y* would then be in default as specified in *Rule 55.*

to which no responsive pleading is permitted and the action has not been placed upon the trial calendar, he may so amend it at any time within 20 days after it is served. A party shall plead in response to an amended pleading within the time remaining for response to the original pleading or within 10 days after service of the amended pleading, whichever period may be the longer. *(Figures 22* and *23.)*

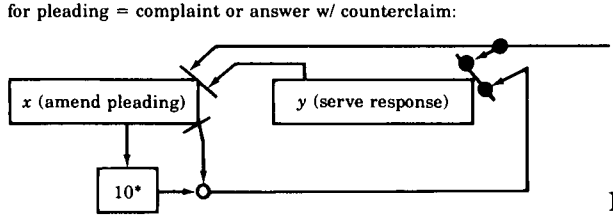

Figure 22

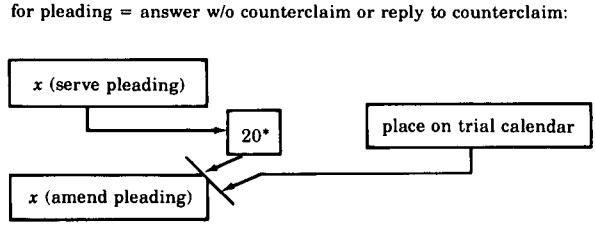

Figure 23

Rule 40: Assignment of cases for trial

[An action shall be placed upon the trial calendar, without request of the parties, after the service of all pleadings and of notice of the court's action in all preliminary hearings.] *(Figure 24.)*

Rule 41: Dismissal of action

... [A]n action may be dismissed by the plaintiff without order of the court ... by filing a notice of dismissal at any time before service by the adverse party of an answer.

....

... The provisions of this rule apply also to the dismissal of any counterclaim .... A voluntary dismissal by the claimant [without order of the court] shall be made before a responsive pleading is served .... *(Figures 25* and *26.)*

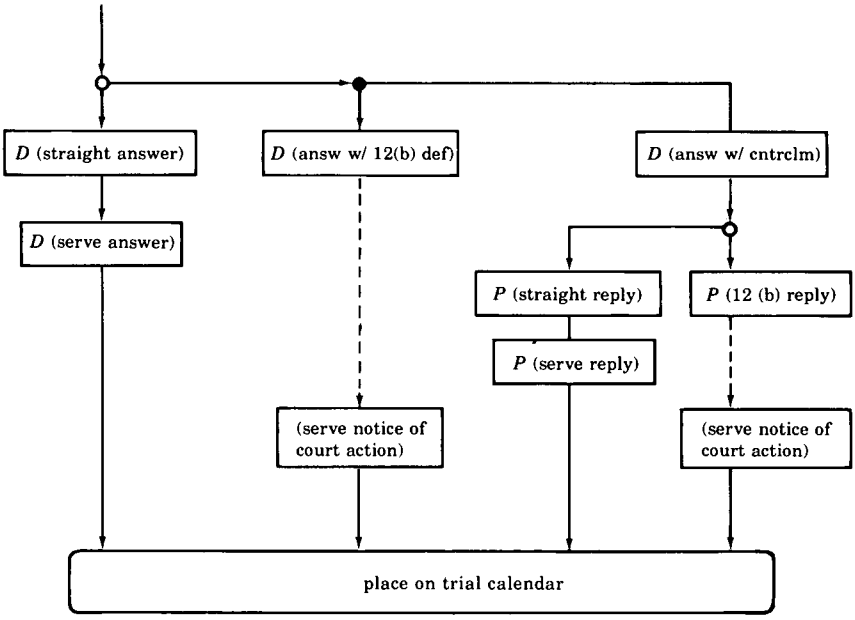

Figure 24

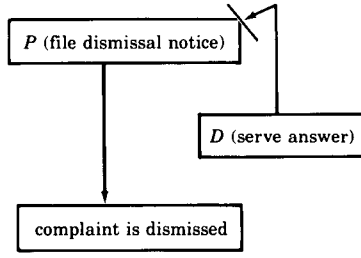

Figure 25

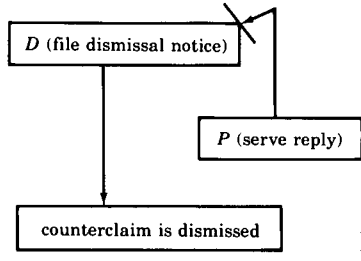

Figure 26

Rule 55: Default

When a party against whom a judgment for affirmative relief is sought has failed to plead or otherwise defend as provided by these rules . . . the clerk shall enter his default.

. . . .

. . . The provisions of this rule apply whether the party entitled to the judgment by default is a plaintiff, [or whether he is a defendant] who has pleaded a counterclaim. *(Figure 27.)*

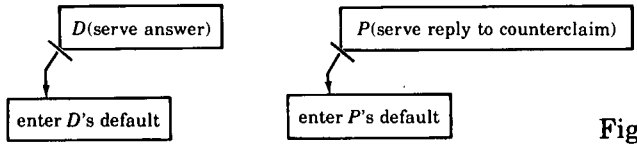

Figure 27

Rule 58: Entry of judgment

[Upon a decision by the court that a party shall be granted or be denied relief, the clerk shall enter the judgment.] *(Figure 28.)*

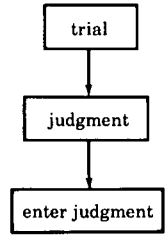

Figure 28

Using these rule-by-rule translations as guides, an overall description of the entire subset of the rules can be formulated. The result is shown in *Figure 29*. At first glance, this description may appear more complex and difficult to follow than the original text. For many purposes this is probably true. However, there are also purposes for which the Petri-net description is superior. For example, it is relatively simple to determine from the Petri-net description those events that are the precedents or the consequents of any event of interest. This is rather difficult to do from the original English text. But rather than discuss whether one of these descriptions is somehow "better" than the other, we can see that both descriptions together

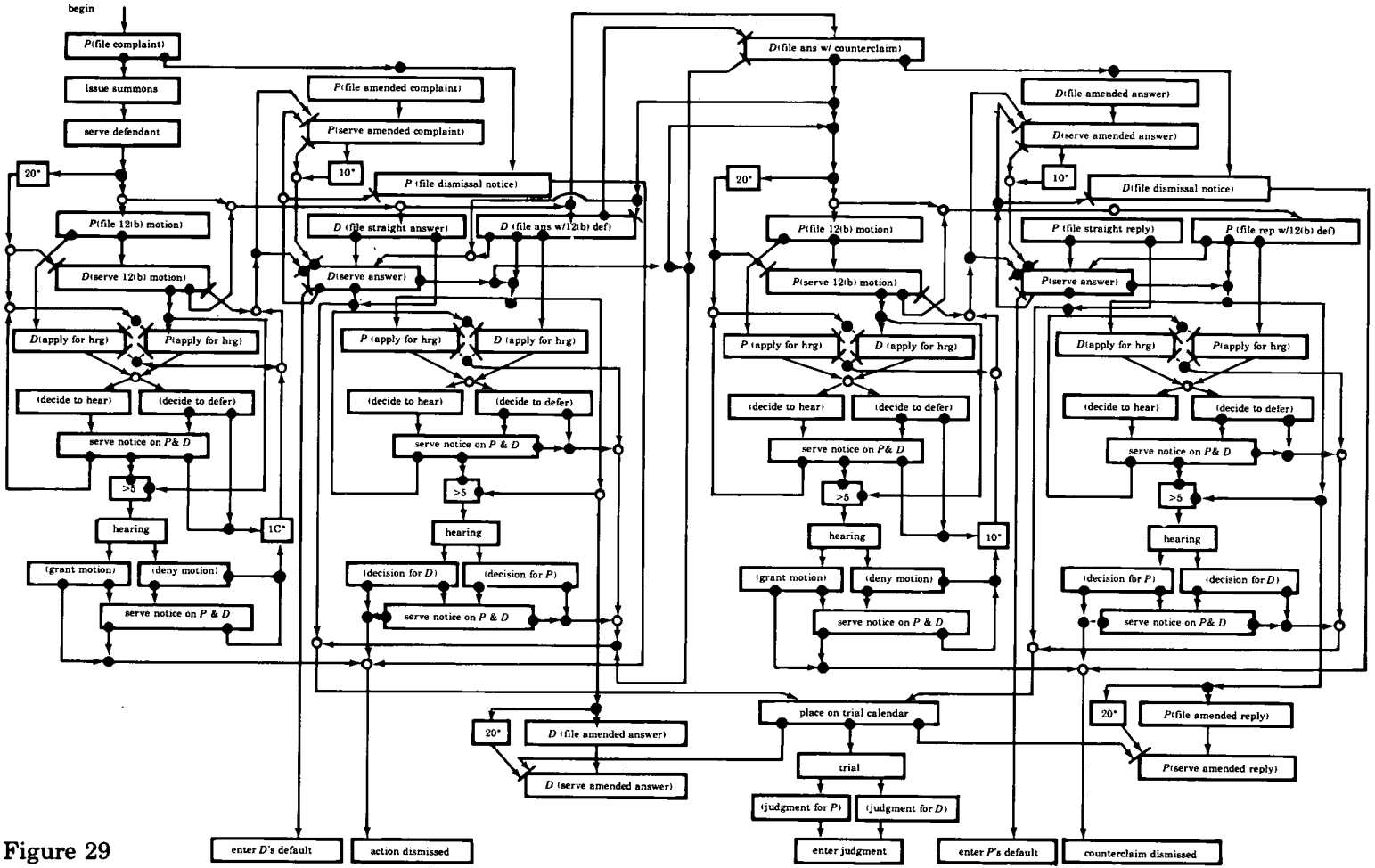
begin
P(file complaint)
issue summons
serve defendant
20*
P(file 12(b) motion)
D(serve 12(b) motion)
D(apply for hrg)
P(apply for hrg)
(decide to hear)
(decide to defer)
serve notice on P& D
>5
hearing
1C*
(grant motion)
(deny motion)
serve notice on P & D
P(file amended complaint)
P(serve amended complaint)
10*
P (file dismissal notice)
D (file straight answer)
D (file ans w/12(b) def)
D(serve answer)
P (apply for hrg)
D (apply for hrg)
(decide to hear)
(decide to defer)
serve notice on P & D
>5
hearing
(decision for D)
(decision for P)
serve notice on P & D
D(file ans w/ counterclaim)
20*
P(file 12(b) motion)
P(serve 12(b) motion)
P (apply for hrg)
D (apply for hrg)
(decide to hear)
(decide to defer)
serve notice on P& D
>5
hearing
10*
(grant motion)
(deny motion)
serve notice on P & D
D(file amended answer)
D(serve amended answer)
10*
D(file dismissal notice)
P (file straight reply)
P (file rep w/12(b) def)
P(serve answer)
D(apply for hrg)
P(apply for hrg)
(decide to hear)
(decide to defer)
serve notice on P& D
>5
hearing
(decision for P)
(decision for D)
serve notice on P& D
20*
D (file amended answer)
D (serve amended answer)
place on trial calendar
trial
(judgment for P)
(judgment for D)
enter judgment
20*
P(file amended reply)
P(serve amended reply)
enter D's default
action dismissed
enter P's default
counterclaim dismissed

Figure 29

provide a more useful source of information about the Federal Rules than does either description alone.[10]

The General Event and Event Hierarchies

One advantageous feature of the Petri-net description is that it is well suited to hierarchical modularization. Notice that in *Figure 29* there are several portions that are quite similar to other portions. It would be a valuable improvement to our language if we could isolate such event-like subnets, identify them, and then refer to them in a description as if they were simply single events. This would eliminate a lot of the repetition in the description and it would also allow for higher levels of description — levels at which the details of certain subnets need not be included.

To achieve this improvement, an additional element must be added to the Petri-net language already described. This is the *general event,* and its symbol is shown in *Figure 30.* A general event is a subnet of a Petri-net description, and it comprises the basic elements of the Petri-net language, possibly including other general events. It also has input and output terminals, which are merely graphical indications of how the general event is connected within a larger net. Associated with every general event there must be a *definition,* which is in fact just the Petri-net description of the "inside" of the general event. General events are identified by names, which appear at the center of the symbol. There may also be included in the symbol labels for the terminals. These labels specify what happens just after input terminals are entered and just before output terminals are departed. Usually these labels will be the names of the events that are consequents of the input terminals and precedents of the output terminals. However, rigorous identification of the terminals is achieved simply by numbering them, and the labels are intended merely to help the reader of a description to recall how the general events begin and end. A general event may also have a cut-off input and a default output. These function exactly the same as they do in a single optional event; all options inside the general event are lost when the cut-off input becomes ready, and the default output then behaves like an occurring event.

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[10] Of course, the Petri-net description is the kind of description that one would want to have if one were designing a computer simulation of the behavior of civil actions. Methods of simulating the activity of Petri-nets are already known, and the implementation of these rules described as Petri-nets would therefore be quite straightforward. This paper however, is not directly concerned with such simulation.

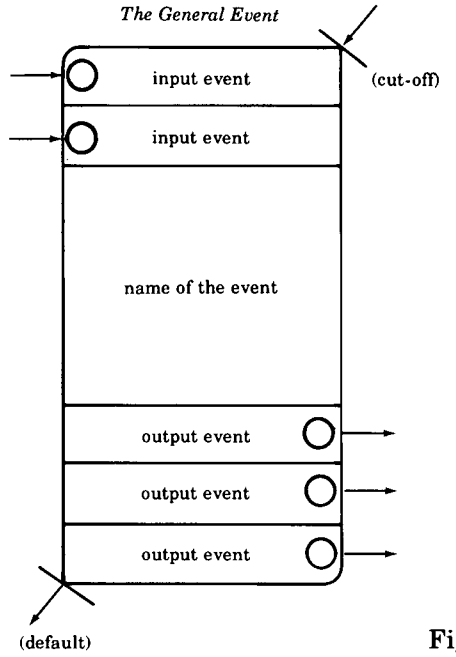

Figure 30

Looking again at the description in *Figure 29,* we see that a group of events related to a preliminary hearing is repeated in four different places; after a 12(b) motion or a 12(b) defense is made in response to a complaint or to a counterclaim. This group of events can be collected into a general event which we call a *hearing.* The symbol and the definition for a hearing are shown in *Figures 31* and *32.* The letters *R* and *C* that appear in the terminal labels and in the definition can be thought of as variables belonging to the general event. (They stand for

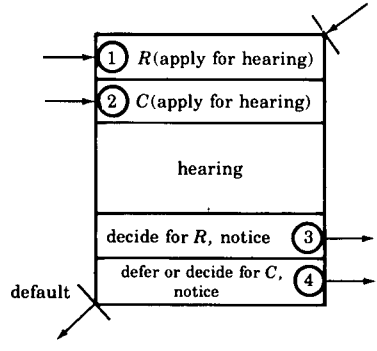

Figure 31

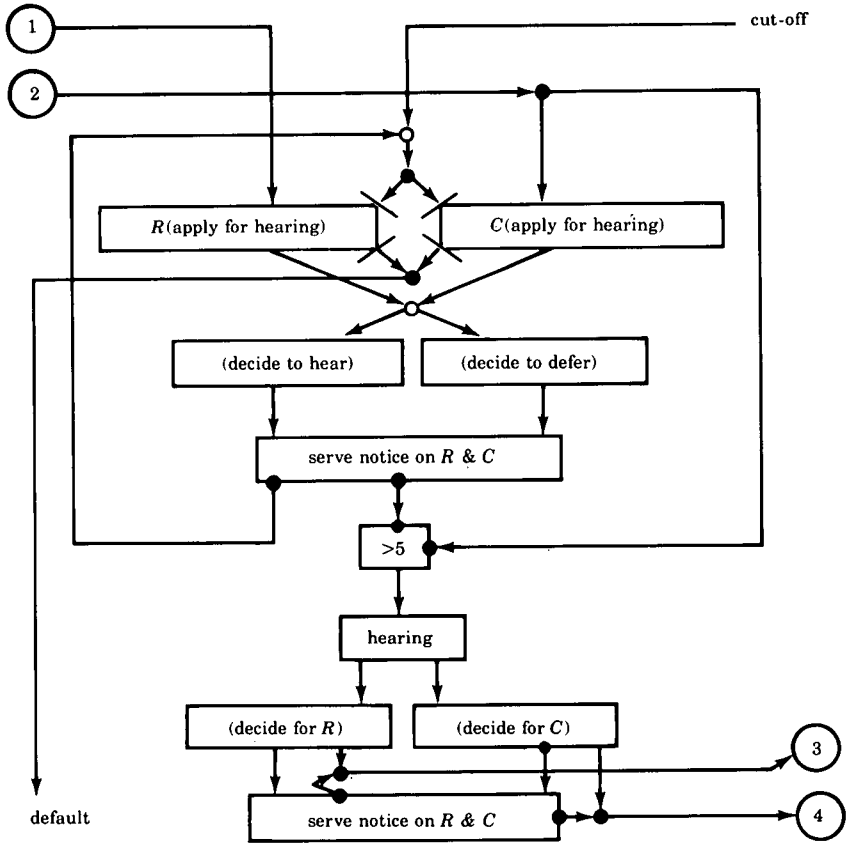

Figure 32

the words respondant and claimant.) These variables take on the values *P* (plaintiff) or *D* (defendant) according to the context in which the hearing occurs. When a larger net uses a *hearing* module as a general event, it specifies the values for the variables in the terminal labels. An example will be presented shortly.

We might next notice that the entire set of events following a complaint resembles quite closely the set of events following a counterclaim. We thus create a general event called *response* with a symbol as shown in *Figure 33* and a definition as shown in *Figure 34*.

The *response* module contains two *hearing* modules. It also contains another *response* module. Note however that terminal number 2 determines how far this recursion can proceed. When a counterclaim is

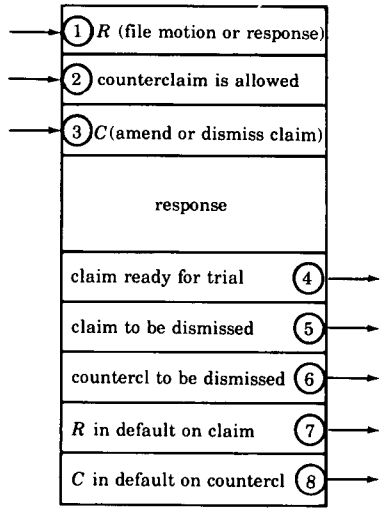

Figure 33

allowed, such as after a complaint, then a further response module may be entered. But when a counterclaim is not allowed, such as after a counterclaim, then no further *response* modules are needed.

Figure 34 illustrates another interesting point. There appears to be an omission in the rules with regard to a cut-off for an application for a hearing after a response with a 12(b) defense. We cannot infer such a cut-off from common-sense arguments. Such an omission is difficult to find from simply reading the text of all of the rules, but it comes right to the surface when attempting to describe the rules in the Petri-net language.

Having defined these two general events, we are ready to formulate a higher level description of the entire simplified subset of rules as described in detail in *Figure 29*. This higher level description appears in *Figure 35*. Notice that the variables R and C are set to the values D and P, respectively, by substitution in the terminal labels of the *response* general event.

An event hierarchy has now been created. With it we can describe the Federal Rules at any one of several levels of detail by choosing which general events we wish to expand by their definitions and which ones we wish to leave as modules. A full expansion (lowest level) would take us right back to the description shown in *Figure 29*.

Furthermore, the entire description of these rules could be thought of as one big general event called, perhaps, a *civil action*. It could have a symbol as shown in *Figure 36* and a definition essentially as

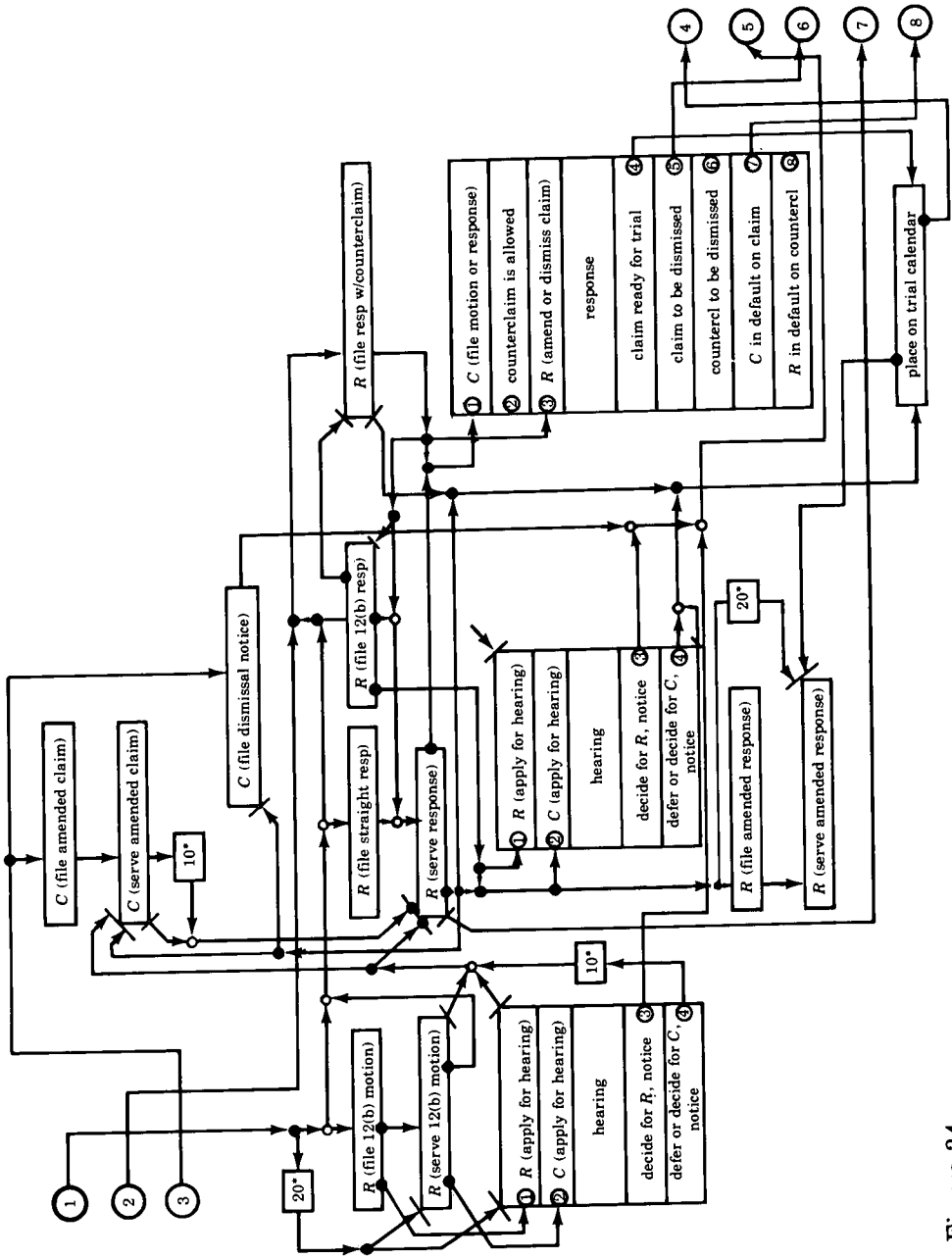
C (file amended claim)
C (serve amended claim)
10*
C (file dismissal notice)
R (file straight resp)
R (file 12(b) resp)
R (file resp w/counterclaim)
R (serve response)
C (file motion or response)
counterclaim is allowed
R (amend or dismiss claim)
response
claim ready for trial
claim to be dismissed
counterc l to be dismissed
C in default on claim
R in default on counterc l
place on trial calendar
R (apply for hearing)
C (apply for hearing)
hearing
decide for R, notice
defer or decide for C, notice
20*
R (file amended response)
R (serve amended response)
R (file 12(b) motion)
R (serve 12(b) motion)
1
2
3
4
5
6
7
8

Figure 34

indicated by the *Figure 35*. Such an event might be used as part of a larger Petri-net description of legal activity including other events such as appeals.

Conclusion

Although the Petri-net language developed in this paper is aimed

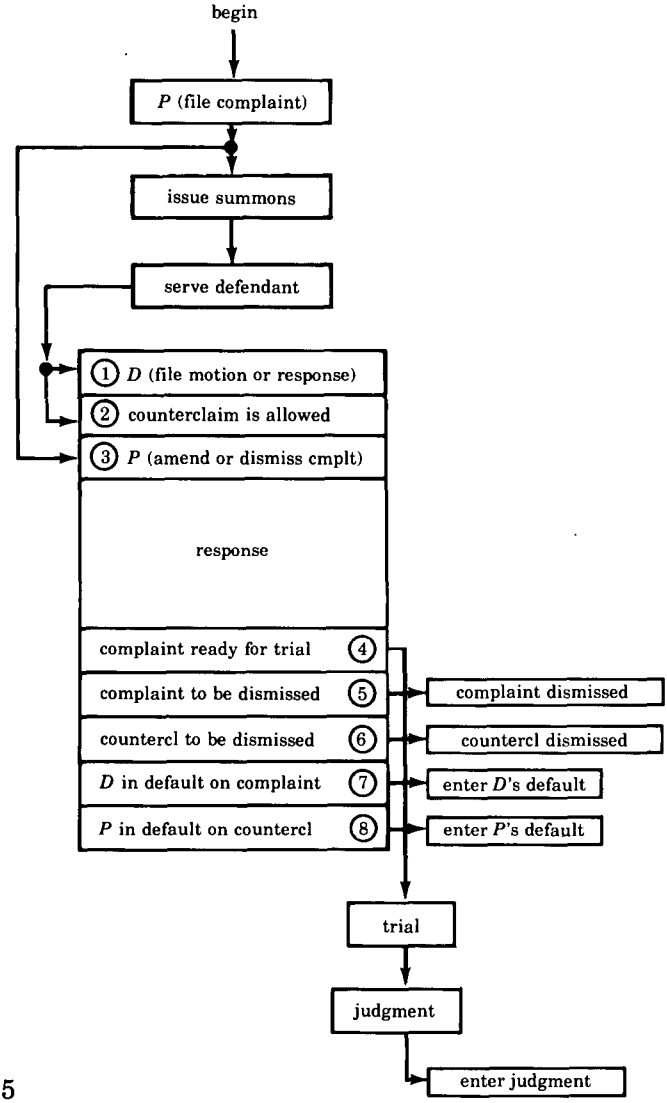

Figure 35

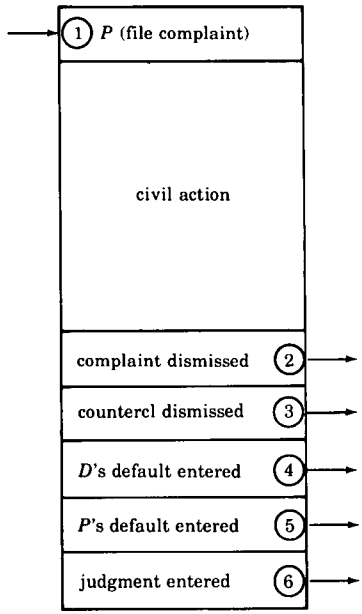

Figure 36

primarily at describing the kinds of activities that are typically involved in civil procedure, the elements of the language might also be useful in describing other realms of structured human activity. More significantly, other forms of Petri-net languages can probably be created specifically to suit other complex human interactions that involve parallel, asynchronous activity. Besides being useful for computer simulations and similar research methods, the descriptions in such languages might be directly useful in helping us to understand the intricacies of these interactions, especially when the systems are so large and complex that descriptions in conventional languages are confusing or otherwise inadequate.

Legalized Piracy: The Compulsory Licensing of Phonorecords Under the Copyright Revision Act of 1976

PAUL B. MANCHESTER*

The compulsory licensing of phonorecords has been termed the most controversial issue of the 1909 Copyright Act.[1] Section 115 of the Copyright Revision Act of 1976[2] retains in modified form this provision of the 1909 Act:

> When phonorecords of a nondramatic musical work have been distributed to the public in the United States under the authority of the copyright owner, any other person may, by complying with the provisions of this section, obtain a compulsory license to make and distribute phono-

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1 H.R. REP. NO. 1476, 94th Cong., 2d Sess. 105 (1976) [hereinafter cited as H.R. REP.]. "Phonorecords," as defined in Section 101 of the 1976 Act, are "material objects in which sounds, other than those accompanying a motion picture or other audiovisual work, are fixed by any method now known or later developed, and from which the sounds can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." Congress apparently found it necessary to coin this new word to cover both records and tapes and to allow for any future technological developments.

2 Act of October 19, 1976, Pub. L. No. 94-553, 90 Stat. 2541.

> records of the work .... Any person who wishes to obtain a compulsory license under this section shall, before or within thirty days after making, and before distributing any phonorecords of the work, serve notice of intention to do so on the copyright owner.... The Royalty under a compulsory license shall be payable for every phonorecord made and distributed in accordance with the license .... With respect to each work embodied in the phonorecord, the royalty shall be either two and three-fourth cents, or one-half of one cent per minute of playing time or fraction thereof, whichever amount is larger.

The background of the compulsory licensing provision of the 1909 Act has been discussed in varying levels of detail by several authors.[3] The major concern of Congress at the time was that the Aeolian Company might monopolize the production of piano rolls by obtaining long-term exclusive contracts with many of the music publishers. In lieu of antitrust policy, Congress decided to deal with this potentiality through the institution of compulsory licensing. Without a ceiling on the royalty to be paid, the intent of compulsory licensing could be circumvented by demanding unreasonably high royalties; thus after much debate the ceiling was set at two cents on "each such part manufactured."

This provision was unchanged until 1976, although many attempts at change were made.[4] The House of Representatives increased the ceiling royalty rate to 2.5 cents per selection in the late 1960s, and the Senate increased it to 3 cents in the mid 1970s, but in both cases the other house did not take action. With the development of long-playing records, record companies, music publishers and composers agreed that the 2 cent rate was inadequate for longer works; thus an industry custom of paying royalties at the rate of one-fourth cent per minute on long works of serious music developed.[5]

The 1976 Act clarifies several points in the 1909 Act and makes royalties payable for "every phonorecord made and distributed," rather than for "each such part manufactured." That is, royalties are not payable for records manufactured and added to inventory but not

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[3] Peer, *Licensing: Copyright Royalties and Exemptions in the Music Industry,* 17 IDEA 45, 46 (1975); Legislative Reference Service, *The Mechanical Royalty Rate on Sound Recordings: Survey of Issues Before the Judiciary Committees of the Congress* 5-6 (1969) [hereinafter cited as *Mech. Royalty Rate*]; Copyright Office, COPYRIGHT LAW REVISIONS STUDIES, STUDY NO. 5, *The Compulsory License Provisions of the United States* 19, 23, 31, 53-4 (1956) [hereinafter cited as *Compul. License Prov.*].

[4] *See Mech. Royalty Rate* and *Compul. License Prov., supra* note 3; H.R. REP., *supra* note 1.

[5] *Hearings on H.R. 2223 Before the Subcomm. on Courts, Civil Liberties and Admin. of Justice of the House Comm. on the Judiciary,* 94th Cong., 1st Sess. 1594 (1975) [hereinafter cited as *Hearings*].

sold. The rationale for the provision contained in the House Committee report is based on the assumption that:

> It is unjustified to require a compulsory licensee to pay license fees on records which merely go into inventory, which may later be destroyed, and from which the record producer gains no economic benefit.[6]

This appears to be a novel principle of "economic justice." Of course copyright holders have the right to voluntarily agree to such a procedure by negotiation; but it seems unusual for Congress to intervene in the private market and pass a law providing in essence that manufacturers of a product need not pay the costs of some of their inputs on unsold inventory. The Copyright Office, citing the 1967 House report, opposed this "extremely significant" change:

> We remain convinced that, as stated in the House reports of 1966 and 1967, a recordmaker should not be free to reproduce as many phonorecords as he wishes without any permission from or obligation to the copyright owner, and then to pay a royalty only with respect to the phonorecords he eventually distributes to the public.[7]

The most important and most debated provision in the 1976 Act is the increase as of January 1, 1978 in the compulsory licensing royalty rate from 2 cents per work (or, by custom, one-fourth cent per minute or fraction thereof) to 2.75 cents per work, or one-half cent per minute or fraction thereof, whichever is greater. Thus the royalty under the compulsory license will be 3 cents for songs over 5 minutes in length, 3.5 cents for songs over 6 minutes in length, and so forth.

Chapter 8 of the 1976 Act established the Copyright Royalty Tribunal to, *inter alia,* "make determinations concerning the adjustment of reasonable copyright royalty rates" under Section 115 so as to achieve the following objectives:

> (A) To maximize the availability of creative works to the public;
> (B) To afford the copyright owner a fair return for his creative work and the copyright user a fair income under existing economic conditions;
> (C) To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication; and
> (D) To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.

Initial appointments of the five Tribunal members were made in Sep-

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[6] H.R. REP., *supra* note 1, at 110. In this same source it is stated that this new procedure corresponds to a current voluntary industry practice.

[7] *Hearings, supra* note 5, at 1872.

tember 1977. Proceedings will commence in 1980, with review of the rates established under Section 115 in 1980, 1987, and in each subsequent tenth year. Thus the rates will be frozen for periods of three, seven, and then ten years, with no possible adjustments for inflation or other economic developments during these periods. In effect, Congress has now written into the law a policy of long periods of inertia on this issue. As pointed out by Senator Tunney and the Register of Copyrights, this inertia can only harm the composers, lyricists and publishers, to the benefit of the record companies.[8]

The two main protagonists in the debate on compulsory licensing have been the Recording Industry Association of America (RIAA), supporting the status quo, and the consortium of the American Guild of Authors and Composers (AGAC) and the National Music Publishers Association (NMPA). In the 1960s, NMPA advocated elimination of compulsory licensing. In 1975-6 the AGAC-NMPA consortium recommended a substantial increase in the royalty rate payable under the compulsory license. Their views were presented in detail at the House Subcommittee hearing on September 11, 1975.[9]

Several basic questions discussed in the hearings should be analyzed:

(1) Should compulsory licensing be retained?

(2) If compulsory licensing is retained, should the royalty under the license be a percentage of price or a flat rate? If the latter, what should the rate be?

(3) Should Congress establish a minimum rate under the compulsory license and/or regulate the division of royalties between publishers, composers and lyricists?

(4) What will be the economic consequences of the higher royalty ceiling?

The most basic question is whether compulsory licensing should be retained or eliminated. This question was raised repeatedly by Congressman Drinan:

> It certainly is anomalous... to have a 1975 regulated industry of this nature.... I was hoping that we could get the federal government out of something.... It is a deregulator here.... *Why should we be in this business?*[10]

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[8] S. REP. NO. 473, 94th Cong., 2d Sess. (1976).

[9] *Hearings, supra* note 5, at 1393-1691. The views of the Register of Copyrights are presented at 1865-1864 and 2073-2075.

[10] *Id.* at 1572, 1573, 1650, 1877.

The basic argument for deregulation was expressed most forcefully 44 years earlier, in a 1931 Senate report:

> It is believed this provision for the fixing of a price to be paid to the owner of any property is unique in American legislation. There appears to be no valid reason for any distinction between the author or owner of a musical composition and the author or owner, or producer of any other kind of property or work. As a result of the enactment of the provision in the law of 1909, owners of musical works are at the mercy of those engaged in mechanical reproduction with whom they have no contractual relations and who may be wholly irresponsible. The author is forced to permit the use of his work whether or not he desires to do so and at a price which is fixed by law and over which he has no control.[11]

The RIAA understandably favored continuation of the system, arguing that deregulation might put "too much clout in the hands of the publishers — or in the hands of the record companies," and that the system was working well for all parties and thus there was no need for change.[12]

Some division of opinion on deregulation arose between the various spokesmen for AGAC and NMPA. Robert R. Nathan, an economist testifying for NMPA, found regulation "not justified from an economic point of view."[13] Leonard Feist and Ralph Peer of NMPA leaned toward elimination of compulsory licensing, but, because earlier attempts had failed, they felt that deregulation was unlikely for political reasons. Marvin Hamlisch, a composer testifying for AGAC, favored continued regulation:

> I think that it is wrong to suggest that there should be no mechanical rate at all — leaving the writers, publishers, and record companies free to negotiate for a price.[14]

In 1961 the Copyright Office recommended that the compulsory license be eliminated and that free negotiation take place.[15] This continued to be the position of the Office until 1964. At that time a subcommittee of the American Bar Association was formed with representatives of the record industry, music publishers and others. This subcommittee reached a compromise favoring continuation of the compulsory license, but recommending an increase in the royalty rate to 3 cents per song or 1 cent per minute of playing time. However, the record industry attacked this compromise, which had been worked

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[11] S. REP. NO. 1732, 71st Cong., 3d Sess. 26-27 (1931).

[12] *Hearings, supra* note 5, at 1573.

[13] *Id.* at 1581.

[14] *Id.* at 1647.

[15] *Id.* at 1867-9.

out by their own representatives, and no changes were made. As a result of this experience, by 1975 (or earlier) the Copyright Office felt that deregulation, while still theoretically ideal, was politically unattainable, and did not advocate it.

The second question presumes continuation of compulsory licensing. One possibility would be to express the royalty rate under compulsory licensing as a percentage of retail list price. Such a system is followed in a number of European countries which have compulsory licenses. 8% of list price is commonly applied; in 1975 this would have amounted to approximately 5.5 cents per song in the United States.[16] The Register of Copyrights stated:

> A royalty rate basis involving a percentage of selling price is, at least on its face, a fairer and more flexible approach than a flat rate per record.[17]

In their 1963 preliminary draft, the Copyright Office included as one alternative a royalty of 8% of the manufacturer's suggested or established retail price, but they later abandoned this approach. A percentage approach seemed to have some Congressional support, but was not pressed.

Once a consensus had been reached that compulsory licensing should be retained, and that a fixed rate should be applied, debate centered on the appropriate levels of the flat rate and the alternative rate per minute of playing time. It should be kept in mind that the specified rate acts as a ceiling, below which negotiations may and do take place. The Register of Copyrights stated:

> Consequently the statutory royalty rate operates as a ceiling; the record producer can bargain for a lower rate, but the copyright owner can never bargain for a higher one.[18]

A detailed study demonstrating the prevalence of payments below the two cent ceiling was undertaken by Robert R. Nathan Associates.[19] In their sample covering payments from the largest record companies to the largest music publishers, the average payment was 1.62 cents per song, with payments at or below a rate of 1.0 cent on 21% of the selections, and at or below 1.5 cents on 52% of the selections. The recording industry did not dispute these figures, but they considered these lower payments to be "standard variations" of the 2 cent rate.

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[16] *Id.* at 1646.

[17] *Id.* at 1873.

[18] THE SECOND SUPPLEMENTAL REPORT OF THE REGISTER, 94th Cong., 1st Sess., REPORT ON THE GENERAL REVISION OF THE COPYRIGHT LAW, Chap. IX, 9 (1975).

[19] *Hearings, supra* note 5, at 1591-2, 1615-21.

The RIAA favored no change in the royalty rate. They argued that the system was working well, and that any increase in the ceiling rate would automatically increase actual negotiated rates by the same proportion. In their view, any increase would be inflationary if passed on to consumers, and would have serious adverse effects on industry profits and employment if not passed on.

The Copyright Office felt that the 2.5 cent rate passed by the House in 1967 was fair at that time, but in 1975 they did not support any particular rate, taking a more general stance:

> Our basic position is that the royalty rate should be a statutory rate, at the high end of a range within which the parties can negotiate now and in the future for actual payment of a rate that reflects market values at that time.[20]

Music publishers and composers advocated an increase in the ceiling royalty rate to a minimum of 4 cents per work. Their main argument was that an increase to at least that level was necessary to offset the effects of inflation. The publishers and composers did not go back to 1909, however; had they done so, they would have recommended a ceiling rate of 12 cents per selection.[21] Rather, they stressed that the 2.5 cent rate passed by the House in 1967 would have to be more than 4 cents simply to offset inflation between 1967 and 1975.

The publishers and composers further argued that even in the absence of a change in the royalty rate, record companies had increased list prices from $3.98 per album in 1965 to $6.98 in 1975. Over the same period the number of songs per album was reduced from twelve to ten, thus the 2 cent royalty fell from approximately 6% of the price per song in 1965 to less than 3% in 1975.

The Register of Copyrights expressed mixed fellings about the inflation argument:

> We cannot agree that the factor of inflation taken alone is automatically sufficient to justify the increase, but we equally cannot agree that inflation of the sort we have seen in recent years can be discounted entirely .... The fact remains that, of the various individual human beings that are involved in making a record, the individual songwriters are the only ones who have received no increase in their remuneration to make up for the rise in their individual cost of living.[22]

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[20] *Id.* at 1874. *See also Hearings,* at 1876, for the statement by the Register of Copyrights regarding fairness of the 2.5 cent rate passed by the House in 1967.

[21] The Consumer Price Index was 27 in 1909 and 163.6 in September 1975, representing an increase of 506% over 1909.

[22] *Hearings, supra* note 5, at 1876-1877.

The third question involves the possibility of additional government regulation in this area. Marvin Hamlisch of AGAC advocated establishment of a floor or minimum on royalties.[23] From an economic point of view, today this might be more logical than the ceiling in existence; available evidence indicates that the degree of economic concentration is much greater between record companies than between music publishers and composers.[24] Under these circumstances, if there is to be government intervention, logically it would be on behalf of the weaker, less concentrated party. However, the Register of Copyrights believed that a floor was not feasible under the compulsory license as currently structured;[25] and that a minimum could hurt those it was designed to help, if songs of new composers were not recorded due to an excessively high floor on the royalty rate.

Congressman Wiggins questioned the division of royalties between publishers and composers; he felt that the publishers may not have provided sufficient services to justify their share. In response to this question, the music publishers provided more detailed explanations of their various roles and of the actual divisions between publishers and composers.[26] No action was taken on this issue.

The economic consequences of a higher royalty ceiling were discussed at length by various spokesmen for the RIAA and the AGAC-NMPA consortium.

A detailed study of various economic aspects of the recording industry was undertaken for RIAA by Dr. John Glover of the Cambridge Research Institute and the Harvard Business School. A similar study was carried out by Dr. Glover in 1965 and presented at the Congressional hearings on copyright revision at that time.[27]

The 1965 Glover study presented the record industry's view of the effects of an increase in the ceiling to 3 cents per tune, or three-fourths of a cent per minute of playing time. These were the rates presented in the bill then being considered by the House.[28] Dr.

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[23] *Id.* at 1647.

[24] *Id.* at 1592-4, 1622-3, 1883; *Compul. License Prov., supra* note 3, at 45; Copyright Office, COPYRIGHT LAW REVISION STUDIES. STUDY NO. 6, *The Economic Aspects of the Compulsory License* 109 (1968).

[25] *Hearings on H.R. 4347, H.R. 5680, H.R. 6831 and H.R. 6835 before Sub-Comm. No. 3 of the House Comm. on The Judiciary,* 89th Cong., 1st Sess. 288 (1965).

[26] *Hearings, supra* note 5, at 1877.

[27] *Id.* at 1650-1653.

[28] H.R. 2223, 89th Cong., 2d Sess. (1965).

Glover's analysis was based in part on three surveys of recording companies, covering aggregate mechanical royalty payments, specific royalty rates paid and overall financial statistics.[29] While these questionnaires did explore certain data in depth, the results of the surveys and the interpretation of the results are of questionable value and relevance. For example, the letter accompanying the questionnaire on mechanical royalty payments was virtually an open invitation to submit distorted data:

> In order to illustrate the severe impact on the record industry of raising mechanical fees from 2 cents (under existing copyright law) to 3 cents (under the copyright bill passed by the Senate in September 1974), there is an urgent need to collect statistics on the mechanical fees paid by as many record companies as possible.[30]

The survey of royalty rates confirmed the widespread prevalence of rates below 2 cents per song, but Dr. Glover attempted to dismiss these as "standard variations" for record clubs, budget records, block discounts, medleys and artist discounts.[31] Whatever one calls them, the fact is that there are many payments made at a rate below 2 cents per song, demonstrating conclusively that 2 cents is a ceiling.

Dr. Glover predicted that the proposed increase in the ceiling royalty rate would lead to an increase in royalty payments of $47 million per year.[32] Because industry profits could not absorb an increase of this amount, the higher costs would have to be passed along to consumers, with sizable markups at every stage, so that the final impact at the retail level would be nearly $100 million per year. This "$100 million cost" appeared to be the most effective RIAA argument with "consumer-conscious" Congressmen. This is surprising, for there was virtually no economic or statistical basis for Dr. Glover's estimate. In fact the figure was based solely on assumptions, many of which were dubious and contradictory. Basic economic logic suggests that with a higher ceiling, only those rates which are currently artificially held

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[29] The 1975 survey of aggregate mechanical royalty payments (described in *Hearings, supra* note 5, at 1527-1532) covered payments by thirty-four record companies to publishers for 1973 and 1974. The survey of specific royalty rates (described in *Hearings, supra* note 5, at 1489-1519) included licensing agreements reached in 1974 by two of the four largest record companies. The survey of financial statistics of the recording industry (described in *Hearings, supra* note 5, at 1533-1558) was carried out in 1973, with updates in 1974 and 1975. This was sent to all fifty-five members of RIAA, with full responses from thirteen companies for 1971-1974 and from fewer companies for 1967-1970.

[30] *Hearings, supra* note 5, at 1529.

[31] *Id.* at 1483-1519.

[32] *Id.* at 1416.

down by the 2 cent ceiling would rise, and many or most would not rise to the new higher ceiling; but Dr. Glover assumed without foundation that all rates would automatically rise proportionately with any increase in the royalty ceiling, no matter how large the increase. It is inconsistent to argue that a higher ceiling could decimate the record industry's profits, and at the same time that the industry would not continue to exercise its substantial bargaining power to try to hold down rates.

The second, even more dubious assumption of Dr. Glover's study is that all markups would automatically be increased proportionately with higher royalty costs so that the impact on consumers would amount to approximately $100 million per year. If this were the case, a higher ceiling would be a great bonanza for record companies, distributors and retailers, increasing their aggregate profits by more than $50 million per year. Basic economic theory and common sense suggest that higher costs lead to profit reductions, not substantial profit increases.

The final questionable point in Dr. Glover's analysis is the assertion that a higher royalty ceiling could lead to a sharp cutback in the number of recordings, because of the high degree of risk in the record industry. To substantiate this argument, Dr. Glover presented data on the percentage of recordings of various types which fail to yield a profit. Whether or not the precise numbers are correct, the data is of dubious relevance, due to the use of loss-leaders as a marketing strategy in the record industry, and the steady upward trend in total recording sales in recent years. While it may be difficult to predict precisely which records will be best-sellers, there is no doubt that there will be many best-sellers. Further, mechanical royalties do not contribute to economic risk, because they are paid only on records which are "made and distributed," not on copies which are manufactured but not distributed.

The AGAC-NMPA statement was less detailed than the Glover-RIAA study, and stressed primarily the need for a higher royalty rate of at least 4 cents to offset the impacts of inflation. They felt that any rate would act as a ceiling, and thus it would be impossible to predict the specific effects of the rate advocated. They also pointed out that even in the absence of an increase in the royalty, record prices had been increased substantially, without causing economic hardship for the recording industry.

To summarize, the principle of compulsory licensing was first enacted in 1909 due to concern about possible monopolization of the piano roll industry. Such licensing, while perhaps justified at the

time, has in recent years amounted to legalized piracy by the recording industry. In 1976 Congress had the opportunity to eliminate this anachronism, which, as stated in the Senate Report 45 years earlier, appeared to be unique in American legislation. Rather than taking this step toward economic freedom, the principle of compulsory licensing was continued (and even extended to cable television, public broadcasting and jukeboxes); a wholly inadequate increase in the royalty rate under compulsory licensing was enacted; a new bureaucracy, the Copyright Royalty Tribunal, was established; and long periods of inertia on this question were written into the law. No proponent for continuation of this archaic feature of copyright law has ever answered Congressman Drinan's simple question: "Why should we be in this business?"

The Procedures for Determining Analogous Art*

RONALD B. COOLLEY**

Most practitioners, whether in patent prosecution or litigation, are frequently confronted with prior art references that are nonanalogous to the art of the invention in question. Prior art that is shown to be nonanalogous will not be considered by the decision maker in determining whether the invention in question is obvious.[1] How, then, is the practitioner to evaluate the analogous versus nonanalogous nature of such asserted prior art?

In determining whether prior art is analogous, prevailing case law mandates the application of a general analytical procedure supplemented by a widely accepted specific procedure. Although this broad, generally accepted procedure is typically expanded in accordance with each particular factual situation and, in certain forums, by specific considerations developed by the forum, a knowledge of the broad procedure and the specific procedure will allow the practioner to determine with substantial certainty whether a particular prior art reference will be deemed analogous and thus relevant to the question of obviousness. Also, the practioner must be prepared to apply or distinguish several specific considerations employed by certain courts. For example, consideration such as the widening scope of analogous

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[1] Buffalo-Springfield Roller Co. v. The Galion Iron Works Manufacturing Co., 215 F.2d 686, 103 U.S.P.Q. 72 (6th Cir. 1954).

art, nonanalogous art, and judicial notice of art not cited, should be familiar to the practioner.

The General Procedure

The beginning point in ascertaining whether the prior art reference is analogous to the invention in question is the broad, generally accepted procedure. This procedure was first suggested by the Supreme Court in *Topliff v. Topliff.*[2] The patent considered by the Supreme Court in *Topliff* disclosed connecting rods mounted under the front and rear ends of a wagon body such that as one set of springs rotated with the boarding of an individual, the other set also rotated in a similar and equal manner so that the wagon body remained level. The reference patent cited by the alleged infringer as invalidating prior art disclosed supports for hanging a wagon body on springs to prevent backward and forward swinging motion of the wagon body.

The Supreme Court held that the reference fell short of anticipating the patent in suit since there was nothing in the reference, or the art typified by the reference, that would have suggested to a mechanic of ordinary skill in the art the purpose or object of the patent in suit. Although *Topliff* relates to anticipation rather than obviousness, it is an early indication of the Supreme Court's awareness of the necessity of considering, in evaluating a given reference, whether the reference or the art suggests apparatus having an object or purpose common to the patent in suit.

Potts & Co. v. Creager[3] is widely recognized as the first Supreme Court decision which specifically set forth the general procedure for determining analogous art. In *Potts* the Court stated that the significant consideration is whether the nature of the art yielding the reference would suggest, to one of ordinary skill in the art of the patent in suit, the uses of the invention disclosed in the patent in suit.

Thus the controlling question a practitioner should ask under the general procedure is: would a mechanic skilled in the art of the patent, upon reviewing the art of the reference, have thought of the uses to which the invention of the patent is put at the time of the invention? If by this first question these uses would have come to mind after a review, the art yielding the reference is generally deemed analogous according to the general procedure.

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[2] 145 U.S. 156 (1892).

[3] 155 U.S. 597 (1895).

Supplement To The General Procedure

The general procedure embodied in the controlling question set forth above, helpful as a starting point, lacks sufficient specificity to be useful in most circumstances.

To enhance the practicality of the general procedure, the Court of Appeals for the Seventh Circuit in *A. J. Deer Co., Inc. v. United States Slicing Machine Co.*[4] added a widely accepted supplement to the *Potts* procedure. The supplemental procedure requires consideration of the similarity of the structural elements and the functional purposes of the invention and the subject matter disclosed in the reference. The supplemental procedure directs that the practitioner determine if the elements and the purposes of the inventive subject matter of the reference are so similar as to appeal to the mind of one having ordinary mechanical skill in the art in which the patent falls. If the elements and the purposes are deemed similar, then the art yielding the reference and the art of the patent in suit are analogous.[5]

To determine whether such an appeal exists the court must look to the particular facts in the case at bar. For example, in *A. J. Deer* one fact the court recognized as illustrating that there was no appeal to the mind of the skilled worker was that the reference had come into use earlier, and had remained in constant use for a substantial period of time. However, no other worker had developed the invention in suit despite this constant use of the reference. This indicated that there was no appeal to the mind of the worker in the art of the patent in suit. The Seventh Circuit Court of Appeals did emphasize that if the prior art device had dropped out of use, the fact that it did not appeal to the mind of a worker skilled in the patent's art would not be surprising due to this lack of constant use.[6]

Widening Scope of Analogous Art

The *Potts* procedure supplemented by *A. J. Deer* has been strictly

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[4] 21 F.2d 812, 813 (7th Cir. 1927).

[5] The test set forth in *A. J. Deer* is followed in several circuits. *See* Metaframe Corp. v. Biozonics Corp., 352 F. Supp. 1006, 1012-1015, 176 U.S.P.Q. 237, 243 (D. Mass. 1972); Wintermute v. Hermetic Seal Corp., 171 F. Supp. 770, 774, 121 U.S.P.Q. 31, 33 (D.N.J. 1959), *aff'd*, 279 F.2d 60 (2d Cir. 1960); International Steel Wool Corp. v. Williams Co., 137 F.2d 342, 346, 58 U.S.P.Q. 372, 376 (6th Cir. 1943); Stearns v. Tinker & Rasor, 220 F.2d 49, 56-57, 104 U.S.P.Q. 234, 239 (9th Cir. 1955), *cert. denied*, 350 U.S. 830 (1955); Mott Corp. v. Sunflower Industries, Inc., 314 F.2d 872, 878, 137 U.S.P.Q. 228, 292-293 (10th Cir. 1963).

[6] A.J. Deer, Inc. v. U.S. Slicing Machine Co., 21 F.2d 812, 813 (7th Cir. 1927).

followed by courts in several circuits as well as by the Patent and Trademark Office. Since it is generally recognized that improper magnification and distortion of the prior art to render it analogous is improper,[7] expansion of this supplemented procedure has been avoided. There has been a recent trend in a number of courts to add a further consideration to the supplemented general procedure. This further consideration is based on an interpretation of the Supreme Court's decision in *Graham v. Deere*.[8] Specifically, in *Deere* the Supreme Court stated that with regard to the obviousness standard established by 35 U.S.C. §103:

> The standard has remained invariable in this Court. Technology, however, has advanced—and with remarkable rapidity in the last 50 years. Moreover, the ambit of applicable art in given fields of science has widened by disciplines unheard of a half century ago. It is but an evenhanded application to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions. The same is true of the less technical, but still useful arts. He who seeks to build a better mousetrap today has a long path to tread before reaching the Patent Office.[9]

Bolstered by the cited language, several courts[10] have relaxed their self-imposed restrictive interpretations of what constitutes analogous art; the present trend in many of the circuits is to now consider as analogous references that prior to *Deere* would quite clearly have been considered nonanalogous. The rationale behind this recent trend was probably best stated by the Ninth Circuit Court of Appeals:

> It may be that at an earlier time in our history most inventions relating to locks were made by locksmiths and most inventions relative (sic) to plows were made by those who made or used plows. At that time and in those days perhaps the 'subject matter' of the invention was the lock or plow and the 'art' the art of lock and plow making. In today's world, a

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[7] Baldwin-Lima-Hamilton Corp. v. Tatnall Systems Co., 169 F. Supp. 1, 14, 120 U.S.P.Q. 34, 44 (E.D. Pa. 1958), *aff'd*, 268 F.2d 395 (3rd Cir. 1959).

[8] 383 U.S. 1 (1966).

[9] *Id.* at 19.

[10] *See* Tapco Products Co. v. Van Mark Products Corp., 446 F.2d 420, 427, 170 U.S.P.Q. 550, 555 (6th Cir. 1971), *cert. denied*, 404 U.S. 986 (1971). *See also* Metaframe Corp. v. Biozonics, 352 F. Supp. 1011-1012, 176 U.S.P.Q. 241 (D. Mass. 1972); Diamond International Corp. v. Walterhoefer, 289 F. Supp. 550, 558, 159 U.S.P.Q. 452, 460 (D. Md. 1968); Borkland v. Pedersen, 244 F.2d 501, 503, 113 U.S.P.Q. 401, 403 (7th Cir. 1957); Endevco Corp. v. Chicago Dynamic Industries, Inc., 268 F. Supp. 640, 655, 153 U.S.P.Q. 231, 242 (N.D. Ill. 1967); Sargent Industries, Inc. v. Sunstrand Corp., 189 U.S.P.Q. 225, 232 (N.D. Ill. 1975); Skee-Trainer, Inc. v. Garelick Mfg. Co., 361 F.2d 895, 898, 150 U.S.P.Q. 7, 8-9 (8th Cir. 1966); George J. Meyer Mfg. Co. v. San Marino Electronic Corp., 422 F.2d 1285, 1288, 165 U.S.P.Q. 23, 25-26 (9th Cir. 1970).

> world of extensive and rapid communication of scientific and industrial knowledge—a world of institutions of higher learning and private laboratories which gather men of all disciplines and direct their talents not only to the discovery of basic truths but to the solutions of specific problems, the questions arising in a particular industry are answered not only by those who have learned the lessons of that industry, but also by those trained in scientific fields having no necessary relationship to the particular industry.[11]

This reasoning being logically sound, other circuits can be expected to align themselves with the widening definition of analogous art.

Consideration of Nonanalogous Art

That which is analogous art may be more broadly defined in the wake of an asserted reference even if that reference is deemed to be nonanalogous under the above-summarized procedures and the widening definition. Several courts and the Patent and Trademark Office, while recognizing the inapplicability of nonanalogous art under 35 U.S.C. §103, will consider a nonanalogous reference in reaching ultimate decisions, if the elements in the reference that are asserted to be common with elements present in the inventive subject matter are generally known expedients.[12]

Under these circumstances, the decision maker will frequently cite such nonanalogous references as illustrative examples of the adoption of well known scientific principles to similar practical uses; in which case such common elements as they appear in the inventive subject matter may be disregarded as obvious in light of the cited references.[13]

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[11] George J. Meyer Mfg. Co. v. San Marino Electronic Corp., 422 F.2d 1285, 1288, 165 U.S.P.Q. 23, 25-26 (9th Cir. 1970).

[12] Monroe Auto Equipment Co. v. Heckethorn Mfg. Co., 332 F.2d 406, 413, 141 U.S.P.Q. 549, 555 (6th Cir. 1964), *cert. denied,* 379 U.S. 889 (1964). *See also* Detachable Bit Co. v. Timken Roller Bearing Co., 133 F.2d 632, 637, 56 U.S.P.Q. 490, 495 (6th Cir. 1943).

[13] In re Mariani, 177 F.2d 293, 296, 83 U.S.P.Q. 308, 309-310 (C.C.P.A. 1949). Several circuits follow this line of analysis. *See* Welsh Mfg. Co. v. Sunware Prod. Co., 236 F.2d 225, 226, 110 U.S.P.Q. 161, 162 (2d Cir. 1956); Maclaren v. B-I-W Group, Inc., 401 F. Supp. 283, 297, 187 U.S.P.Q. 345, 354 (S.D.N.Y. 1975); Compton v. Metal Products, Inc., 171 U.S.P.Q. 257, 258 (4th Cir. 1971); Endevco Corp. v. Chicago Dynamic Industries, Inc., 268 F. Supp. 655, 153 U.S.P.Q. 242 (N.D. Ill. 1967); Skee-Trainer, Inc. v. Garelick Mfg. Co., 361 F.2d 898, 150 U.S.P.Q. 9 (8th Cir. 1966); Whiteman v. Mathews, 216 F.2d 712, 717, 104 U.S.P.Q. 83, 87 (9th Cir. 1954); Shaffer v. Armer, 84 F. Supp. 613, 620, 82 U.S.P.Q. 359, 365 (D. Kan. 1949), *aff'd,* 184 F.2d 303 (10th Cir. 1950); In re Heldt, 433 F.2d 808, 812, 167 U.S.P.Q. 676, 679 (C.C.P.A. 1970); In re Van Wanderham, Worthley and Comolli, 378 F.2d

As a consequence, false assurances from a conclusion that a reference is nonanalogous under the broad generally accepted procedure and even under the widened definition should be avoided.

Judicial Notice

Not only must the practitioner be wary of the modern trend to widen the scope of analogous art and the possible consideration of nonanalogous art, but he must also be alert to the possibility of the introduction of a reference through the exercise of judicial notice. Several courts, including the Supreme Court in *Brown v. Piper,*[14] have exercised their discretionary power along these lines by taking notice of elements or art not cited by the parties to invalidate a patent.

In *Brown* the patent in suit disclosed a method and device for preserving fish and meat. This preservation was accomplished by placing the fish or meat in a chamber and cooling it in a manner such that there was no communication between the interior of the chamber and a vessel into which a cooling mixture was placed. Among the references cited by the alleged infringer was a corpse preserver. The patentee argued that this reference could not be considered since it did not illustrate a food preservation device.

The Supreme Court disagreed with the patentee's position; and added, significantly, that even if this were a valid argument, the Court was free to consider the common ice cream freezer as a reference if it elected to do so even though the pleadings were silent as to such a device. Since an ice cream freezer was a thing in the common knowledge and use of the people throughout the country, the Court decided to recognize the ice cream freezer under the doctrine of judicial notice as an example of a pertinent apparatus from an analogous art which employed the same process and provided the same result as the method and device of the patent in suit.[15] Consequently, the practitioner must always be

981, 987, 154 U.S.P.Q. 20, 24 (C.C.P.A. 1967); In re Touvay, 264 F.2d 901,.906, 121 U.S.P.Q. 265, 269 (C.C.P.A. 1958); In re Weiskopf, 210 F.2d 287, 289, 100 U.S.P.Q. 383, 385 (C.C.P.A. 1954); Ex parte Eyster, 87 U.S.P.Q. 52, 56 (P.T.O. Bd. of Ap. 1950).

[14] 91 U.S. 37, 42-44 (1875).

[15] Judicial notice has been applied on several occasions since *Brown;* however, the reference is usually considered only cumulative. *See* Supreme Equipment & Systems Corp. v. Lear Siegler, Inc., 495 F.2d 860, 861-862, 181 U.S.P.Q. 609, 610 (2d Cir. 1974); Welsh Manufacturing Co. v. Sunware Products Co., 236 F.2d 226, 110 U.S.P.Q. 162 (2d Cir. 1956); Feathercombs Inc. v. Solo Products Corp., 306 F.2d 251, 253, 134 U.S.P.Q. 209, 212 (2d Cir. 1962); Tolfree v. Wetzler, 22 F.2d 214, 216-217 (D.N.J. 1927), *rev'd on other grounds,* 25 F.2d 553 (3d Cir. 1928), *cert. denied,* 278 U.S. 628 (1928).

aware of that which is commonly known to the public and not cited by the parties and be prepared to present or defend a nonanalogous challenge that may occur as a result of judicial notice.

Exception for the Chemical Art

One significant exception to the procedures for determining analogous art has evolved within the chemical art. Several courts and the Patent and Trademark Office have held that the significance of analogous art is more restricted in the chemical field; chemistry, as opposed to the mechanical and electrical arts, is an experimental science and despite a large accumulation of knowledge, its foresight today is no more certain than in the past.[16]

Conclusion

The proper application of the supplemented general procedure, the widening scope of analogous art, the consideration of nonanalogous art, and the exercise of judicial notice requires careful consideration of the particular facts of each case. To assist the practitioner in determining what facts are relevant to determination of analogous art, and to illustrate what the various courts have considered in reaching a decision, an appendix follows listing decisions by circuit with the facts considered in each decision.

APPENDIX

FORUM	CITATION	FACTS CONSIDERED
First Circuit	Metaframe Corp. v. Biozonics Corp., 352 F. Supp. 1006, 1014, 176 U.S.P.Q. 237, 243 (D. Mass. 1972).	Problems Solved
	Silver-Brown Co. v. Sheridan, 71 F.2d 935, 937, 22 U.S.P.Q. 98, 100 (1st Cir. 1934).	Structure, Functions
	Trico Products Co. v. Apco-Mossberg Corp., 34 F.2d 672-673, 3 U.S.P.Q. 1, 2 (D. Mass. 1929), *aff'd,* 45 F.2d 594 (1st Cir. 1930).	Significant modification of reference

[16] *See* United Chromium, Inc. v. International Silver Co., 53 F.2d 390, 393, 11 U.S.P.Q. 108, 110-111 (D. Conn. 1931), *mod'f on other grounds,* 60 F.2d 913 (2d Cir. 1932); Dow Chemical Co. v. Coe, 132 F.2d 577, 584, 55 U.S.P.Q. 166, 174-175 (D.C. Cir. 1942); Ex parte Kittleson, 88 U.S.P.Q. 295, 296 (P.T.O. Bd. of Ap. 1950).

Second Circuit	Line Material Co. v. Brady Electric Mfg. Co., 7 F.2d 48, 50 (2d Cir. 1925). *See also* Mechanical Ice Tray Corp. v. Abraham & Straus, Inc., 31 F. Supp. 938, 941-942, 44 U.S.P.Q. 645, 649 (E.D.N.Y. 1940).	Purpose and Function
	U.S. Philips Corp. v. National Micronetics Inc., 410 F. Supp. 449, 188 U.S.P.Q. 662, 675 (S.D.N.Y. 1976).	Problem Solved
	Burgess Cellulose Co. v. Wood Flong Corp., 431 F.2d 505, 509, 166 U.S.P.Q. 417, 420 (2d Cir. 1970). *See also* Continental Can Co., Inc. v. Old Dominion Box Co., Inc., 393 F.2d 321, 325, 157 U.S.P.Q. 353, 356 (2d Cir. 1968).	General Procedure
	Maclaren v. B-I-W Group, Inc., 401 F. Supp. 283, 297, 187 U.S.P.Q. 345, 354 (S.D.N.Y. 1975).	Art discussed in license
Third Circuit	E. H. Tate Co. v. Jiffy Enterprises, Inc., 196 F. Supp. 286, 291-292, 130 U.S.P.Q. 253, 257 (E.D. Pa. 1961), *aff'd,* 306 F.2d 240, 134 U.S.P.Q. 158 (3d Cir. 1962).	Problems Solved
Fourth Circuit	Diamond International Corp. v. Walterhoefer, 289 F. Supp. 550, 558, 159 U.S.P.Q. 452, 460 (D. Md. 1968).	References cited in the Patent and Trademark Office
Fifth Circuit	Tubular Service & Engineering Co. v. Sun Oil Co., 220 F.2d 27, 31, 104 U.S.P.Q. 356, 359 (5th Cir. 1955), *cert. denied,* 349 U.S. 947 (1955).	Structure and Function
Sixth Circuit	Skega Aktiebolag v. B.F. Goodrich Co., 420 F.2d 1358, 1359, 164 U.S.P.Q. 333, 334 (6th Cir. 1970), *cert. denied,* 400 U.S. 930 (1970).	Purposes and Problems Solved
	Seiberling Rubber Co. v. I.T.S. Co., 134 F.2d 871, 874, 57 U.S.P.Q. 235, 238 (6th Cir. 1943).	Art of Licensee
Seventh Circuit	Armour & Co. v. Swift & Co., 466 F.2d 767, 775, 175 U.S.P.Q. 70, 77-78 (7th Cir. 1972).	Art of References cited in Patent and Trademark Office
	Maxon Premix Burner Co. v. Mid-Continental Products Co., 279 F. Supp. 164, 187-188, 155 U.S.P.Q. 434, 454 (N.D. Ill. 1967).	Environment, Performance Characteristics and Operating Principles

	Delta Mfg. Co. v. E.L. Essley Machinery Co., 153 F.2d 905, 906-907, 68 U.S.P.Q. 352, 354 (7th Cir. 1946).	Results Produced
Eighth Circuit	Tyra v. Adler, 85 F.2d 548, 552, 31 U.S.P.Q. 1, 4-5 (8th Cir. 1936).	Purposes and Functions
Ninth Circuit	Ceco Corp. v. Bliss & Laughlin Industries, Inc., 186 U.S.P.Q. 114, 122 (C.D. Calif. 1975).	Trade Associations
	Aerotec Industries of Calif. v. Pacific Scientific Co., 381 F.2d 795, 802, 155 U.S.P.Q. 52, 57 (9th Cir. 1967), *cert. denied,* 389 U.S. 1049 (1968).	Elements and Purposes
Tenth Circuit	Mott Corp. v. Sunflower Industries, Inc., 314 F.2d 872, 878, 137 U.S.P.Q. 288, 292-293 (10th Cir. 1963).	Relies on Tests of Sixth, Seventh and Ninth Circuits
District of Columbia	Darison Corp. v. Watson, 182 F. Supp. 513, 515-516, 125 U.S.P.Q. 154, 156 (D.D.C. 1960), *aff'd,* 287 F.2d 150, 128 U.S.P.Q. 215 (D.C. Cir. 1961).	Art of References cited in the Patent and Trademark Office
	Cone v. Watson, 169 F. Supp. 44, 46-47, 123 U.S.P.Q. 331, 333 (D.D.C. 1959).	Results Sought
Court of Customs and Patent Appeals	In re Ellis, 476 F.2d 1370, 1372, 177 U.S.P.Q. 526, 527 (C.C.P.A. 1973).	Structure and Function
	In re Way, 514 F.2d 1057, 1062, 185 U.S.P.Q. 580, 584 (C.C.P.A. 1975).	Technical Literature
	In re Antle, 444 F.2d 1168, 1172, 170 U.S.P.Q. 285, 288 (C.C.P.A. 1971).	Nonanalogous References closely related to Analogous References
Board of Patent Appeals	Ex parte Wordwell, Jr., 45 U.S.P.Q. 624, 625 (P.T.O. Bd. App. 1940).	Reference in highly specialized art
Court of Claims	Erwin-Newman Co. v. United States, 393 F.2d 819, 821, 155 U.S.P.Q. 658, 659 (Ct. Cl. 1968), *cert. denied,* 393 U.S. 844 (1968).	Elements and Purposes

Informed Consent and the Investigational Use of Medical Devices: A Comparison of Common Law Duties with Those Imposed on Researchers Under Section 520(g) of the Medical Device Amendments of 1976*

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When the Food and Drugs Act of 1906 was superseded by the Federal Food, Drug and Cosmetic Act, medical devices (and cosmetics) were

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subject to regulatory control for the first time.[1] At least a major part of the pressure for passage of the 1938 Act was generated by the sulfanilamide disaster.[2] As a consequence of that disaster provisions were made that new drugs could not be marketed unless they had first been shown to be safe for human use.[3]

While medical devices and drugs were lumped together for some purposes under the 1938 Act, devices were not subject to such preclearance. Nor, in 1962, when new drugs were subjected to even tighter control as a result of the thalidomide disaster,[4] were devices affected.[5] Not until later did a situation begin to emerge requiring a closer control of device marketing. In the late 1960s, thousands of injuries (many fatal) were attributed to faulty heart valves, pace makers and intrauterine devices.[6] Moreover, not only were there problems with the safety of devices, but the Food and Drug Administration was also spending considerable resources to remove from the market useless devices being fraudulently palmed off on unwary consumers.[7] As a result of both of these developments, in 1969, the Department of Health, Education and Welfare convened a study group, known as the Cooper Committee, to study the problems and make recommendations as to how to deal with them.[8]

In 1970, the Cooper Committee filed its report, making specific legislative recommendations.[9] Among its suggestions was one that at

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[1] *See* STAFF OF HOUSE SUBCOMM. ON PUBLIC HEALTH AND ENVIRONMENT OF THE COMM. ON INTERSTATE AND FOREIGN COMMERCE, 93D CONG., 2D SESS., A BRIEF LEGISLATIVE HISTORY OF THE FOOD, DRUG AND COSMETIC ACT 4 (Comm. Print No. 14, 1974) [hereinafter cited as LEGISLATIVE HISTORY].

[2] *Id.* at 3.

[3] *Id.* at 16, 18.

[4] *Id.* at 15.

[5] *Id.* at 18. *See* 21 U.S.C. § 355 (1977).

[6] *Hearings on H.R. 6073, 9984, 539 and 10061 Before the Subcomm. on Public Health and Environment of the House Comm. on Interstate and Foreign Commerce,* 93d Cong., 1st Sess. 154 (1973) [hereinafter cited as *House Hearings*].

[7] *Id.* at 155. *See also* two cases coming to different conclusions about the authority of the FDA over devices used in the practice of a "religion": Founding Church of Scientology v. United States, 409 F.2d 1146 (D.C. Cir. 1969) and Church of Scientology v. Richardson, 437 F.2d 214 (9th Cir. 1971). In addition to questions of safety and efficacy of medical devices, issues were beginning to develop concerning the distinction between drugs and devices; *see* Weitzman, *Drug, Device, Cosmetic?,* 24 FOOD DRUG COSM. L.J. 226, 320 (1969).

[8] *House Hearings, supra* note 6, at 155.

[9] *Id.*

least some kinds of devices be subjected to clinical tests prior to being marketed.[10] Shortly after receiving the report, the FDA convened expert panels to begin the important and time-consuming work of reviewing and classifying medical devices. By the end of 1973, when Congress began to hold hearings on proposed legislation, these panels had already classified over 3,000 devices according to risk and need for premarket testing.[11]

At least part of the reason that it took six or seven years from the time that the Cooper Committee began its work until passage of the Medical Device Amendments Act of 1976[12] was the difficulty of deciding which kinds of devices would be subject to what kinds of controls. Problems had arisen in regard to premarket clearance of new drugs, and there was no desire to repeat mistakes which had been made in regard to them.[13] Thus arose the need for the complex provisions setting forth the conditions under which new devices could be marketed without preclearance — and the need for time to draft and consider them.[14]

Not only did the amendments set forth detailed provisions for exempting certain classes of devices from preclearance, but they also set forth conditions under which devices otherwise subject to preclearance could be used prior to such preclearance.[15] This paper will deal with the exemption granted for the investigational use of devices subject to premarket testing and, more particularly, with the obligation of an investigator seeking such exemption to secure an informed consent agreement from human subjects (or their representatives) under §520(g) (3) (D)[16] of the Act. It will also consider the relationship

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[10] *Id.* at 156.

[11] *Id.*

[12] Act of May 28, 1976, Pub. L. No. 94-295, 90 Stat. 539.

[13] *See generally House Hearings, supra* note 6, at 364-97.

[14] *See generally* § 513 (a) (1), 21 U.S.C. § 360c (a) (1).

[15] §§ 520(b) and (g), 21 U.S.C. §§ 360j (b) and (g). § 520 (b) exempts custom devices ordered by a health care professional for a *named* patient. § 520 (g) exempts devices for investigational use with humans subject to application being made by "experts qualified by scientific training and experience to investigate the safety and effectiveness of such devices." § 520 (g) (2) (A), 21 U.S.C. 360 j (g) (2) (A).

[16] 21 U.S.C. 360j (g) (3) (D). This paragraph requires that the Secretary of Health, Education and Welfare promulgate regulations pursuant to paragraph (2) (A) requiring an assurance that, in the absence of extraordinary, life-threatening circumstances, informed consent will be obtained from the patient or his representative. *But see* discussion in note 54, *infra,* regarding the difficulty of meeting the proposed duty.

between the statutory obligation and that which might be imposed by the common law of negligence.

The Duty Under the Statute

It will be necessary to review, briefly, the overall organization of the Federal Food, Drug and Cosmetic Act.[17] Only then can the full implications of the device amendments be understood. First, there is a section which defines words used in the Act; §201 (h) defines a "device," with certain exceptions, to be an article which is:

> (1) recognized in the official National Formulary, or the United States Pharmacopeia, or any supplement to them;
>
> (2) intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals; or
>
> (3) intended to affect the structure or any function of the body of man or other animals, and which does not achieve any of its principal intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of any of its principal intended purposes.[18]

There is also a lengthy section which sets forth "Prohibited Acts." These include the introduction into interstate commerce[19] or the receipt in interstate commerce[20] of an adulterated or misbranded device — as well as the failure to comply with the conditions of investigational exemption under §520(g) or the filing of a false or misleading report with respect to a device.[21]

Lest someone seize upon the words "interstate commerce," it should also be noted that a provision buried in a rather unexpected place in the Act creates a presumption of interstate commerce. It is interesting that this presumption applies only to medical devices (as opposed to foods, drugs or cosmetics). Further, this presumption of sufficient involvement with interstate commerce to enable federal regulatory jurisdiction

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[17] 21 U.S.C. §§ 321 *et seq.* (1977).

[18] *Id.* § 321 (h). For a discussion of the significance of this section as amended, *see, e.g.*, Weigel and Raubicheck, *How to Comply with the New Medical Device Law*, 31 FOOD DRUG COSM. L.J. 312, 312-3 (1976) and Geller, *The Medical Device Amendments of 1976* . . . . , 31 FOOD DRUG COSM. L.J. 424, 425-6 (1976).

[19] 21 U.S.C. § 331 (a). *See also* Geller, *supra* note 18, at 443.

[20] *Id.* § 331 (d).

[21] *Id.* § 331 (q).

would seem to have particular impact on the investigational use of medical devices.[22]

One might wonder about the consequences of non-compliance with the Act or the doing of something prohibited under it. Sanctions are set forth in §§ 302-304[23] and include injunction,[24] criminal penalties[25] and seizure of offending devices.[26] In regard to criminal penalties, it ought to be noted that it has been long held that a *knowing* violation of the act is not necessary for prosecution.[27]

As noted above, traffic in adulterated or misbranded devices is prohibited. The conditions which cause a device to be adulterated or misbranded, respectively, are set forth in §§ 501 and 502 of the Act.[28] The former seems to be most relevant here, and § 501 (f) provides that a device subject to preclearance[29] (a class III device) which has not been precleared and does not have an investigational exemption under § 520 (g) is adulterated.[30] Moreover, § 501 (i) provides that a device is adulterated if "any investigator who uses such device [under § 520(g)] . . . fails to comply with a requirement . . . under such section."[31] One of those requirements is that the investigator secure informed consent from each human subject, and § 520(g) (3) (D) requires the Secretary of Health, Education and Welfare (or his delegee, the FDA) to promulgate regulations governing the securing of such consent.[32] In this respect, it is interesting to note that in the bill which was passed by the Senate, detailed provisions were set forth governing this matter, but the House bill lacked them.[33]

This discrepancy was taken up by the conference committee, and its report indicates why the specific provisions of the Senate bill were

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[22] *Id.* § 379a. *See* Geller, *supra* note 18, at 426-7. It is expected that this provision could be especially significant with respect to 21 U.S.C. 331 (q) and through it to § 520 (g) of the Act.

[23] 21 U.S.C. §§ 332-4.

[24] *Id.* § 332.

[25] *Id.* § 333.

[26] *Id.* § 334.

[27] *See, e.g.,* United States v. Park, 421 U.S. 658 (1975).

[28] 21 U.S.C. §§ 351 and 352, respectively.

[29] *See generally* 21 U.S.C. § 360 (e).

[30] 21 U.S.C. § 351 (f).

[31] *Id.* § 351 (i).

[32] 21 U.S.C. § 360j (g) (3) (D).

[33] H.R. CONF. REP. NO. 94-1090, 94th Cong., 2d Sess. 64 (1976) [hereinafter cited as CONF. REP.].

dropped from the conference bill.[34] The main reason seems to be that a blue ribbon panel has been convened to consider research on human subjects.[35] If specific provisions for informed consent had been in the Act, it would take Congressional action to modify them to be consistent with whatever the panel comes up with. If, on the contrary, it were left to the FDA to promulgate specific provisions, these could be more easily and quickly amended.

Thus the Act gave the FDA (Secretary of HEW) 120 days from the date of passage of the amendments to promulgate rules covering informed consent and other conditions under which one might obtain an investigational exemption for doing clinical evaluation of a new Class III device.[36] Although the Act as passed appears to give the FDA considerable discretion, it is quite clear from the conference report that Congress intended the adoption of the specific provisions dropped from the Senate bill, pending the adoption of whatever recommendations which might come forth from the above mentioned study panel.[37]

Since the 120 days are long past, one might wonder what has become of the rules governing investigational exemptions. As of this writing none is in effect, but proposals were made quite some time ago — in August of 1976.[38] Interested parties were given until October 19, 1976 to provide written comments on them.[39] One is left to speculate on whether the delay has been caused by comments received or by the need to attend to more pressing business.

In spite of the fact that the rules are still only proposals, it is worthwhile to consider them in some detail. Prior to their publication, one writer suggested that: "It would seem logical that the investigational device regulations would be patterned after . . . regulations . . . already promulgated [for similar regulated products]."[40] However, not only do the

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[34] *Id.*

[35] *Id.* The National Commission on the Protection of Human Subjects of Biomedical and Behavioral Research.

[36] 21 U.S.C. § 360j (g) (2) (A).

[37] CONF. REP., *supra* note 33.

[38] 41 Fed. Reg. 35, 282 (1976). There were a number of specific rules implementing the provisions of § 520 (g), 21 U.S.C. 360j (g) generally. In regard to informed consent, specifically, elements which were to appear in an agreement with the patient or his representative appear at 41 Fed. Reg. 35, 313 (1976).

[39] 41 Fed. Reg. 35, 313 (1976). Further action is expected shortly.

[40] Geller, *supra* note 18, at 439, referring to previous regulations covering food additives, new drugs and new animal drugs.

proposals go well beyond those in force (*e.g.*, in regard to new drugs),[41] but it is also likely that *final* regulations will do likewise.

While regulations in effect for new drugs require investigators to certify that informed consent will be sought, they do not require, as do the device proposals, submission to the FDA of the form being used to obtain it.[42] Nor do the regulations in effect for new drugs set forth in detail what the contents of an agreement with a subject shall be.[43] Thus, not only do the device proposals go well beyond similar ones for other products, but it is also doubtful that they could differ much from their present form and be consistent with the legislative aims earlier noted.[44]

First, the proposals provide that each subject shall be given:

> (1) A full and fair explanation of procedures to be followed, including an identification of any which are experimental.
>
> (2) A full explanation of the nature, expected duration and purpose of the administration of the investigational device.
>
> (3) A description of any attendant discomforts and risks reasonably to be expected.
>
> (4) An explanation of the likely results should the procedure fail.
>
> (5) A description of any benefits reasonably to be expected.
>
> (6) A disclosure of any appropriate alternative procedures that might be advantageous for the subject.
>
> (7) A description of the scope of the investigation, including number of patients involved in the investigational study.
>
> (8) An offer to answer any inquiries concerning the investigational study.
>
> (9) An instruction that the subject, or his legal representative, is free to decline entrance into the investigational study or to withdraw his consent and to discontinue participation in the study at any time without prejudice to the subject.
>
> (10) A statement that the investigational device is being used for research purposes.[45]

Moreover, the proposals provide that:

> (b) The agreement entered into by such person or his legal representative shall include no exculpatory language through which the subject is made to waive, or to appear to waive, any of his legal rights or to release the institution or its agents, or the sponsor, or the investigator from liability for negligence.[46]

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[41] 21 C.F.R. § 312.1 (a) (12) and (13) (1977).

[42] 41 Fed. Reg. 35, 288 (1976). *See also* 41 Fed. Reg. 35, 313 (1976).

[43] 21 C.F.R. § 312.1 (a) (12) and (13) (1977); 41 Fed. Reg. 35, 282 (1976).

[44] *See* discussion corresponding to notes 33-37 *supra*.

[45] 41 Fed. Reg. 35, 313 (1976).

[46] *Id.*

Finally, it is provided that the contents of the consent document be approved by an institutional review committee and that copies of the form be provided to the subject or his legal representative.[47]

In considering these requirements, one might wonder about the extent to which they change obligations which might already be imposed by the common law of negligence. That law obviously is enforced with sanctions considerably different from those noted above and applicable under the regulatory statute, but from the perspective of an investigator, their impact may be far more serious.

This is because seizure or injunction is not likely to have much of an effect on an individual investigator (as contrasted with the sponsor).[48] Nor, if an effort is seriously made to comply with the law, is it likely that the criminal sanctions need to be considered as much of a threat to such a person.[49] Rather, the most significant implications seem to arise in regard to potential civil liability which might attach as a result of following the procedures for informed consent set forth in the proposed regulations.

An effect on civil liability can only result if the proposals change the nature of the preexisting duty of research clinician to a human subject. For that reason, it is necessary to consider the common law and attempt to assess what that duty might be in the absence of regulatory alteration.

The Duty Under the Common Law

There are several things that need to be said at the outset of this discussion of the common law. Most important is that any such discussion must be, of necessity, general. There are fifty-one different

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[47] *Id.*

[48] This is a matter of speculation. It just seems unlikely that the ordinary investigator is going to have enough of an economic investment for either of those to have much of an impact.

[49] No record of prosecutions of such a person have been found in the literature, *but see* United States v. Park, 421 U.S. 658 (1975). A more likely sanction would be for the FDA to refuse to allow an investigational exemption where an investigator was proposed who had a record of misconduct. In FDA practice no record of such an action has been found, *but see* Hamlin Testing Laboratories Inc. v. AEC, 337 F.2d 221 (6th Cir. 1964) and River Forest Pharmacy, Inc. v. Drug Enforcement Adm'n., 501 F.2d 1202 (7th Cir. 1974). *See also* Rheingold, *The Mer/29 Story – An Instance of Successful Mass Disaster Litigation,* 56 CAL. L. REV. 116, 120-1 (1968), indicating that the Grand Jury returned indictments against the company and three scientists. All pleaded *nolo contendere.* The scientists received suspended sentences. Indictment was under 18 USC 1001 *not* 21 USC. *See also* O'Keefe, *Criminal Liability: Park Update,* 32 FOOD DRUG COSM. L.J. 392, 400 (1977).

jurisdictions, counting the District of Columbia, and each is free to develop and apply its own law of negligence. Another thing that should be noted is that the need for informed consent does not arise only in regard to experimental procedures. Rather, experimental procedures tend to involve more risk, and it seems safe to say that as the degree of risk goes up, the need to inform goes up. Also, it seems safe to say that if there is a traditional treatment available with a known risk and an experimental treatment with an unknown, and perhaps higher risk, the need to inform probably becomes absolute. Indeed, in the last situation, more than the law of negligence may be involved.[50]

Finally, it may be useful to distinguish those situations where an injury results from an unavoidable risk in the procedure from those where the injury arises as a result of use of inadequate skill in the procedure. Both of those problems seem to be affected by the proposed regulations[51] and will be discussed here.

Let us first consider the question of need to inform as to unavoidable risks. Traditionally, the medical profession has been held to a somewhat subjective standard of care. In short, physicians tend to be held to the standard of conduct prevailing among physicians in the community. In the past this standard has been imposed not only in regard to the skill used in the treatment of a patient, but also to determine whether there was an obligation to inform a patient as to risks involved in a treatment.[52]

Consider blood transfusions, for example. In every transfusion there is some unavoidable risk of serum hepatitis. Should the physician be liable if a patient contracts hepatitis when he had not been warned of the risk? It seems clear that no liability would attach if the transfusion was given in a life-threatening or other situation where a patient could be said to have no choice. What if the patient had a choice (or might have had a choice)? The traditional view has been that the physician is liable only if other physicians in the community would ordinarily warn a patient of such a risk.[53]

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[50] *See, e.g.,* Canterbury v. Spence 464 F.2d 772, 783-5 (D.C. Cir. 1972).

[51] 41 Fed. Reg. 35, 282 (1976); 41 Fed. Reg. 35, 313 (1976).

[52] *See, e.g.,* Canterbury v. Spence, 464 F.2d 772, 783 (D.C. Cir. 1972).

[53] *See, e.g.,* Fischer v. Wilmington Gen. Hospital, 51 Del. 554, 149 A.2d 749 (1959). Note that in many jurisdictions this risk (blood transfusions) is regulated by statute. *See* FRUMER AND FREIDMAN PRODUCTS LIABILITY § 16.04 [3] [b] (Cum. Supp. 1976), listing states which have by statute eliminated liability. MASS. GEN. LAWS ANN. Ch. 106 § 2-316 (5) (1965) is typical.

More recently, courts have come to apply a more objective standard. In a well written, leading case discussing the need to warn of the 1% risk of paralysis from a laminectomy, the D.C. Court of Appeals observed:

> It is the settled rule that therapy not authorized by the patient may amount to a tort — a common law battery — by the physician. And it is evident that it is normally impossible to obtain a consent worthy of the name unless the physician first elucidates the options and the perils for the patient's edification. Thus, the physician has long borne a duty... to make adequate disclosure.... The evolution of the obligation to communicate... has hardly involved an extraordinary restructuring of the law.
>
> Duty to disclose has gained recognition in a large number of jurisdictions, but more largely on a different rationale. The majority of courts dealing with the problem have made the duty dependent on... custom... in the community.... We agree that the physician's nonconformance with... custom... may give rise to liability.... We do not agree that the patient's cause of action is dependent upon the existence and nonperformance of a relevant professional tradition.
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> There are, in our view, formidable obstacles to acceptance of the notion that the physician's obligation to disclosure is either germinated or limited by medical practice.
>
> ....
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> We hold that the standard measuring performance of that duty by physicians, as by others, is conduct which is reasonable under the circumstances.[54]

In another leading case, coming out of Rhode Island two years later, there was occasion to discuss what is "reasonable under the circumstances." There, the court observed:

> It is not necessary that a physician tell the patient any and all of the possible risks and dangers of a proposed procedure.... As we noted earlier, materiality is to be the guide.... Materiality may be said to be the significance a reasonable person, in what the physician knows or should know is his patient's position, would attach to the disclosed risk or risks in deciding whether or not to submit to... treatment.[55]

This was further refined in a pair of cases handed down by the Court of

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[54] Canterbury v. Spence, 464 F.2d 772, 783-5 (D.C. Cir. 1972). Establishing a duty to warn is easy, but meeting that duty may be difficult, indeed. *See, e.g.*, Herbert, *Acquring New Information While Retaining Old Ethics*, 198 SCIENCE 690, 692 (1977); addressing the question of "Is there any such thing as informed consent?," the author cites, *inter alia:*

> a recent study [which]... demonstrated that a majority of surgical patients denied after surgery that they had been told about all the possible undesirable outcomes prior to surgery, even though discussion... ran for an hour and a half... and was tape recorded.

[55] Wilkinson v. Vesey, 110 R.I. 1606, 295 A.2d 676, 689 (1972).

Appeals of Washington State in 1974.[56] In one of them, that court observed, after a lengthy discussion of exceptions to the doctrine of informed consent:

> The precepts which have been discussed dictate that the elements which must exist to impose liability upon a physician under the informed consent doctrine are the existence of (a) a duty to inform, (b) a failure to inform, (c) evidence that, if informed, the patient would have chosen a different course of treatment, and (d) injury resulting from the treatment followed.[57]

This last case is probably an adequate summary of the law of informed consent for present purposes. However, before considering what effect the proposed regulations have on the common law, it will be worthwhile to discuss the other aspect of liability noted above.

A question of an inadequate exercise of skill may be as apt to arise as one of the duty to apprise a patient of hazards inherent in a therapy. Again, traditionally the standard of care was related to the skill prevailing in the community within which the physician practiced. However, this subjective requirement has also been superseded by a more objective one.[58]

Assuming that experimental evaluations are apt to be conducted in a teaching and research hospital, the question then becomes, what is the standard of care in such an institution? Moreover, there is the question of what effect, if any, a waiver of liability would have in that setting. Both of these questions were addressed in a 1963 California decision.[59]

After holding that a waiver of liability is of no effect in a tort suit by an injured patient for pressing reasons of public policy,[60] the court went on to state:

> ... defendant urges that... the funds of the research hospital may be deflected from the real objective of the extension of medical knowledge to the payment of claims for alleged negligence. Since a research hospital necessarily entails surgery and treatment in which fixed standards of care may not yet be evolved, defendant says the hospital should in this situation be excused from such care. But the answer lies in the fact that possible plaintiffs must *prove negligence;* the standards of care will themselves reflect the

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[56] Miller v. Kennedy, 11 Wash. App. 272, 522 P.2d 852 (1974) and Holt v. Nelson, 11 Wash. App. 230, 523 P.2d 211 (1974).

[57] Holt v. Nelson, 11 Wash. App. 230, 523 P.2d 211, 219 (1974).

[58] *See, e.g.,* Canterbury v. Spence, 464 F.2d 772, 785 (D.C. Cir., 1972). There the D.C. court notes that it has generally held that "prevailing medical practice... does not itself define the standard." In general, *see* 1 LOUISELL AND WILLIAMS MED. MALPRACTICE Para. 8.06 (Cum. Supp. 1976). For a decision indicating a contrary inclination, *see* Holton v. Pfingst, 534 S.W.2d 786 (Ky. 1976).

[59] Tunkl v. Regents of U. Cal., 32 Cal. Rptr. 33, 383 P.2d 441 (1963).

[60] *Id.* at 40, 383 P.2d at 447.

> research nature of the treatment; the hospital will not become an insurer or guarantor of the patient's recovery. To exempt the hospital completely from any standard of due care is to grant it immunity by a contractual clause exacted of the patient. We cannot reconcile that technique with the [previous holdings of this court].[61]

Summary and Conclusions

It thus appears that, outside of a few jurisdictions,[62] the proposed investigational use regulations under § 520(g) (3) (D) will have little effect on the tort liability of medical researchers. While they *do* require informed consent and forbid the use of waivers, both of these appear to be consistent with the common law as presently developing in most jurisdictions.

Moreover, as earlier discussed, while a failure to conform may give rise to possible statutory sanctions, the risk of these seems much lower than the risk of tort liability.[63] For that reason the proposals do not seem to be the basis for alarm — and, indeed, may result in researchers being better informed than they might otherwise be of their obligations to human subjects.

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[61] *Id.*, 383 P.2d at 448.

[62] 1 LOUISELL AND WILLIAMS, *supra* note 58, at Para. 17.07-57, for example, lists Oregon, Virginia and West Virginia as currently recognizing a contract waiving a right to sue for negligence.

[63] *See* discussion corresponding to note 48 *supra*.

Comment: Serendipitous Result Obtained in Developing Science Literacy Course

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At Franklin Pierce Law Center, a course has been constructed and presented which provides law students with information about the methods and processes of science in an interesting and meaningful way. This should be of interest to everyone involved in legal education and, especially, instructors of law-science courses. The author has elsewhere documented and argued the need for scientific literacy among legal generalists.[1] It should suffice here to summarize by pointing out that lawyers dealing with technical issues may be expected to be more effective if they are knowledgeable with regard to the methods of science and technology in general.

"Science in the General Practice" uses materials assembled under the name "The Nature of Evidence."[2] Developed under the *Guided Design*[3] model, the materials provide structured role playing in professional

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[1] T. G. Field, *The Need for Scientifically Literate Legal Generalists: A Challenge for Legal Education* (manuscript in progress).

[2] For further information, write to Dr. Gene A. D'Amour, Philosophy Dept., West Va. University, Morgantown, W. Va. 26506.

[3] *Id.*, or write to Professor Charles E. Wales, Director, Freshman Engineering, W.V.U.

decision making within different disciplines. The first project, *An Introduction to the Process of Decision Making,* guides students through the problem solving process: identification of the problem, generation and evaluation of possible solutions, data collection and analysis, solution or decision. Once students have participated in this basic approach of the scientific method, specific problems from various disciplines are presented for solution by application of the method. Topics used in "Science and the General Practice" were analytic philosophy, chemistry and psychology.

During the 1977 spring term, eleven first year students were enrolled in the course. In order to evaluate the effectiveness of the course, as well as student claims that this course was aiding in their other work, a statistical analysis was computed. Students from the course were compared with eleven of their classmates, selected at random. Two students from the experimental group performed so poorly in general as to be expected to not complete law school; accordingly, they, as well as the two lowest scorers from the random (control) group, were excluded from analysis. Each group included nine subjects. Student's t[4] was calculated for the two groups using as scores the change in grades in the courses which all students from both groups had in common (Civil Procedure, Criminal Procedure, Contracts, Torts, Property).[5] Change in grades was the increase or decrease in average grades from the first semester (before Science in the General Practice) to the second semester (during which Science and the General Practice was taken). (See Data Table).

The result of the statistical analysis was that students taking "Science in the General Practice" showed improved grades in general over their randomly selected classmates. The t-test for the significance of the difference between means was significant at the .01 level; in other words, the observed difference in improvement in grades could be due to chance once in one hundred cases and, by convention, the result is accepted as statistically significant.

Thus, the results from this small preliminary sample indicate that "Science and the General Practice" teaches skills which allow law students to improve first year grades generally. On the impressive basis of the results, plans have been made to expand the course materials to include 1) analytic chemistry, 2) empirical social psychology, and 3) pharmacology/toxicology. Problems of legal significance in the techni-

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[4] *See, e.g.,* GUILFORD, FUNDAMENTAL STATISTICS IN PSYCHOLOGY AND EDUCATION 217 (1956).

[5] Courses in legal skills and process were graded on a pass-fail basis and were not included in computations.

cal areas will be prepared to provide law students with exposure to legal problems in the physical, social and health sciences. In addition, consideration of math, philosophy (science and ethical) and statistics will be included in the problems.

"Science in the General Practice" provides law students with an effective problem solving strategy as well as scientific literacy. Expressions of interest and/or willingness to share in the effort will be welcome.

DATA TABLE

	SUBJECT	1st SEM. [b] GPA [a]	2d SEM. [c] GPA	CHANGE GPA	CHANGE GPA [d]
CONTROL GROUP	1	3.03	2.21	-.82	(—)
	2	2.06	1.86	-.20	-.20
	3	3.60	3.32	-.28	-.28
	4	2.10	2.06	-.04	-.04
	5	2.00	2.44	.44	.44
	6	1.79	2.74	.95	.95
	7	3.36	2.83	-.53	-.53
	8	3.41	2.51	-.90	(—)
	9	2.41	2.05	-.36	-.36
	10	2.11	2.38	.27	.27
	11	2.85	2.77	-.08	-.08
	mean	2.61 (2.48) [d]	2.47 (2.49) [d]	−0.141	+0.0189 [d]
EXPERIMENTAL GROUP	1	1.73	2.34	.61	.61
	2	2.19	0.58	-1.61	(—)
	3	2.92	3.21	.29	.29
	4	2.60	3.12	.52	.52
	5	2.38	2.60	.22	.22
	6	1.89	1.83	.06	-.06
	7	1.26	1.86	.60	.60
	8	2.92	3.00	.08	.08
	9	2.00	2.47	.47	.47
	10	1.92	2.86	.94	.94
	11	1.93	0.98	-.95	(—)
	mean	2.16 (2.18) [d]	2.26 (2.59) [d]	+0.101	+0.408 [d]

a. On a scale where A = 4.0, B = 3.0 etc. Ungraded courses and courses not held in common were excluded from the data.

b. First semester courses were: Civil Procedure (3 hrs.), Contracts (3 hrs.) and Torts (2 hrs.); total of 8 hours.

c. Second semester courses were: Criminal Procedure (3 hrs.), Property (4 hrs.) and Torts (2 hrs.); total of 9 hours.

d. The two students with the greatest drops in GPA from 1st semester to 2d semester were excluded from each group (*see* text). It is interesting to note that, within the reduced groups, the mean GPA for the control group was higher 1st term and the mean GPA for the experimental group was higher 2d term.

Announcement from the World Intellectual Property Organization

The World Intellectual Property Organization (WIPO), Geneva, announces that on November 25, 1977 France ratified the Patent Cooperation Treaty (PCT).

The date from which international applications under the PCT may be filed will be fixed in April 1978 by the Assembly of the States which are parties to the PCT. That date is expected to be June 1, 1978; this date has also been chosen by the European Patent Organization as the opening date for filing patent applications under the European Patent Convention.

Under the PCT, United States citizens and residents may file an international patent application with the United States Patent and Trademark Office in Washington. The effect of the international application is the same as if national applications had been concurrently filed with the national Patent Offices (including the European Patent Office) of those countries party to the PCT which the applicant designates. The international application is then subjected to a search of the prior art by the United States Patent and Trademark Office, and the applicant is placed in a position in which he can decide, on the basis of the international search report, whether it is worth while to pursue his application in the various countries he has designated. National procedures in such countries are delayed until 20 months after the priority date unless the applicant asks for an earlier start.

An international application may be a first application or it may be

a subsequent application invoking the priority of an application previously filed with the national office of a country party to the Paris Convention or with the European Patent Office. Where protection is sought in any country party to both the PCT and the European Patent Convention, the applicant may seek protection under the national law of that country or under the European Patent Convention. The amount of the fees due under the PCT will be fixed in April 1978.

The countries which will be party to the PCT by June 1, 1978 will include the Federal Republic of Germany, France, Switzerland, the United Kingdom and the United States of America, and probably several other highly industrialized countries such as the Soviet Union and Sweden. About twenty countries are expected to be party to the PCT by June 1, 1978. Japan and Austria are expected to join later in 1978.

The texts of the PCT and the PCT Regulations are on sale at WIPO, 32 Chemin des Colombettes, 1211 Geneva, Switzerland (telex 22 376 CH). Detailed brochures are being prepared and will be available free of charge on request early in 1978.

Law Center Report

In keeping with the unique role of the Law Center as a training ground for legal teaching and research in the interfaces between law and technology, we have initiated for our first year class a novel survey course entitled "Policy In A Technological Society."

Embracing an introduction to our legal system for encouraging and protecting the creative efforts of inventors and authors, the course outlines our patent and copyright systems and the practical problems of innovation in today's society, tying them into the related research studies of our PTC Research arm and our programs in these areas with the Center for Entrepreneurial Development of Carnegie Mellon University, the MIT Biomedical Instrumentation Center, Dartmouth's innovation center, the Max Planck Institute at Munich, and the CEIPI exchange program at the University of Strasbourg.

This is followed by sessions on tort law as a control mechanism — negligence and nuisance — and product liability (Professor Joseph Vittek); public control of technology: federal, state and local regulation of science and technology (Professor Michael Baram); and a comparative analysis of private and public law with a focus on consumer safety (Professor Thomas Field).

Our objective is not only to expose modern lawyers to these areas, but to seek out law students with the background and flare for practice therein and to enable early course planning for potential careers centered in such areas as patent and copyright law, product liability and regulatory law concerned with technology.

Assisting in the subsequent advanced patent training, is Mr.

Robert Shaw of the MIT patent department, who supervises student practical patent application preparation and prosecution work, particularly in connection with academic interchanges with the innovation programs at Carnegie Mellon and Dartmouth and the activities of our own innovation clinic. And through the efforts of Ms. Nancy Metz in assisting the president as a staff research associate and administrator, students are prepared for participation in suitable research projects of the PTC.

By this program, complemented by advanced courses, we hope to provide the legal profession, in its public and private sectors, with a continuing cadre of new lawyers having substantial background in technology and law, and hopefully enriched by internship experiences in this growing and vitally important field.

Robert H. Rines
President

European Trading and Technology Transfer: An Introduction

HOWARD S. CURTIS

Select members of the American business and legal communities were given an unusual opportunity last fall to become acquainted with the evolving regulations governing foreign trade in Europe. Sponsored by the Franklin Pierce Law Center and the European Economic Community, this unique conference was held over a two day'period on the Law Center's campus in Concord, New Hampshire.

The Conference originated as a result of the Law Center's affiliation with the University of Strasbourg Law School at Strasbourg, France and the Max Planck Institute in Munich, West Germany. These two prestigious institutions have assumed the task of training lawyers, judges and business people as to the nature of the new EEC regulations and their impact on foreign trade. As a result of its association with these institutions, the Franklin Pierce Law Center was asked to bring together a group of high ranking American corporate leaders and legal representatives to learn of the latest developments in European trade and property regulation from officials of the EEC.

Valuable planning advice for the conference was received from a Conference Executive Committee under the chairmanship of Dr. Thomas Meloy, President of Meloy Laboratories, Inc. Dr. Meloy was assisted by Erskine N. White, Jr., Executive Vice-President of Textron, Inc., Dr. Kenneth J. Germeshausen, former Chairman of

E.G. & G., Inc., and William Kenney, Chairman of King's Department Stores, Inc.

Also assisting in the organization of the conference were members of the Law Center faculty, the PTC Research Foundation and the Academy of Applied Science. The Washington Delegation of the Commission of the European Communities offered its invaluable services to the Conference Committee.

The EEC officials more than fulfilled their responsibilities by sending some of their most distinguished directors to serve on the conference faculty. The subject matter of the conference covered the gamit of trade and technological problems.

Mr. Jean Verges, Director General for Competition, discussed EEC business merger and antitrust trends; Mr. L. Krämer, counsel for the Consumer Protection Service, highlighted EEC trends and policies in consumer affairs, including product liability; Mr. Bryan Harris, Head of the Intellectual Property Division, outlined technology transfer and industrial property protection problems underlying the various European patent conventions; Mr. Norman W.P. Wallace, Vice President-Designate of the European Patent Office, discussed the ramifications of the new EEC patent system for business planners; Mr. S.P. Johnson, Head of Division of Prevention of Pollution and Nuisances, Environment and Consumer Service, analyzed current EEC environmental protection policies and trends; and Mr. Anthony Albrecht, Director of Office of Atlantic Political/Economic Affairs, U.S. Department of State, outlined American policy toward the EEC.

Delegates from American corporations were greatly diversified, representing both large and small businesses; the representatives were about evenly divided between management and legal divisions.

Both the European faculty and the delegates were pleased by the informality of the sessions and the opportunity for discussion. EEC officials commented that the Conference had made them more aware of American needs, and that this new found awareness would be of great help in conducting their affairs.

The Conference made evident the necessity for the American industrial and business community to familiarize itself with the changing regulations of the European market. Consequently, the Law Center has made plans for an annual Institute on EEC law. The first annual Institute is presently planned for late October of this year. This conference will review and update trends in EEC law affecting technology, business and the related law of member nations. The aim is to provide a forum for discussing practical and policy questions in an unhurried setting that promotes thorough review and lays the

groundwork for cooperative action.

While the issues will change from year to year, the objective is to regroup many of the same Brussels officials and American experts each year to ensure a continuity of dialogue. Faculty for the Institute will be comprised of EEC officials and academicians from several law schools, including the Law Center.

Readers interested in learning more about the Institute should contact Joseph F. Vittek, Director of the PTC Research Foundation or Howard S. Curtis, Executive Vice President of the Academy of Applied Science.

A Review of EEC Competition Policy and Regulations vis-à-vis Licensing Technology

JEAN VERGES*

I shall present a general summary of the competition policy of the Commission of the European Communities. I will also try to sketch the framework within which American companies will have to work with us in the future.

European competition policy is one of the rare examples of common European policy. As you know the Treaty of Rome contains the obligation for Europe to define several general common policies regarding the different sectors of the economy. But as yet, we have not achieved very much in that direction. We have a common agricultural policy, and we are trying to define a common industrial policy, a common transport policy and so forth. We have made some headway in all of these directions, but we have as yet only achieved a common policy in the area of agriculture.

Competition, Merger and Antitrust Trends

There is one sector in which the common policy is defined by the treaty itself, the area of competition. We have a short chapter in the treaty which talks about competition problems and rules and regulations; this chapter is enough to confer on the Commission the right

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and power to define the lines of common competition policy. It is the parameters of the competition policy of the Commission which I will outline for you.

The Treaty of Rome was written over 20 years ago. Its central purpose was to create a close economic union among the states of Western Europe, a union that would be able to foster economic growth.

In the United States, antitrust legislation was drafted to control a powerful industrial community in which enterprises had grown unchecked. The motivations of the European Community are, in many ways, very different from those of the United States because they are related to different problems. It is true that in the 20 years since the creation of European competition law the Community has developed economically and industrially and in some ways our problems have become similar to yours. In fact, the European approach towards antitrust policy is tending towards the adoption of solutions that would be acceptable to your antitrust authorities. We are often inspired by decisions of American courts.

It is our belief that merely to declare that the circulation of goods is free among the European countries will not ensure the creation of a unified European market. The rivalry between enterprises which, through the normal mechanisms of the market will lead to the integration of economies, must not be hampered. At the same time, competition as a rule must not be prevented, restricted nor distorted.

The main role of the Commission is to ensure that these different conditions are realized. Certain restrictions on competition may foster unification of the markets. Therefore, the Commission attempts to maintain an even balance between restrictions on competition and more liberal arrangements which are intended to ease integration.

You may begin to see already how the competition policy of the Commission differs from that of the United States. We cannot disassociate competition policy and industrial policy as often happens here. In the United States competition is an end in itself; for us competition has generally been but one factor to consider in attempting to achieve our goal.

Yet, as I mentioned, the situation is changing. We too must now begin to control certain enterprises — foreign or Community — that have reached a quasi-monopolistic status in the Common Market, and which might misuse their economic powers in such a way as to affect the smooth integration of our nine economies. Accordingly, the main goal of our competition policy is to maintain the unity of the Common Market so as to benefit both business and consumers.

The Commission has based some 120 decisions on the Community's

antitrust law. Additionally, the Court of Justice in Luxembourg has added some fourteen rulings also dealing with competition problems. In this way the Commission has progressively created a real competition policy which protects the market by fostering a free and healthy economic environment. All firms — private or public, Community or foreign — must respect this Common Market policy.

Recent economic and social difficulties have made some people question the value of regulating competition. Some economic observers today believe that only by increased regulation will industrial and commercial activities be directed towards the determined economic and social goals; others argue that considering the condition of the market, governmental regulations should be lessened.

In a community such as ours with nine different countries — and possibly twelve if we include Spain, Portugal and Greece — feeling the pressure of the current economic crises, we must face our problems in a very practical way. For the present, we must relax antitrust regulations sufficiently to allow temporarily a certain degree of concentration in sectors of the economy affected adversely by the current economic crises.

Your antitrust authorities in Washington might disagree with me, but I think that the economy of the United States is less fragile than our nine different economies; our economies are not yet as strongly integrated as the American economic system. It should be remembered that Europe is a highly diversified continent. Europe is also very densely populated — a mosaic of regions, some rich, some poor. The present economic situation affects these regions in different ways and to different degrees.

The governments of various European countries are often called upon by their citizens to rescue certain businesses or to give assistance to a particular sector of industry. Such aid may gravely affect competition. A chief function of the Commission is to ensure that such assistance does not give unfair advantage to certain European firms over others.

State aid as such is not forbidden; the Commission merely attempts to define terms for granting such aid. We emphasize that the effect of national aid on the European Community must be considered. The European states are encouraged not to use such aid against one another in an attempt to attract new investments without considering the effect of such action on the Community at large.

I would now like to move on to the subject of control of mergers. I begin by reminding you of the Continental Can case of a few years back which involved an American company. The Continental Can

Company decided to acquire control of two European companies — one German and the other Dutch — which were virtually the only two remaining competitors within the northwest region of the Community.

The Commission decided to study the case and our research revealed that Continental Can was undoubtedly a dominant enterprise in the Common Market. Moreover, we decided that the situation arising from these mergers constituted an abuse of a dominant position in that it would virtually eliminate competition in the northwest region of the Common Market.

Continental Can challenged the decision before the Court of Justice. The Court ruled against the Commission. Nevertheless, the decision of the Court contained a finding the Commission had been waiting for. Although the Court held that the Commission had not adequately defined the relevant market in this case, it nonetheless held that elimination of competitors, by means of acquisition, could be considered an abuse of "a dominant position" provided that: (1) the dominant position was clearly established; and (2) the elimination of the competitor resulted in a situation of quasi-monopoly in which the dominant enterprise was without significant competitors.

While this case helped clarify the powers of the Commission, it made clear that the Commission does not have complete authority to control corporate concentration. Nonetheless, we have moved far from the early days of the treaty. Originally, every effort was made to facilitate mergers. Only large and powerful European corporations, it was said, would be able to compete in the world market. Europe believed that its corporations were far too weak when compared with those of the United States; little thought was given to the possibility that monopolies might be formed.

Then the powerful foreign firms began to move onto European turf; and before long, we hosted the powerful "multinationals." For the first time we faced a serious need to control concentrations between enterprises which threatened to build into harmful monopolistic giants.

Hence, we have drafted a regulation aimed at giving us the necessary authority to effectively control these emerging monopolies. The Council of Ministers is currently considering this regulation, and hopefully we will have a decision within a year.

It is clear that many firms have already begun to second-guess the nature of the impending regulation. It is assumed that only regulation of the largest concentrations will be acceptable to governments. The share of the Common Market controlled by any single enterprise

most likely will have to be greater than 20% for the regulation to apply. And, the regulation will only apply to a merger between two or more enterprises. We have proposed that only mergers accounting for a turnover above one-half billion units of account and which control greater than 20% of the Common Market should be effected. Some countries find our limit of half-a-billion too low; others find it too high. It is my feeling that this limit will be increased largely on the demands of the British, French and Germans. The limit may reach one billion units of account.

Such a ruling if based on these criteria will actually affect fewer than 200 corporations, at least one-half of which are foreign. The proposal is that corporations must notify the Commission before they perfect a merger. If the Commission does not respond during the 3 months following notification, authorization must be considered as granted. Within the 3 month period the Commission may either inform the parties concerned that it does not object to their merger and that they may proceed with the consolidation, or that it is concerned and will undertake a more thorough investigation. The parties, of course, are free to go ahead; but they should be aware of the risk they assume.

Each of the nine member countries is concerned about its own social, economic and industrial problems; the Commission must take into account unique national problems. The governments of member countries want the merger regulation to contain a specific stipulation that the Commission is to consider the unique problems of the different nations in determining whether to approve a merger. Some governments also would like to have more influence in the procedures of the Commission, but the Commission steadfastly refuses to allow this. The Commission must operate independently.

New Draft Regulations vis-à-vis Licensing Technology

Another draft regulation which I wish to discuss is one which concerns the transfer of technology. Each of our nine countries has its own laws and regulations regarding industrial property. These national laws were adopted with the double aim of perfecting more efficient transfer of technology *and* protecting national patents against competition.

I wish to discuss for a few minutes the conflict between industrial property and antitrust legislation. This is a problem faced by both the United States and Europe. It is difficult to pinpoint a balanced solution which recognizes the legitimate interests of the inventor or author as well as those of the public. The Commission has looked to

American law for answers to this problem; yet the legal systems of the United States and the Common Market are not easily compared. In the United States, the Sherman Act, the Clayton Act and the Patent Act are federal laws which govern the entire nation. Within the Common Market, article 85 of the Treaty of Rome is European law much like federal law in this country; but patent and trademark laws are laws of the member states — at least until a true European patent and trademark statute is devised.

Accordingly, since the Commission is not able to decide all existing licensing cases, it hopes to enact a so-called *block-exemption* for patent licensing agreements. This draft regulation has been known to the public since December of last year. Guidelines as to what will constitute permissible licensing agreements will be placed on a "white" list. Those licensing agreements which are forbidden but which might be justified under specific circumstances and after individual examination will be placed on the "black" list. A "grey" list will also be compiled of anti-competition practices which, after examination, will be tolerated at least for a time.

This draft regulation has been criticized by industries and various European governments. It was to be expected that these European industries and governments might be reluctant to part with the practices of the past. What is surprising is that certain American voices also have joined the concert complaining against our draft regulation. This is puzzling to us since we have been inspired, as you know very well, by American law in drafting our proposed regulation.

However, let me discuss further, the draft regulation "white" list. The "white" list details a series of restrictive practices deemed to be compatible with article 85 of the Treaty of Rome.

Exclusivity of manufacture will be permissible provided the license territory does not exceed 100 million inhabitants; territorial exclusivity may be canceled by the licensor after 5 years if the licensee does not properly exploit the license. I use the term "exclusivity of manufacture" or "use" because we introduced a novelty in our draft regulation. We have sought to distinguish between production and sale. It is permissible to give territorial exclusivity to the producer of certain patented products. But he will not obtain from us the exclusivity of sale within the same territory. For example, manufacturing exclusivity may be given for a certain area of the Common Market to one single licensee provided the territory has fewer than 100 million inhabitants and provided that it is clearly written in the contract that the exclusivity may be terminated by the licensor after 5 years if the license is not exploited.

The 100 million inhabitants figure has been seriously criticized as arbitrary. "Why 100 million inhabitants?" the critics ask. This figure was chosen in order to make it impossible for a patentee to have less than four producers in the Common Market — the patentee plus three licensees or four licensees, if, for example, the patentee is American. More than 100 million inhabitants populate any two large European countries; for example, France and Germany, or Germany and Italy, or Italy and Great Britain, or Great Britain and Germany.

Our views do not vary much from those of your own Supreme Court. For example, we were inspired by the decision in *Standard Oil of California v. United States* in 1949, which forbade exclusivity where the market share reached 23%.

Exclusive sale and export bans within the Common Market is another issue which must be dealt with. Such bans will be permitted, according to the "white" list, only to protect the investment of small and medium sized companies. This means that these restrictions will be tolerated only when the sales of the companies concerned are limited to about 100 million dollars; and under this scheme exclusivity of sale and export bans are limited to a period of 10 years.

Let me summarize other "white" list inclusions. It is accepted that the duration of the licensee agreement will be shorter than the lifetime of the patent. Prohibitions against granting sub-licenses are also accepted. We accept *tying* of commodities, compounds and determinative products indispensable for the production of the licensee's program, but only if the patent license is accompanied by a trademark license; we accept a *grant back* if it is reciprocal and not exclusive; we accept a *minimum royalty* clause if it can be canceled after 5 years; and we accept the *most favored licensee* clause.

The "black" list contains regulations which correspond exactly with American case law. For instance, we will not accept the concept of *licensee-estoppel,* thereby following the United States Supreme Court in *Lear v. Atkins* (1969). The list seeks as well to avoid licensing agreements which can be indefinitely extended by means of new improvement patents. Also included in the list are prohibitions against non-competition clauses and quantitative restrictions.

The "grey" list details the restrictions either likely to be accepted or about which the Commission does not have a definite opinion yet; for example, export bans involving third countries. The draft provides that any licensing agreement which restricts competition, but which is not specifically approved by the "white" list, will be valid 6 months after notification of the licensing agreement to the Commission, unless opposed by the Commission in the intervening period. In the new

draft, currently being prepared, the notification procedure will be less cumbersome than the process proposed in the draft of last year.

Finally, I would like to say a few words on the Community Patent Convention of Luxembourg. Generally, we support the Convention, but we disagree with article 43 which provides that a Community patent may be licensed in all or some of the territories in which it is effective and that a license may be exclusive or non-exclusive. We have officially objected to this article, and, if approved, we would not hesitate to challenge it before the Court of Justice.

The July 25, 1977 issue of *Business Week* contained an article which was critical of our draft regulation on patent licensing. It was the author's position that the draft *block-exemption* goes beyond existing American antitrust law by forbidding the licensor to recommend or fix prices, and by allowing the licensee to use know-how after the agreement expires. The so-called General Electric doctrine of 1926 *(United States v. General Electric)* states that price fixing in a patent licensing agreement is legal. We also know that this doctrine was upheld in 1965 only by a 4 to 4 vote in the case of *United States v. Huck Manufacturing Co.* It is generally agreed that had the absent Justice voted, the tally would have been against price fixing. Hence, you might say we are on the "side of the majority" in this case. I am sure that American industry will carefully avoid bringing this question before the Supreme Court — and for good reason.

In conclusion, while much more could be said, I have sought to analyze the salient features of the Community's competition policy. In so doing, I hope that I have helped to make all of you more aware of our goals and the approaches we have chosen for achieving these goals.

EEC Trends in Consumer Affairs and Products Liability

L. KRÄMER*

Consumerism in Europe does not exist in the same sense that it exists in the United States. A strong consumer movement, like that in the United States with its organized boycotts and Nader-style influence on industry and public agencies, does not exist in Europe.

Generally, the EEC Commission is not a decision-making body; it merely makes proposals for adoption by the EEC Council of Ministers. Thus, in the field of consumer protection, there are no administrative bodies similar to the United States Food and Drug Administration, the Federal Trade Commission or the Consumer Product Safety Commission. Neither do such agencies exist on the member-state level. Agencies and departments dealing with consumer affairs are not shaped and modeled in the same way in the member states of the EEC as they are in the United States.

The United Kingdom has a department within its government which deals with prices and consumer protection but, at the moment, it is the only country with such a department. For the past year France has had a Secretary of State responsible for consumer affairs but the position is subordinate to that of the Minister of Financial Affairs. In Denmark there is a consumer ombudsman to assure fair marketing. However, in the other member countries there are no de-

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partments or independent agencies concentrating on and attempting to promote consumer interests.

This is not to say that the consumer is unrepresented in the European Economic Community. Unlike in the United States, a large number of countries recognize trade unions as consumer organizations because they do not limit themselves to wage problems but are also concerned with social policy in general, including consumer protection. This is particularly true in France, Belgium, Luxembourg and Italy, as well as in Germany, the Netherlands and, to a certain degree, in Denmark. But other consumer organizations on both the European and national levels are weak. They are neither well-financed nor well-staffed and their intellectual capacity is not overwhelming. Therefore, they cannot compete with the interests of commerce and industry.

Nevertheless, there is governmental awareness of the need to protect consumers and an increasing number of governments in the Common Market recognize that our industrial society cannot survive unless all the citizens living in the society get a "fair deal." Economic growth is not an end in itself but is legitimate only insofar as it serves the interests of the citizens forming the society.

When French students wrote "save the tenderness" on the walls in 1968, they were expressing a sentiment which is felt throughout Europe: that the quality of life has to be preserved, protected and promoted. Most of the nine governments accept consumer protection and the promotion of consumer interests as a means of preserving this quality of life, of "saving the tenderness."

Public awareness of the needs of consumers in Europe started in the early 1960s. Many Europeans would dispute this date because there are laws dating back to the beginning of the twentieth century which were intended to give appropriate protection to the consumer in such fields as product safety. (The existing product liability law in France dates back unchanged to the Napoleonic Code of 1804.) Nevertheless, in the beginning of the 1960s, demands for consumer protection increased. The thalidomide case and similar incidents in other countries, even if less serious, showed that something had to be done about product safety. This period was also marked by a growing concern about protecting the economic and other interests of the consumer, such as giving consumers fair access to the courts, and educating them to become intelligent consumers.

Our society can survive only if there is a balance of interests. If one side is too weak, the balance does not exist. Therefore, governments decided to intervene, not so much because a certain product was un-

safe at a given speed or because a product was unsafe for consumption, but because of the need to restore the balance. Hence, it was a sense of responsibility, not pressure from private organizations, which provoked government activity in Europe. This public awareness of the need to intervene has been particularly strong in the Scandinavian countries. In Sweden, Norway and Denmark statutes have been enacted to improve the position of the consumer in the market place. Public awareness has also been very strong in the United Kingdom since the Maloney report was published in the early 1960s, and a considerable number of statutes have been passed since that time.

A French writer said that "a hungry stomach has no ears." In countries which have problems with unemployment and social structure (Italy, for example), consumer protection has not been a major consideration. Governments must first reform the structures of society and the structures of administration. Where there is less affluence, the need to protect consumers, while not unrecognized, is much less urgent.

Now where do the institutions of the European Economic Community stand? In general, they try to build up a Common Market, not by acting against member states, but by cooperating with them. Despite the fact that quality of life, consumer and environmental protection are not explicitly mentioned in the Treaty of Rome, the national governments attempted in the early 1960s to induce the institutions of the Common Market to interpret the treaty as providing protection for consumer interests. This idea gained strength when, in the early 1970s, the United Kingdom, Ireland and Denmark joined the founding countries.

In 1973, the Directorates of Environment and Consumer Protection were established within the Commission of the EEC. In addition, a consumer consultative committee was created to advise the Commission on matters of direct interest to the consumer and to make suggestions on its own initiative. This advisory committee is composed of twenty-five members representing consumer organizations from the nine member nations. Trade and industry are not represented on the advisory committee.

In 1973, a Community program for consumer protection and information was drafted. This program was finally adopted in 1975 and is being implemented now. An internal working group was recently established to develop a second program on consumer protection and information, which would follow up the first program. The implementation period terminates in 1979.

Under these programs a number of steps were taken in cooperation with member states to promote consumer interests. Because directives initiated by the Commission must be approved unanimously by the Council of Ministers, each member state, through the Council, could reject any proposal made by the Commission. For this reason, new legislation in the field of consumer protection must take into consideration the fact that some countries are very progressive while others are not. In other words, there might well occur a time when a Commission proposal serves the interest of one country but not that of another. Consider laminated glass for automobile windshields. Italy is the only member state to have a statute prescribing laminated security glass for automobile windshields. For export reasons, therefore, the Italians would favor Community initiative in this area while other countries would be less enthusiastic.

What has the Commission tried to initiate and promote? What have member states tried to promote? What will the trend be in the years to come? There are three major areas of concern: product development, product safety and product liability. The main consideration in the areas of product development and product safety is to open the market. Among the nine countries, there may be nine different standards for a given product. More uniform standards must be provided. Generally, European standards for product safety are not higher than those of the United States. If there is a standard in the United States, and if the American product meets that standard, the product should not have much difficulty meeting the European standard.

In the area of food regulation, the Community, under its common agriculture policy, has passed legislation for various products (sugar, chocolate, honey, milk, etc.) which sets forth requirements for contents disclosure and packaging. In addition, it is likely that a Community directive will soon be adopted for the labeling and marketing of foodstuffs in general. The directive will create rather stringent regulations. For instance, it will provide for open-dating of food, impose requirements regarding the composition of food, and require the net weight of the product to be indicated.

Common Market regulations have not been developed to regulate pharmaceuticals. Although there are some directives to standardize testing methods, there is no uniform system of testing which would permit pharmaceutical products to be introduced throughout the Common Market. The level of testing differs from one country to another. For example, Germany is without stringent legislation in the field of pharmaceuticals, but new legislation will enter into force January 1, 1978. It is not certain whether this will promote Commun-

ity legislation in the field and the prospects are not hopeful. In addition, although prices of pharmaceuticals are controlled by a social security body, by the state or by other methods in most countries, there are no price controls on pharmaceutical products in the Common Market. There is no Common Market policy for the advertising of pharmaceutical products. (A draft directive was proposed but no agreement could be reached by the Council of Ministers. Therefore, the Commission decided to withdraw its proposal and to formulate a different one.) There is no Common Market regulation on the quantity of pharmaceuticals. Denmark permits about 2,000 products on the market; whereas Germany permits about 20,000 pharmaceutical products.

As far as cosmetic products are concerned, there was a 1976 directive restricting the use of a number of substances, especially colorants. This directive contains labeling requirements and some restrictions on certain other substances. Work is underway to replace this negative list of banned substances which will be permitted in cosmetics. Although this list will take years to complete, a few products have already been identified for regulation as cosmetics. Those products which come into contact with hair, skin or eyes, for instance, are of present concern. Work is also underway on the methods to be used for analyzing cosmetics to assure appropriate control of products on the market.

EEC work on automobile standards is almost complete. The latest directives in this field should be adopted early in 1978 by the Council of Ministers. The directives would permit the approval of one model of an automobile by one member state to be recognized in all the other member states of the Common Market. The Community has issued approximately forty directives concerning seats, seat belts, head rests, windshields, signals, signs and other components, thus creating Community standards for these parts. It should be noted that this Community law is not a substitute for the laws of each member state. If a producer wishes to produce only for the market in Belgium, for example, he need not comply with the requirements of Community law but only with the law of Belgium. However, if the producer wishes to obtain recognition by all nine member states, he must conform to the Community standards. This is what the technocrats of Brussels call the "optimal way of harmonizing legislation."

Little progress has been made in the field of household cleaning products or in household electrical or technical appliances. The producer has the choice of complying with Commission directives or with national laws which may be less stringent.

Community legislation is being prepared for toys. The EEC is working closely with European standardization organizations, but it is unlikely that the directive will be adopted by the Council of Ministers before 1980. There is, however, national legislation in some of the nine member states, especially in the United Kingdom and in the Netherlands. In addition, all states have enacted statutes requesting manufacturers to produce safe toys and other products.

Europe does not have an accident-data collection system as does the United States. Our government is becoming increasingly aware of its deficiency in this area. Reliable statistical figures are needed to show which products cause injury, which products could be made safer, and what innovations could be made to reduce the number of accidents.

Considerable work has already been completed on the labeling of dangerous products — for example, solvents, paints and varnishes, fertilizers and pesticides; and a proposal on household cleaning products is nearly finished.

Labeling problems are complex because there are six Community languages and, with the possible admission of Mediterranean countries, this number may well increase to nine. Therefore, a major effort is being launched in the Community to replace words with symbols which will provide adequate warning to the consumer. Labeling requirements exist for the composition of textiles, cosmetics and pharmaceuticals. Requirements for the listing of prices, in particular unit prices, have been imposed. A trader is not allowed to list a price and then to indicate that a 5% tax must be added. This is meaningless to the consumer, who needs to know only what he has to pay. Whether it is a tax or a base price is generally not of interest to the consumer.

In the field of advertising, the EEC is about to finalize a draft proposal on misleading and unfair advertising practices. This proposal will be sent to the Council of Ministers before the end of 1977. It contains a number of specific directives concerning labeling requirements. The food labeling directive and the cosmetic directive have been previously noted. Advertising requirements are also planned in the areas of smoking, alcohol and advertisements directed at children. Although general rules on deceptive packaging exist on the state level, Community action is planned in this area as well.

A directive on sales with premium offers is in progress although considerable legislation already exists on the national level. In the field of contract sales, one appropriate way of protecting the consumer is to grant a "cooling off period" in contracts which are likely to be subject to abuse, contracts negotiated away from business premises,

and contracts involving consumer credit. A directive on unfair contract terms is presently being prepared and will be finalized and sent to the Council of Ministers before the end of 1978. Hopefully, the directive will help to decrease the number of incidents in which contracts are either not read or not understood.

Generally, a consumer contract is considered to be different from a contract between two traders. Equal bargaining power might exist between two traders, but the consumer is uninformed and often has insufficient bargaining power to make his or her interest prevail when negotiating a contract with a trader. At present, a contract signed in Europe is subject to statutory law, but it can also be interpreted by general contract law or be subject to the laws applicable to trade. Initiatives will be taken to provide general consumer education, particularly for the young and the elderly, including information about access to courts.

In all these fields, the Community and its member states are aware of the need to create higher standards. Yet, much will depend on the evolution of national governments and national social policy. There is a tendency in Europe to concentrate all consumer protection activities in one central body; the Consumer Ombudsman in Denmark and the Office of Fair Trading in the United Kingdom are typical examples.

It is unlikely that European consumer organizations or consumers individually will become more litigious in the coming years. They are more likely to demand greater representation, and to expect government authorities to argue their case. This attitude has been fostered by a number of trade unions, and other consumer organizations are likely to follow suit.

It is unclear whether in the future consumer protection in Europe will be limited by economic progress or whether economic progress will be limited by consumer protection. A balance will probably be achieved, with the greatest strides for consumerism being made in the area of product safety.

Product safety is a subject which is very closely linked to product liability. Product liability is society's response to the challenge of mass production, industrial devleopment and mass distribution. European civil codes stem from the nineteenth and early twentieth centuries when the manufacturer was a local craftsman and there was a more personal, direct relationship with consumers. Yet, mass production and distribution have eliminated the direct relationship between producer and consumer.

European courts have been very creative in adapting old laws to new situations. For example, there is an article in the French Civil

Code limiting the liability of a trader or producer for damages caused by a hidden defect to cases where the trader or the manufacturer knew of this hidden defect. Because the victim usually cannot prove that the manufacturer or retailer knew of the defect, the French courts now say that a manufacturer or trader doing business has an obligation to know about defects and is, therefore, deemed to know of the defect. As a result, the producer of a defective article in France is directly liable to the consumer for damages arising from a defect in the product.

Where does the Common Market stand with respect to product liability? In July, 1976 the Commission adopted a proposal for a Community directive on product liability. This proposal is being presently discussed by the European Parliament. It will be discussed by the Council of Ministers next year and hopefully will be adopted soon. The proposal provides that the manufacturer shall be liable for damage caused by a defect in the article whether or not he knew or could have known of the defect. In other words, the producer is strictly liable. This same proposal provides that the producer shall be liable even if the article could not have been regarded as defective in light of scientific and technological developments at the time when the article was placed in circulation. When this proposal was drafted, government experts suggested a vague definition of "defect" because they were aware that courts would interpret the phrase liberally. Nevertheless, the Commission has attempted to define a defective product as one which falls below the standard of safety which a person is entitled to expect. The directive provides for compensation for personal injury and property damage. Property damage is limited to so-called "consumer damage." Thus, if a product delivered to a factory explodes and sets the factory on fire, the factory owner's property damage or loss of income would not be covered under the directive. Under the directive, the only defense available to the manufacturer is that the product was not defective when it was put on the market. Other defenses do exist: that the manufacturer did not put the article into circulation or that the injury was caused by the contributory or comparative negligence of the consumer. The Commission may provide for these alternative defenses in a specific article at a later stage.

Liability of the producer under the directive is limited to $25 million for all personal injuries caused by identical articles having the same defect. In the case of moveable property, the limitation is 15,000 units of account per accident. In the case of immoveable property, 50,000 units of account. There is also a time limitation: ten years after the day on which the defective product is put into circulation,

the producer will no longer be liable for injuries arising from its use. In addition, a three-year statute of limitations has been established which will run from the day the injured person becomes aware or should have become aware of the defect and the identity of the producer.

Liability rests on the producer. The trader is not liable except when (1) the product is imported into the Community; (2) the trader has put his trademark, name or other distinctive sign on the product, thereby representing himself as the producer; and (3) it is an anonymous product. In the latter case, however, the trader who indicates the name and identity of his supplier can shift all liability.

This is a broad outline of the Commission's proposal. It is not a substitute for state law, but it provides a theory upon which the consumer may bring suit, a theory which will supplement traditional theories of contract or tort law.

It would appear that the European Community is moving in the same direction as the United States in the field of product liability. There are some basic differences, however. First, Europeans are less litigious. Second, in Europe, there is a very liberal and sophisticated social security system which would cover any product-related injury, thus relieving the consumer of costly medical treatment. Third, there is no jury trial in Europe, except in Ireland (where the people are the least litigious in Europe). Decisions are made by judges and a recent American task force legal study report shows clearly that judges have a tendency to be less generous than juries. Fourth, the compensation in Europe is much lower than in the United States. The highest settlement ever to be decreed in the United Kingdom, for example, was 132,000 British pounds. This is less than $500,000. The greatest amount ever awarded for pain and suffering in Germany was about $70,000. (When I was a judge I remember deciding a case concerning a clerk who had lost an eye in an accident and who claimed damages for pain and suffering. We awarded him $10,000 which we thought fair compensation. He was married, he had three children, and he had an assured position. Since he was able to continue his work, we thought the $10,000 award was an appropriate figure.) A European lawyer is somewhat puzzled when he reads about the large legal awards in the United States. When a victim wishes to bring an action in a European court, he must prove the costs of medical care required and loss of income in a particular amount, and he must indicate precisely the sum sought for pain and suffering. By way of contrast, the laws of Utah prohibit the victim from asking for a specific sum. Also, in Europe one bears a cost risk if one brings an action in court be-

cause the loser pays not only his or her attorney but also the attorney of the opposing party and the court fees. Therefore, one must evaluate the risk and cost of losing. In addition, court fees and the attorney fees are scheduled in proportion to the amount sought in damages with the result that the sums sought for pain and suffering will affect the costs if one loses. In any case, the claimant must indicate a range of expected recovery; for example, a sum between $50,000 and $60,000 or between $50,000 and $80,000.

Another aspect of product liability about which Europe and the United States differ is the concept of "defect." Although the term "defect" is vaguely defined in the Commission's draft directive, no one in Europe would interpret that phrase as permitting the range of actions brought under it in the United States. A suit was recently brought in the United States after a man committed suicide by jumping from the Golden Gate Bridge in San Francisco. His parents, who brought the action, claimed that the bridge was unreasonably dangerous. Such a claim would not be tolerated in Europe now or in the future.

Theories of compensation are also different in Europe. Compensation insures that the victim will be put in the same financial and professional situation as before the accident. Thus, in the above-mentioned case of the clerk, the award was not high because the loss was not high. If a worker were to get $1 million or $17 million (the amount awarded by a California court in 1974) the worker would be in a much better position after the accident than before. This is not compensation for damages. This is something else, something we Europeans cannot comprehend.

Punitive damages do not exist in Europe. The contingency fee system, whereby a winning plaintiff gives up to 40% or 50% of the sum awarded by the court to the attorney, is not used in Europe. This type of fee is forbidden, not by statute, but under the self-regulating codes of attorneys in all the member states. In Europe, there are other means of helping the poor man get his "ticket to the court."

European courts do not have the broad discovery procedures which exist in the United States. This means that the victim cannot go into the factory after an accident has occurred to determine whether some defect existed which may have caused the injury. On the other hand, courts permit installment payments. If the victim will suffer a 20% loss of income over his or her life because of the loss of one arm, then he or she will indicate the amount of present income and will get 20% for each month of future income. This allows the producer and the producer's insurance company to schedule the payments over time rather than having to pay a lump sum immediately to the consumer.

Generally, European producers seem to accept the principle of strict liability even though in Europe producers may not claim the state of the art as a defense. For example, about 6,000 persons throughout Europe were injured recently by a defective pharmaceutical product, thalidomide. As a matter of policy in such cases the state of the art is not available as a defense for the producer because it is considered unfair to the victims. If the question is whether the injured consumer or the producer should bear the risk, it is generally accepted in Europe that the burden should fall on the producer. The producer can insure himself and can spread the cost of insurance over all present and future clients. The major issue in Europe is whether or not placing a financial limitation on the producer's liability would be unfair to the victim who may not be fully compensated. The United Kingdom, France, Denmark and a number of other countries do not have financial limitations on the producer's liability for personal injuries to consumers. Hence, this question remains unsettled.

If the proposed strict liability directive or one similar to it is not adopted in Europe, there probably will be a movement toward some type of social security coverage for accidents in the field of products liability. Germany has debated the issue of a special fund to compensate consumers for product-related injuries in the area of pharmaceuticals. Such a system is already in effect in New Zealand and in the United Kingdom. The report of the English Law Commission recommends that the proposed directive should not be adopted because it does not provide for the option of creating a fund to cover accidents. The Commission's position is that the producer must be liable for product-related injuries because a social security fund which would compensate victims and which would socialize accidents and damages might one day lead to socialized profits. The proposed directive on product liability attempts to strike a fair balance between the interests of producers and those of consumers.

The product liability crisis would not exist if better products were manufactured and if the products were used with the requisite care. Ultimately, the interests of producers and of consumers are the same: to avoid accidents. In the final analysis, the solution is not better legislation but better products.

Technology Transfer and Industrial Property Protection: Problems Underlying Various European Patent and Other Conventions

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It was quite by chance that, some three weeks ago, before I even knew that I should have the privilege and pleasure of coming to the Franklin Pierce Law Center for this conference, I bought a copy of Benjamin Franklin's autobiography and other writings and read with interest and admiration the passage describing his invention of a new type of domestic stove. Franklin's friends urged him to protect the secret of his invention and, like the good businessman he was, to profit from his inventiveness. However, he refused to do so, saying that, if his invention had any merit, it ought to be applied as quickly and extensively as possible for the use of mankind. His was an early, but classic, defender of rapid transfer of technology.

If I were a blinkered idealist, I would simply leave the story there; but, as I expect many of you know, there was a sequel. Shortly afterwards — and I forget now whether this was pointed out by the editor of Franklin's autobiography or ruefully recorded by Franklin himself

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— another businessman took out a patent for what was in practice Franklin's own idea. Thus Franklin failed in the long run to achieve his altruistic aim; and, what was more, his altruism was rewarded with what we should now regard as a form of theft. His inventive idea — or, as we would call it these days, a part of his intellectual property — had been appropriated by someone else. To me this story epitomizes the problems of an unqualified belief in the importance of the transfer of technology.

Having already used that expression twice, I now have to confess that the older I grow the more suspicious I become of some of the catch phrases — of which this may well be one — when they are used in the press or in the corridors of power rather as debating points than as terms of art. Hardly a day goes by at my office without some new document landing on my desk urging the Commission of the European Communities to speed up its efforts to promote the transfer of technology; and I receive innumerable copies of press articles complaining about the delays in transferring technology and countless copies of speeches by statesmen criticizing the industrialized countries for their unwillingness to transfer technology to countries which need it. From this mound of material I think it impossible to extract a consistent or coherent concept of the real meaning of the expression, transfer of technology, still less a realistic and practical policy for giving substance to it. I therefore propose to spend a few minutes, before coming to the main part of my talk, on saying exactly what I mean by technology, how I think it can or should be transferred, whom I consider to be capable of transferring technology and why I expect those capable of transferring technology might wish to do so.

So far as technology is concerned, the word is used all too often with only the vaguest reference to its exact meaning. It is therefore salutary to be able to refer to a definition of technology which expresses a concept so clearly and comprehensively that it may usefully serve as a basis for my subsequent remarks. The definition is to be found in a publication issued only 6 weeks ago by the World Intellectual Property Organization. (WIPO publication number 620 (E) 1977, entitled the *Licensing Guide for Developing Countries*. The guide covers the legal aspects of the negotiation and preparation of industrial property licenses and technology transfer agreements appropriate to the needs of developing countries.) The definition is as follows:

> . . . technology means systematic knowledge for the manufacture of a product, the application of a process or the rendering of a service, whether that knowledge be reflected in an invention, an industrial design, a utility model, or a new plant variety, or in technical information or skills, or in the services

> and assistance provided by experts for the design, installation, operation or maintenance of an industrial plant or for the management of an industrial or commercial enterprise or its activities.

Most of the concepts included within that definition are elements of what is conveniently called intellectual property; and in practice most of the present paper will concentrate on intellectual property problems. Even the concepts which are not directly comprehended in the expression intellectual property are so closely allied to it and in some cases so readily treated on the same general basis that most of my remarks on intellectual property apply *mutatis mutandis* to those other concepts as well. For example, the skills involved in the design and installation of an industrial plant may fairly come within the general heading of "know-how"; and the skills relating to management of a commercial enterprise may fairly come within the heading of commercial secrets. Both know-how and commercial secrets are potential candidates for inclusion in intellectual property protection; and indeed my division in the Commission of the European Communities is at present studying the ways in which the laws on the protection of know-how and of commercial secrets may be harmonized within the member states of the European Common Market.

Given this definition of technology, it ought, on the face of it, to be easy enough to determine what the transfer of technology comprises; but even the word transfer has problems of its own. There are at least five different ways in which technology may be transferred. In fact, technology may be said to pass from one person to another by gift; by sale or assignment; by license; by incidental transfer, that is, where the main transaction is for the conveyance of a factory or plant; or by indirect transfer, for example, where the transfer comes about indirectly as the result of the provision of technical information.

The transfer of technology by gift is probably more common than might at first sight be supposed: many otherwise patentable discoveries in the field of medicine, for example, pass immediately into the public domain. Transfer by sale or assignment or by means of a licensing agreement is probably the most obvious method by which technology is diffused, though it is arguable that transfer by license may be subject to conditions which limit or offset the process of technology transfer. Incidental transfer, as I call it, generally arises when the sale of a factory or industrial plant is accompanied by instruction or assistance in installing, operating or maintaining it, having the effect of transferring to the undertaking buying the factory or plant much of the technology which has gone into the design and construction. As for the provision of information, this is a method or potential

method of transferring technology, inasmuch as it draws to the attention of the recipients of technology the contents of new patents or expiring patents; this is one of the objects of the Patent Cooperation Treaty to which I shall refer later. It also lies behind the current proposal that the World Intellectual Property Organization should extend its information services as a method of helping the industrial property offices of developing countries.

So much for the form of transfer. Transfer is, however, meaningless without reference to the identity of the person transferring technology. In the case of technology transfers within the EEC, there are three parties of whom I can speak. First, there is the Commission of the European Communities itself, which is the owner and distributor of a substantial quantity of technology in general and intellectual property in particular. Thus, it is the owner of the copyright in many technological works; but, perhaps far more important, it is a substantial distributor of technological information. Under article 12 of the treaty establishing the European Atomic Energy Community, the Commission is bound to grant non-exclusive licenses to member states, persons or undertakings, under patents, provisionally protected patent rights, utility models or patent applications owned by the Community, where the applicants are able to make effective use of the inventions covered thereby. This concerns information over which the Community has a power of disposal; but in addition the Commission has the duty to try to secure a wider diffusion of technological information. To this end it is establishing in 1978 a far reaching scheme, known as "Euronet," for the computerized output to some two million subscribers of technical information.

In a sense the role of the Commission is somewhat similar to that of national governments, most of whom are proprietors of intellectual property in one form or another. However, by far the greatest category of intellectual property rights owned by national governments is probably in the field of defense, where the transfer of technology is obviously and necessarily subject to severe restrictions.

This therefore leaves the largest reservoir of technology: the private owners of intellectual property rights. What is often forgotten by those who urge governments to speed up the transfer of technology is the fact that the technology is in private hands, whether in the hands of individuals or in the hands of corporate bodies which are not subject to state control. Thus, a plea for more rapid transfer of intellectual property is somewhat similar to a plea for a more rapid transfer from the rich to the poor of real property; it is private rights, and not state policies, which are primarily involved. Certainly there are

means of encouraging or persuading the owners of private rights to part with their property; the persuasion may consist of financial inducements, legal pressure or, in the last event, expropriation.

It is worth stressing the identity of the persons capable of transferring technology, since this has a direct bearing on the motives for effecting the transfer. One of the motives is undoubtedly pure altruism; the desire to help mankind lay behind Benjamin Franklin's attitude to his own inventions and lies behind the attitude of those who develop technology in the course of professional, and particularly medical, activities. However, Benjamin Franklin made his living, not as an inventor but as a printer and publisher; while the majority of doctors who develop medical technology do so in the course of a professional practice or academic activities. It is a wholly different matter for those whose livelihood depends upon their inventiveness. More broadly, commercial firms are not as a rule in business for the purpose of giving away their assets, whether those assets comprise money, real property, plant or intellectual property. Altruism is a fine motive but not a basis for effective commercial activity.

There are, in any event, political motives for the transfer of technology which may to a large extent subsume the altruistic motive. There is plenty of evidence that the peoples of the industrialized countries genuinely wish to help the peoples of developing countries; and this general will is expressed in a number of concrete ways at the political level, including provision for financial aid and the encouragement of technology transfers. Even so, the political motive for seeking to promote the more rapid transfer of technology is not wholly, or perhaps primarily, a matter of altruism. The duty of the politician is to look after the interests of the country he represents; and, if too rapid a transfer of technology from his country to other countries were to result in a depletion of his country's own skilled resources, then he would be doing his own country a serious disservice. The politician therefore has to temper the altruistic motives of those he represents with a hard headed appreciation of the economic and other consequences for his country. Above all, he has to realize that the technology concerned does not as a rule belong to him or to the government which he represents, but to individual persons and firms.

The question therefore arises, whether there is any strong motive for the transfer of technology at the commercial level. The answer depends on the circumstances of the case; in many instances, it may simply be good business to transfer technology in the normal course of a particular company's trading activities. This is especially true, I

would imagine, of what I have called incidental transfers, where a company has the practice of selling factories and plants on a "turnkey" basis, to use the fashionable legal expression, under which, to use a more homely English expression, the purchaser acquires lock, stock and barrel the factory, the plant and the technology. But the same is true in principle, in any case, of all arrangements such as industrial property licensing agreements, where the company concerned has presumably assessed the commercial merits of extending to other persons the rights to which that industrial property gives rise.

I make no apologies for having gone into the circumstances of the transfer of technology in some length, if only in response to the salutary admonition of Benjamin Franklin's English contemporary Samuel Johnson: "first, clear your mind of can't!" There is unfortunately so much "can't" surrounding the subject of the transfer of technology that I thought it worth while to clear the decks, so to speak, before talking about the ways in which the transfer of technology is promoted by the European Patent Convention and by the other conventions and negotiations in the intellectual property field.

In the field of intellectual property, the policies of the Commission of the European Communities fall broadly under three headings (that is, leaving aside the policies which it adopts in its role as proprietor or distributor of intellectual property rights). First, there are the rules on competition, inasmuch as they effect intellectual property rights. These matters have been fully covered by Monsieur Verges; and I am not going to comment on his field of work, except just to say that, while *Business Week* may print a photograph of Monsieur Verges and his colleagues and refer to them in its columns as the "Vestal Virgins" of the Commission, I repudiate the description as applied to myself.

Secondly, there is the Commission's policy on the impact on intellectual property of those provisions of the EEC treaty which concern the free movement of goods within the Common Market, and particularly articles 30 to 36 of the treaty. Here again, but for a different reason, I do not propose to expatiate in this lecture as this topic is not entirely germane to the subject which I have been given; and in any case it is a subject which has been thoroughly and comprehensively examined in an article, which I should like to commend modestly to your attention, in the *European Law Review* for December 1976.

Thirdly, and this is the nub of the matter, there are Commission policies on the harmonization of member states' laws governing the protection of intellectual property and on the creation of EEC laws having direct legal effect throughout the Common Market. Under

this heading will be found the Community Patent Convention, signed at Luxembourg in 1975 (and deriving at least in part from the European Patent Convention, signed at Munich in 1973); the proposed EEC Trade Mark Regulation; and other proposals, still at an early stage of study, in the fields of copyright, industrial models and designs, commercial secrets and know-how and geographical designations, such as appellations of origin.

It is not my task today to describe in detail these proposals and studies, but rather to say how far they may be expected to influence the transfer of technology, in the sense in which I have defined it.

It must be candidly admitted at the outset that it is not the primary objective of the conventions and the proposed regulations and directives concerned to expedite the transfer of technology. There are different objectives altogether. The primary objective is the more efficient and systematic protection of industrial property; thus, the preamble to the European Patent Convention stresses the contracting states' desire "to strengthen cooperation between the states of Europe in respect of the protection of inventions" and "that such protection may be obtained in those states by a single procedure for the grant of patents and by the establishment of certain standard rules governing patents so granted." The secondary objective is also some way removed from the principle of the transfer of technology as such; it is rather the reconciliation of intellectual property protection with the requirements of EEC law on, particularly, the free circulation of goods. Thus, the preamble to the Community Patent Convention contains the following three important considerations (among others):

> that one of the fundamental objectives of the Treaty establishing the European Economic Community is the abolition of obstacles to the free movement of goods, . . . that one of the most suitable means of ensuring that this objective will be achieved, as regards the free movement of goods protected by patents, is the creation of a Community Patent System [and] that the creation of such a Community Patent System is therefore inseparable from the attainment of the objectives of the Treaty.

At the same time there are certain provisions of both the European Patent Convention and the Community Patent Convention which may be said to operate directly or indirectly in favor of the transfer of technology. For example, the requirements of the European Patent Convention as to patentability (contained in articles 52 to 59) are sufficiently stringent to ensure that there will be a free flow of inventive ideas in all cases falling short of those requirements. Again, the provisions as to publication of a European patent application, including the European search report (this is in article 93), have a bearing on the dissemination of information about current inventions. So too

do the provisions (in articles 150 to 158), under which the European Patent Office is the designated office for the purpose of international search reports under the Patent Cooperation Treaty.

In order to give the widest possible significance to this latter point, the conference for the setting up of a European system for the grant of patents passed a resolution which, taking into account that in the future technological

> development cannot be restricted to national or regional frameworks; but industrialized countries with their economic structure are best able to promote technological progress; that not all countries in the world are able to promote technological progress to the same extent; that the efforts of developing countries to reduce the technological gap in relation to the developed countries should be promoted; and that it is necessary to ensure that all countries are able to benefit from the results of technological progress; requested the European Patent Organization to make use, taking due account of the efforts made by other intergovernmental organizations, of all the possibilities available to it to help the developing countries in the field of patent law, irrespective of their geographical location, in particular as concerns documentation, the training of staff and all other means likely to bring these countries increasingly closer to the highly developed countries.

This seems to me to be a limited, but realistic approach to the transfer of technology through the medium of the European Patent Convention.

As for the Community Patent Convention, it is hard to point in the context of the transfer of technology to any provisions other than those relating to contractual licensing and licenses of right, covered by articles 43 and 44 respectively. Even there, as Mr. Verges has indicated, there are difficulties. Although article 43, par. 1, provides that a Community patent may be licensed in the whole or in part for the whole or part of the territories in which it is effective, it is subject to article 93, to the effect that no provision of this Convention may be invoked against the application of any provision of the treaty establishing the European Economic Community; and, on a conservative interpretation of article 85 of the EEC treaty, and of the case law under it, territorial licensing could well prove to be unlawful. I do not wish to be controversial about the merits of this judgment. I merely wish to make clear that, if I were advising a company as to the effects of article 43, I should warn them as strongly as I possibly could against article 43 as legal justification for territorial licenses. Accordingly, even the somewhat limited reference to provisions encouraging the transfer of technology under the Community Patent Convention must be substantially modified.

To some extent it is the same story with the Commission's

trademark proposals as for the patent conventions; that is to say, the proposals are described as an "effective and easily enforceable trade mark protection," as we expressed it in our memorandum of August 1976. The emphasis is on protection, rather than transfer. It is perhaps only in connection with the principle of the exhaustion of trade rights that a more rapid transfer of technology can be foreseen. Article 16 of the draft trademark regulation provides for the international exhaustion of trademark rights; but, if the weight of expert opinion is influential, this provision will be limited to exhaustion following the marketing of the trademarked products only within the Common Market. If this limitation is placed on article 16, then the article becomes little more than a restatement of the principles laid down by the Court of Justice of the European Communities in the leading case of *Centrafarm* against *Winthrop*. If, on the other hand, the principle of exhaustion applies to marketing on a worldwide basis, it is arguable that a more rapid transfer of technology in the field of trademarked goods, where the trademark concerned is on the EEC Register, could take place.

In other fields of intellectual property in the EEC, the Commission's studies are not yet at a sufficiently advanced stage to judge how far the resulting legislative measures will facilitate the transfer of technology. All one can say with any certainty is that most of these measures are likely, as in the case of patents and trademarks, to be directed more towards the protection of intellectual property rights than to methods of ensuring that those rights are widely diffused. Consequently, there are certain difficulties for the Commission when relating its current work to the work in progress in the international bodies where demands are loudest for an increase in the speed of technology transfer. Most of the demands, at least so far as they affect intellectual property, are being considered by three international organizations: The Organization for Economic Cooperation and Development, the United Nations Conference on Trade and Development and the World Intellectual Property Organization.

In the Organization for Economic Cooperation and Development (OECD), discussions have divided into the problems of East-West transfers of technology and transfers from industrialized countries to developing countries. For the time being there is little to say about the East-West transfer, since OECD is only at the threshold of its detailed studies of the possibilities; and most of the special factors applicable to East-West trade generally and the transfer of technology in particular are matters of common knowledge. For example, it is obvious that any technology directly or indirectly connected with trade of importance to the defense of the West is excluded from con-

sideration; and it is equally clear that the climate for development of a process of technological transfer between East and West is dependant upon, and highly sensitive to, the degree of détente between the main powers. It may be, however, that OECD will be in a position to make some recommendations within the next two years; until then, its discussions are concealed within the cloak of confidentiality.

Similarly, its study of the problems of transfers of technology from industrialized to developing countries are not yet sufficiently advanced to offer any valid judgment. OECD is carrying out a study of the effects of the transfer of technology to the developing countries; and this is a salutary study, since there is a certain amount of uniformed speculation at present in other international bodies about the precise effects which may be expected from various kinds of transfer. At this stage it can only be said that everyone must look forward to the results of the OECD study. In one respect, however, the EEC has to enter a reservation, since from the point of view of the European Economic Community there are certain developing countries with a special relationship to Europe; these are the Lomé countries, to whom the EEC is offering special aid in accordance with the EEC treaty. The Commission has its own research committee looking at the methods and effects of transfers of technology from the EEC to Lomé countries.

The fact that the Commission has a duty, under article 229 of the EEC treaty, to ensure the maintenance of all appropriate relations with the organs of the United Nations and its special agencies, does not mean that the Commission has to go along with the voluminous and sometimes misconceived documentation on industrial property matters emanating from the Secretariat of the United Nations Conference on Trade and Development (UNCTAD). In fact, as it happens, my next engagement after this conference in Concord is to go to a meeting of government experts in Geneva to explain, along with the representatives of the member states of the EEC, why a recent paper on "The Role of Trademarks in the Development Process of Developing Countries" should be firmly resisted. Members of the UNCTAD group of experts are invited to approve formally the arguments and conclusions of the document in question, notwithstanding the fact that the document is based on a near Marxist interpretation of commercial law, on some substantial misconceptions as to the role of the trademark in modern society and on legal concepts which are totally opposed to the concepts behind the proposals for the ECC trademark system.

UNCTAD's paper on trademarks is one of a series of papers which the Secretariat of UNCTAD has been invited to prepare as part of a body of documentation on the role of various types of industrial property rights in the process of technology transfer. The patent paper is more than the trademark paper but no more palatable. Further papers are expected to come from the UNCTAD Secretariat on appellations of origin and other industrial property matters. I can see little prospect of basing a transfer of technology from the EEC to the developing countries on the kinds of proposals which the UNCTAD Secretariat is inviting us to accept.

Since there is a limit to the number of meetings which my colleagues and I, in the Intellectual Property Law Division, can be expected to attend, we have not so far gone to UNCTAD meetings on the Code of Conduct, though my colleagues from the Competition Directorate-General have done so. There is an argument for saying that, so long as the proposed code of conduct remains voluntary, there is no great need for us to spend time attending the meetings considering the code. I recognize, however, that the formulation of a code, even if it is not intended to be binding on member states, can establish certain precedents which are not necessarily desirable.

At the moment, there are in any case four different versions of the Code of Conduct for the Transfer of Technology. The first was prepared by a group of experts of UNCTAD, the second by the group of seventy-seven developing countries, the third by group B countries and the fourth by group D countries from Eastern Europe. (The four versions are set out in the report by UNCTAD dated 18th May 1977; they are to be debated again at the end of October in Geneva.) Many of the details vary as between the four versions; characteristically, there is a big difference of emphasis on the special treatment which should be afforded to developing countries in the intellectual property field. Thus, group B countries have identified a number of specific areas in which they can legitimately offer special facilities to developing countries, without discrimination against their own nationals; in the developing countries' draft, however, there are substantial points of difference in the rights of the respective nationals.

As the discussions of the Paris Convention for the protection of industrial property have shown in the meetings of the World Intellectual Property Organization, there is at this point a basic difference of view between the developing countries and group B countries. The Commission of the European Communities, the member states of the European Communities and the other member states of group B are,

in general, in favor of the principles of reciprocity and equal treatment under international conventions such as the Paris Convention (where an undesirable precedent to the contrary was accepted in the revision of the Berne Convention for the protection of copyright). It seems to us that an international convention, whose object is to ensure that all the contracting powers give the nationals of other contracting powers the same rights in a given field of law, is an inappropriate instrument in which to plant discriminatory provisions whatever altruistic, political or economic justification there may be for such discrimination in another context. This is a serious problem of principle, though perhaps not an insuperable one, since there is already under the Paris Convention in particular a wide measure of discretion afforded to contracting states to frame their industrial property laws in such manner as they wish.

Perhaps a more serious problem is one which lies at the heart of many of the proposals put forward in the World Intellectual Property Organization for the revision of the Paris Convention. This consists in the belief that a trimming of the latitude allowed to, for example, patent holders who need time to develop their inventions will accelerate the transfer of technology. We believe this philosophy to be misconceived. At first sight, more stringent rules on the entry into the public domain of patented or otherwise protected ideas and skills may be thought to operate in favor of a speedier transfer of technology; but, taking into account the likely reactions of the private companies and firms who own the technology in question, it seems far more likely that countries adopting these more stringent rules will tend to deter political traders. Not all delays in the marketing of patented products and processes are necessarily due to dilatoriness; in many instances there are good technical or commercial reasons for having a sufficient period of preparation.

It is difficult at present to see how the discussions on the revision of the Paris Convention are likely to conclude. Many of the developing countries' proposals are likely to be technically misconceived; some will operate against the interests of developing and developed countries alike; none will bring any advantage to developed countries. There is, moreover, a certain irony for the Commission of the European Communities in the fact that, while it has sought to follow the current international rules on industrial property in its patent and trademark proposals and its proposals for the suppression of misleading and unfair advertising, some of those very rules are now being challenged by the developing countries. For example, in the Commission's memorandum on the creation of an EEC trademark,

there is a passage on the proposed rules on user requirements:

> A uniform period of five years should be adopted for the term of long user. This is in line with international developments in the trademark field; it simplifies the application procedure and is appropriate to the circumstances. A term of three years is too short for those areas of business in which the introduction of new products poses special problems.

Yet this is precisely one of the periods which the developing countries wish to reduce, in the belief that trading activities will be accelerated, and with them the transfer of technology. The Commission is bound to oppose this point of view.

Many of the activities of the World Intellectual Property Organization are concerned in one way or another with the transfer of technology, particularly to developing countries. Not all of these activities are ones in which the Commission is involved; not all the member states of the European Communities are concerned with many of the activities in these fields. Certainly, the Commission has been involved in the discussions on the Patent Cooperation Treaty and on the Trademark Registration Treaty; but the latter in particular is unlikely to become a reality until the Common Market and the United States make it so. As for the miscellaneous activities of the World Intellectual Property Organization, for example, in the fields of appellations of origin, computer searches and the protection of software and other forms of know-how, the Commission is continuing with its studies directed to the harmonization of member states' national laws; the World Intellectual Property Organization is busy preparing model laws for developing countries (itself a form of harmonization); but neither has so far made any great strides in the promotion of the transfer of technology in these particular fields.

My conclusions therefore are threefold. First, picking up the point in the last few remarks on the relationship between the European Communities and the World Intellectual Property Organization, I have to emphasize that the Commission's main motive in the intellectual property field is the more efficient protection of intellectual property rights, rather than the transfer of technology as such. This is not because of an underestimate of the importance of a rapid and substantial transfer of technology; on the contrary it is complementary to it. If intellectual property is inadequately protected, it cannot be adequately rewarded; and, if it cannot be adequately rewarded, it is far less likely to be forthcoming. Before technology can be transferred, it has be created; and, for it to be created extensively, there has to be a powerful motive.

Secondly, most technology is in private hands; intellectual property, like real property, is usually private property. If governments wish to transfer it, and are not keen to transfer their own technology, for reasons of defense or other reasons of state, then they must provide the means for the technology to be acquired and the property to be sold. This is not unreasonable; indeed, it has been strongly argued in several of the international organizations that the best way of promoting the transfer of technology is to provide those acquiring it with the means to pay for it. In this way, developing countries receive their award for it, and governments receive the credit for having financed the transfer in the first place.

Thirdly, whether technology is transferred by governments or firms, by way of a gift or for cash, as a favor or for profit, the transfer must be effective and business-like. It is no use tinkering with the mechanism of national or international laws unless the effects have been properly calculated. It is in fact no use tinkering with laws at all in the interests of a transfer of technology, unless the economic basis of the changes is sound. It is an article of faith in the European Communities, and is indeed enshrined in the preamble to the EEC treaty, that the member states wish to ensure the development of the prosperity of the poorer countries; and the Communities' record in terms of generosity towards them is good. But, as Benjamin Franklin found as a result of his own unusual lapse from hardheadness, generosity must also be business-like.

Ramifications of the New EEC Patent System for Business Planners

NORMAN W.P. WALLACE*

I am going to try to give you a bird's-eye view of the future. There has been a great deal of talk for many years about the European patent system and other international patent systems. After all the talk, it may be difficult to believe that we are, in fact, now going to establish an international patent system.

The new system will be very complicated since the national patent offices will remain in existence; hence, there will be a number of choices open to people interested in applying for patents in the future. I intend to indicate here some of the factors which may be important in making such a choice.

The Timetable

First, let me summarize the timetable, as we now see it, for the establishment of the European patent system. The headquarters for the new office will be in Munich; and there will be a branch office in the Hague which will do the patent searches. In a sense, this branch is already operational because the International Patent Institute, which at the moment does searches on French patent applications and a few others, is located in the Hague.

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In contrast, the office in Munich will be entirely new. The first meeting of the Administrative Council of the new organization is scheduled on the 19th of October 1977 and the staff will start work in Munich on November 2, 1977. The moment of truth will come on June 1, 1978, when the office first begins to receive European applications. I imagine there will be some anxious people on both sides of the door.

When the office opens in June, it will accept applications from all technical fields. However, the full processing, including the substantive examination, will at first apply only to certain fields which will be announced in advance. There will probably be a special issue of the *European Patent Bulletin* towards the end of this year which will announce the fields the office will initially be examining.

How rapidly the office will begin to examine other technical fields will depend on this first experience. In any case, we will start with about half of all technical fields and increase our coverage after 6 months.

Member Countries

The founding countries of the European Patent Convention (or Munich Convention) are the United Kingdom, West Germany, France, the three Benelux countries and Switzerland. Since you can only get a European patent in a country which has ratified the convention, we hope that Italy, Sweden, Austria, Denmark and other important countries will ratify the convention before the opening date.

The Procedural Framework

The patent system, as conceived, will be two-phased. The first phase will take place in the Hague where the search will be done. This phase will also include a formal examination and publication of the application since under the European patent system there is an early publication requirement. Publication will take place 18 months after the priority date or as soon as possible thereafter. This means that if you have a European application with full convention priority of 1 year, publication will take place 6 months from the European filing date.

When the search is completed the applicant will be sent a search report and copies of the citations which appear within it. The applicant will then have an opportunity to submit amendments made necessary by the report and will be allowed 6 months from the date of the report to submit a request for examination. If the applicant

requests examination, the application passes to the second phase in Munich.

The second phase encompasses the substantive examination performed by three examiners. This may seem inefficient but it was felt that an international system needs examiners with different patent backgrounds and different first languages. It is hoped that this combination will achieve a certain homogeneity. However, the primary work will be done by a single examiner. This single examiner will communicate with the applicant, his agent or his attorney exactly as an examiner in a national office would.

Assuming that all goes well, the examination will result in the grant of a patent. There are then 9 months during which anyone can oppose the European patent. This is called "opposition" in the European Patent Convention and functions as a central revocation procedure.

Apart from opposition, once the patent has been granted by the European Patent Office, that office has no more to do with it. Any further action on the patent is a matter for national law. In other words, what one really gets under the Munich Convention is a "bundle of national patents." For example, any infringement action is entirely a matter for national law.

The appeals procedure also warrants mention. Any adverse decision of the European Patent Office can be appealed. Appeals are not heard within the Patent Office itself, but in a separate and independent department also located in Munich. In addition to the Board of Appeals, there is a special body called the Enlarged Board of Appeal. This board will consist of as many as seven members, five legal and two technical. The purpose of the Enlarged Board is to ensure uniform application of European patent law.

There will also be agency work done outside the European Patent Office. The treaty provides that some search work will be conducted in a sub-office in Berlin. For the transitional period of up to 15 years some European searches will be performed in the Austrian office and a few in the Swedish office. Some of the examination work will be funneled out to national offices, particularly the British Patent Office, for the transitional period. Whether any other national offices will do such work is still unsettled.

Advantages of the European Patent

Having described very briefly how the system will operate, I wish to emphasize one or two factors I think are important in determining whether one should apply for a European patent.

First is the fact that one can file a European application in English and it will be processed in English. Everything can be done in one language.

There will be three official languages of the European Patent Office: English, French and German. An application can be filed in any of those three languages. All communications up to the grant will be in the language in which the application is filed.

After the patent issues, there arises an obligation to file translations of the claims in the other two official languages. There is a possibility that some countries under the convention will demand a translation of the text into their language before the patent is effective in those countries. We are not yet sure how many countries will make this demand.

Apart from having the option to file in English, there are great advantages to having only one patent system in Europe, or at least in a large part of Europe. There will be a single procedure and a single system of laws, instead of each country having its own patent laws and its own procedures.

Whether the new laws will result in the desired harmonization remains to be seen. Certainly as far as the European patent system is concerned there will be a uniform procedure and standard of patentability. Instead of having of lot of different systems, we will have just one. This will be a tremendous advantage provided the new European Patent Office can provide good service. What industry wants is not a perfect system but rather a system that combines speed with "reasonable quality." By "reasonable quality" I mean concentration on the essentials — the things that really affect validity.

Those of you who are patent attorneys may have suffered from over-meticulous examiners who seek to reshape the patent specifications into works of literature. The object of the patent office is not to redraft patent specifications, but to see that the essential conditions for granting a patent are fulfilled. I hope that European examiners will concentrate on the essentials. This is vital since we will be in competition with national patent offices. It is up to us to show that we can provide as good, if not better, service than the national offices.

Another factor which is going to influence an applicant very much in his choice of a patent system is the question of cost. I have distributed a paper which summarizes the fees for obtaining a European patent. *(Figure 1.)*

The cost of applying for a European patent is equivalent to the cost of applying for three national patents. There is a flat fee for filing and for the search. However, there is a separate fee for each country des-

FEES FOR OBTAINING A EUROPEAN PATENT IN THREE COUNTRIES

	Deutschmarks	U.S. Dollars*
Filing Fee	450	180
Search Fee	1,450	580
Designation Fee (3 x 225 DM) (separate for each country designated)	675	270
Renewal Fee for 3rd year (Article 86 (1) of the EPC)	330	132
Examination Fee	1,725	690
Fee for Grant	330	132
TOTAL	4,960	1,984

Plus fee for printing the patent specification (fixed rate per page).

OTHER FEES

	Deutschmarks	U.S. Dollars*
Opposition Fee (low fee; may cause frivolous oppositions)	450	180
Appeal	550	220
Fee for Further Processing (post-failure to meet time limits)	100	40
Claims Over 10 claims	each 50	20

*Assuming 2.5 DM to the dollar.

Figure 1

ignated. Hence, if one wanted to designate more countries one would have to pay more.

I should mention in passing that it is likely that the designation fee for a Community patent will be three times the individual country designation fee (or 675 Deutschmarks as indicated on the fee schedule). The Community patent system, then, is a bargain for the applicant because he gets protection in nine countries for the cost of applying to three national patent systems.

According to the Munich Convention, renewal fees are payable on an application for the third year calculated from the date of filing. How many renewal fees one will have to pay before the grant depends

on how quick the procedure is. For example, assuming full convention priority, one would get the search report and publication within 6 months of the date of filing. Assuming that the substantive examination begins within a year of the date of filing, and assuming that the examination takes no more than 2 years, one will only have to pay a single renewal fee, the renewal fee for the third year. The examination fee is for the substantive examination. There is also a fee for the granting of the patent and a printing fee.

It must be emphasized that while these costs may seem high, one will save on translation fees, a fact that should be taken into account. An applicant should also save on professional fees. It is not certain yet what a European professional representative will charge for processing a European application. I have heard a figure of 50% more than the charge for processing a national application. Clearly, however, there ought to be a considerable saving on professional fees where the applicant is seeking protection in several countries.

The Community Patent Convention

Having discussed the European Patent Convention, let me say something about the EEC Convention, the Community Patent Convention. This is a bit more remote. We cannot say with any certainty when the Community Patent Convention will enter into force since ratification by all nine countries is needed. Considering the leanings of the countries concerned, the earliest we can realistically expect ratification is 1980.

When the Community Patent Convention does enter into force, it will be administered by the European Patent Office in the same way as the Munich Convention. And the application procedure for a patent will be precisely the same. It will make no difference whether one is applying for a Community patent or for a European patent. Indeed, one can have a sort of hybrid animal. For example, suppose one wants patent protection in Sweden, Switzerland and the EEC countries. The protection in Sweden and Switzerland would have to be under a European patent. Therefore, one would get a Community patent for the Community countries plus a European patent for the other two countries, all in a single document.

There are, however, differences between these two patents. The European patent is subject to a national law in the various countries, while the Community patent is subject to a common system of law.

There is a single renewal fee for the Community patent which is payable to the European Patent Office. The patent is either maintained for the entire Community or it is abandoned for the whole

Community. And, of course, there is a common standard and system of law for determining infringement and rights under the patent.

What does not exist under the Community Patent Convention, as presently drafted, is a central procedure for infringement actions. However, an important resolution is attached to the Community Patent Convention which reads in part:

> *Resolution on litigation of Community patents.*
>
> Governments of the member states of the European Economic Community, conscious of the problem of dealing effectively with actions relating to Community patents, conscious also of the problems arising from a separation of jurisdiction in respect to the infringement and validity of Community patents, have decided to commence as soon as possible after signature of the Convention, the necessary work to provide a solution to the above problems. Such a solution to be embodied if possible in a protocol which would be concluded before any litigation on Community patent takes place and, at the latest, within 10 years from the date of signing of the Convention.

This resolution is cast in rather general terms, but what we have in mind is some sort of European Patent Court. This would be an important innovation. The European Patent Court would be empowered to deal with both infringement and validity. It has not yet been resolved whether this court would be a court of first instance or whether it will be an appeals court from decisions of national courts.

There are one or two other practical matters which ought to be mentioned in connection with the Community patent. Under the European Patent Convention, only the claims have to be translated into the two other official languages. If the specification is in English, the claims have to be translated into French and German at the time of grant. However, if one wants a Community patent, one needs to translate the claims into all six languages of the Community; that is, not only the three languages of the European Patent Office but also Italian, Dutch and Danish. In fact, there is a provision in the Community Patent Convention whereby countries can demand translation of the whole specification.

We know that Italy will in fact require translation of the entire specification. We are hoping that the other countries will not insist on translation of the specification, as this would add considerably to the cost of the Community patent. The United Kingdom is, for this reason, currently holding back on ratification of the Community Patent Convention; the United Kingdom feels that this issue ought to be resolved before the agreement is ratified.

A final word about the relationship between the two conventions. There is a provision under the Community Patent Convention whereby, for a transitional period of probably 10 years, an applicant

will have the option to apply for a European patent as distinct from a Community patent. This provision was inserted in the convention at the United Kingdom's insistence. United Kingdom patent agents felt strongly that applicants should have a freedom of choice for a certain period, until they had a chance to understand the full effects of this new and rather complex system. So, for a transitional period at least, the choice will be available between the European patent and a Community patent once the Community Patent Convention is ratified.

Alternative Registration Schemes

Let us now consider, perhaps in a bit more detail, the factors which might affect one's choice of a method for patent registration. There are three possible choices. First, there is the present national route where one applies for separate national patents. Second, there is the European patent which is composed of a bundle of national patents. And third, for the Community countries at least, there will be in due course the Community patent. I suggest that the factors which might affect one's choice can be considered under four headings: cost, convenience, what I call the "all or nothing" factor, and the value of the protection obtained.

I have already said a fair amount about cost. I do not think I need say any more, except to emphasize again that all costs should be taken into account, not only the official fees but translation costs and professional fees. Clearly, if one is seeking protection in three or more countries, one is better off applying for a European patent than separate national patents.

Next is the convenience factor, which should not be underrated. Even if the cost factor is marginal, there is a tremendous convenience in having only one set of requirements and time limits to worry about and only one set of laws to become familiar with. In addition, one should consider the fact that an application can be processed in English under the European patent system. Accordingly, the convenience factor certainly suggests the use of the European patent system.

The third consideration I refer to as the "all or nothing" situation. It has been suggested that if one has an invention which might be regarded as borderline — that is, it is not clear whether the invention is patentable or not — then it is better to apply for separate national patents. It is sometimes argued that, by so doing, an applicant can at least obtain a patent in France or Belgium, where there is no full examination system, even though he may not be issued a patent by Germany or Holland, where examination standards are more strin-

gent; if, on the otherhand, this applicant were to apply for a European patent and it was refused, he would have nothing at all.

I do not think this is a very strong argument for one very important reason. If one is interested in an invention and inquires about patent protection, the first question asked is not, "Have you obtained a patent in France?" but rather, "Have you obtained a patent in Germany?" In other words, if one has had patents granted in countries where there is not a full examination system, like France, the patent is not considered to be of much value. Hence, I do not think there is much to the "all or nothing" argument.

On the other hand, if one compares the European patent with the Community patent, another "all or nothing" situation may exist. With a Community patent one must maintain or abandon it for the whole of the Community. With the European patent, after it is granted, one can selectively abandon it in certain countries at a later date.

The final consideration which an applicant faces is the value of the protection obtained. So far as European standards are concerned, the patents we grant will have a strong presumption of validity. It will be a strong patent system. However, I do not think the requirements will be as rigid nor as far reaching as they are, say, in Germany.

For example, under the European system there is no requirement for technical height or technical progress. We are concerned only with inventive steps. The European Patent Convention, article 56, says this about the inventive step: "An invention shall be considered as involving an inventive step if, having regard for the state of the art, it is not obvious to a person skilled in the art." This definition originated in the Strasbourg Convention, not the European Patent Convention. The important thing to notice is that "an inventive step" is defined in a negative way; a patent is granted if there is something which, "having regard for the state of the art, is *not* obvious to persons skilled in the art." What the examiner has to consider is whether the invention is plainly obvious. If not, he grants a patent. This means that in order to obtain a patent one does not have to demonstrate positive merit. This is a matter to be determined in the market place. Yet, the fact that the test of the inventive step is non-obviousness does not mean that the European system is weaker. There will be a strong presumption of validity once the patent is granted.

Conclusion

It has been suggested that the time will come when the decisions of the ECC Commission and the Court of Justice will render the protection which one can get under the first convention virtually useless.

Article 81 of the Community Patent Convention reads in part:

> The rights conferred by a national patent in a Contracting State shall not extend to acts concerning a product covered by that patent which are done within the territory of that Contracting State, after that product has been put on the market in any Contracting State by the proprietor of the patent or with his express consent unless there are grounds which under Community law would justify the extension to such acts of the rights conferred by the patent.

The important words are "or with his express consent." There was a great deal of discussion at the Luxembourg conference on this point. The phrase, "with his express consent" was intended to mean that if a third party, independent of the patentee, put the product on the market, it would not defeat the patent. Nevertheless, all this must be subject to Community law. Article 93 makes that quite clear: "No provision of this Convention may be invoked against the application of any provision of the Treaty establishing the European Economic Community."

I am not an expert on Community law. Based on the decisions that have emanated so far from the European Court of Justice, however, it seems that national patents can be invoked to prevent, for instance, importation from one European country to another of goods covered by a patent if those goods were put on the market by a third party independent of the patentee. That is the position of the Court of Justice at the moment. If that position is upheld, then national patents and the bundle of national patents which the European patent gives will be worth having. If the Court changes its position, the only patent worth having would be the Community patent. Only time will tell.

Environmental Standards and Controls: A Common European Approach for Regulating Emissions

S.P. JOHNSON*

The European Community, as such, did not begin with an environmental policy; environmental policies were not written into the Treaty of Rome. Indeed, it is questionable whether the EEC's founding fathers had even heard of the word "environment."

During the latter part of the 1960s and the early part of the 1970s, the environment became a topic of considerable interest due to the occurrence of a number of environmental disasters. There was the Santa Barbara oil spill in this country; in Europe large numbers of seabirds were killed due to similar spills, and fish were killed in the Rhine as a result of industrial pollution.

In Europe we followed the winds of America's environmental movement. The Stockholm Conference on the Human Environment was convened on June 5, 1972. The conference lead to the establishment of the United Nations Environment Program. That same year, members of the European Community met together in Paris and it was resolved that a policy and program for protection of the environment should be prepared.

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In July 1973, the Commission proposed, and the Council adopted, the first program on the environment and, in October of that year, the task of implementing this new policy began.

Of course, in order to legislate against pollution, you have to know what pollution is. You have to know what level of harm a particular pollutant presents in certain environments. We have spent a considerable amount of time on purely scientific and technical inquiries. We took a number of principle air and water pollutants and established what we refer to as criteria documents. After dose-effect relationships for pollutants are defined, environmental quality standards can be established by determining what levels of pollution in the air or water should not be exceeded.

We are now in the process of trying to fix environmental quality standards for air. An environmental policy has to be built on the basis of environmental quality to be attained or maintained. The Council is now in the process of discussing the first set of standards relating to sulfur dioxide and suspended particulates. And, it is my firm hope that before the end of the year the Community will have adopted these quality standards.

Of course, the level at which these standards are set will determine the degree of ease or difficulty with which local authorities and industries are able to meet them. Hence, the level at which the standards are set is a political decision of great importance.

We intend to follow the standards for sulphur dioxide and suspended particulates with standards for other pollutants; for example, carbon monoxide.

As far as water quality is concerned, the Council has already adopted certain standards. These standards are more complex than the air quality standards. When dealing with water quality you are not just talking about three, four or five pollutants. You are talking about forty or fifty. Nevertheless, the Council has defined minimum water quality standards for drinking water. (I know that in America you drink Coca-Cola or coffee, but in Europe we still drink water.)

One of the problems of the whole environmental movement has been the tendency to focus on man as the primary target of protection. The 1972 United Nations (U.N.) conference on the environment was called "The U.N. Conference on the Human Environment." The air quality standards, which I mentioned, have been structured chiefly to ensure the protection of human health. But, I think all of us realize that it is not enough to deal only with pollutants directly harmful to man.

For example, if we want to maintain satisfactory environmental quality, we need to set ecological standards designed to protect fauna

and flora. The Council is presently trying to negotiate standards relating to acquatic life as a whole; we hope to eventually develop a common approach for regulating all environmentally hazardous emissions. Control of these emissions is necessary if we want to maintain the environmental quality standards defined by the Council.

Moving toward effective control of emissions has not been easy, and we are still in the middle of a very prolonged debate. The debate has been partly philosophical. Most member states contend that they agree with the definition of our criteria, and with the concept of environmental quality standards; but realistically they agree in principle only. When it comes time to reach an agreement within the Council regarding environmental quality standards, the members do not agree as readily.

Let us take a fairly obvious example. One way to attain air quality standards is to control the emission of motor vehicle exhaust. Yet, if we allow each municipality, province or region to set its own emission standards for hydro-carbon, carbon monoxide and nitrogen oxide, what kind of automobile industry would we have left? How will the automobile industry manufacture cars when there are no set Europe-wide standards imposed for exhaust emissions. In Europe there is a wide intra-Community trade in cars; and we import many cars from Japan. It is quite clear that a common EEC standard for exhaust emission must be adopted. For the moment, European cars must conform to the exhaust emission standards which are laid down by EEC directives.

We must weigh what the automobile industry tells us is technically and economically feasible, against the effect of exhaust emissions on the environment. I believe that a balance can be achieved. We have seen a progressive tightening of controls on automobile exhaust emissions over the last five or six years. A comparison of European standards, vis-à-vis American and Japanese standards, will indicate that we are not being unduly harsh on industry. In fact, we are often reprimanded by environmentalists for not imposing standards as stringent as those of the United States.

However, it should be understood that we measure exhaust differently than the Americans. Let me say simply that when you are fixing standards, you also have to determine the measurement methods which are to be used.

Automobile exhaust is but one emission which we regulate. For example, we have used EEC standards to regulate the sulfur content in home heating oil. It is illegal to put heating oil on the market which does not conform to certain specifications, such as the maximum al-

lowable sulfur content standard.

We are also contemplating a procedure for regulating toxic substances. This would mean that any manufacturer who put a new chemical substance on the market would have to produce, at the same time, a technical dossier regarding the quantity he intends to manufacture and the health and ecological side-effects of that product. This scheme is significantly different from the American approach, which requires that the manufacturer obtain authorization prior to placing the product on the market. We feel our approach is preferable since it does not interfere with the right of the manufacturer to market his product. We simply require that the manufacturer furnish the applicable national authority with a report which outlines the environmental effects of his product. The national authority will then make a provisional judgment, or ask for more information. There will also be an EEC validation of the national authority's decision. Hence, the product will not have to go through nine separate validation procedures. In short, there will be a Community mechanism for screening and licensing of new chemical substances.

In Italy last year there was an accident which lead to the release of some two kilograms of dioxin into the environment in a place called Seveso near Milan, which contaminated a considerable area and lead to various afflictions among the local population. The Seveso incident served to emphasize the need for more stringent Community standards regarding the manufacture of dangerous chemical substances. Factories should be required to prepare for such disasters; and a data bank ought to contain the names of experts who could be called upon in case an accident should occur.

Let me return briefly to the framework I was trying to draw concerning criteria, quality standards, emissions and controls. I have spoken only of emission controls regarding automobiles and home heating oil. Yet, we have also taken the view that in certain cases the discharge from industry will have to be regulated to attain higher water and air quality. But this must be done with a view toward achieving a harmonization of the conditions of competition.

We have already reached agreement within the Council on a certain limited approach to the control of industrial emissions. Last year, the Council adopted a directive aimed at regulating the discharge of dangerous substances into the aquatic environment. The directive listed as dangerous such familiar substances as mercury and cadmium. We are now in the process of drawing up the first set of proposals, and we hope that the Council, having given us the green light, will not withdraw its commitment when we produce the detailed figures. It has

been a long battle, and one which we have not yet completely won because our colleagues in the United Kingdom have not accepted the principle of uniform emission standards. For the moment a compromise has been worked out whereby the United Kingdom will have about five years within which to prove to the Community and the Commission, by means of an agreed monitoring procedure, that it can in fact achieve the elimination of toxins from the environment without proceeding by the route of common emission standards. I feel this is a sloppy solution. But, as Mr. Krämer and others have pointed out, within the Common Market at present the voice of one state still has to be respected.

We have also taken action regarding certain other industries which have not yet been discussed. Examples are the paper-pulp and titanium dioxide industries. We have proposed common emission standards for both industries. These standards will also have effect in the United Kingdom, a country with short rivers and the North Sea at its door. We see no reason to treat a paper-pulp factory in England any differently than one on the Rhine in Germany.

We do not accept, by itself, the argument of absorptive capacity as a justification for widely different environmental controls. Only where it can be shown that the paper-pulp industry of a certain nation will have no detrimental effect on the environment will the EEC lift application of the emissions standards. It is firmly believed that to establish fair conditions of competition, similar environmental controls on industry must be applied.

Let me move rapidly to a couple of other areas. In Europe, as in America, energy conservation has become an important concern in recent times. We are attempting to reconcile energy conservation goals with environmental goals.

Currently, I am concentrating my efforts on the solid waste problem. We are concerned with the recovery of waste and its regeneration; that is, the reuse of waste and generation of heat from waste. What we have done so far is to establish a framework directive which provides the machinery for national waste reclamation and elimination programs. The directive establishes that there will be a national waste authority, licensing authorities and a network of disposal sites.

There is another important area of our environmental program which is referred to generally as the "quality of life." Consider, for instance, the area of environmental impact assessment which you pioneered in this country. We are currently considering whether the environmental impact statement procedure can be applied in Europe. Admittedly, implementation of such a review procedure will be dif-

ficult considering the diverse nature of the EEC. But, we believe implementation of such a review procedure would not be impossible.

One other goal which falls under the category of "quality of life" is protection of wild life. While protection of birds and other wildlife seems far removed from the original Treaty of Rome, such protection is sorely needed within the European Community.

Finally, let me say, we are not anti-growth in Europe. But we know that we cannot go on abusing our environment as we have been. The EEC is increasingly becoming aware of the enormous importance of the dimension of our environmental program known as "quality of life." If you hold a seminar similar to this one four years from now, I hope that you will invite me back, because I am sure I will be able to report on tremendous progress in this area of EEC environmental policy.

The European Community: An American Perspective

ANTHONY C. ALBRECHT*

One can look at our relations with the European Community (EC) from three perspectives. First, what overall United States policy toward "Europe" is; second, how this country works with the European Community; and third, what we are doing about some of the chief problems we face.

I. I am sure this comes as no surprise to you, but official United States policy has been one of strong support for the European Community and the movement toward European unity. And that support will continue. The reasons are many, but let me list four:

1. We favor a *strong Europe.* Europe has been our first line of defense during the post-war years. As one looks back in terms of diplomatic history, our support of European unity is one of the wisest actions we have taken, since the "payoff" has been tremendous.
2. In the past, divisions within Europe have caused world wars, so we are very much in favor of the movement toward unity which is a force for *stability and peace in Europe.* Let me mention a phenomenon that many of you are aware of, and I know our European friends have very much in their minds — the process of enlargement of the EC's membership. It is up to the Europeans to decide how far and how fast they want to go in enlarging the European Community. As you know, Greece,

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Portugal and Spain are all actively engaged in the process of joining the European Community. As far as the United States and the Department of State is concerned, we welcome the politically stabilizing effect of this process. The European Community is founded on the same democratic principles as we, and we know that a European welcome to these countries, all of which are now democracies and striving to perfect that democracy, is a very important element in strengthening the political stability in Europe.

3. We favor a *prosperous Europe*. Certainly in this interdependent world in which we live, a prosperous Europe is very much in the interest of the United States and very much in the interest of all industrialized countries. We in the United States have benefited greatly from the progress toward economic integration in Europe. We welcome the continuation of very close ties, and the vigorous and fair competition which currently prevails.

4. Our support for unity is also very important in terms of the *total strength of the industrialized democracies*. What I really mean by that phrase is the Organization for Economic Cooperation and Development (OECD) countries of Europe, North America, Japan, Australia and New Zealand, etc.; if the United States and the European Community can agree on policies, the Japanese will follow and others will follow. We are at the core of the decision-making process.

While I support very strongly the movement toward European integration, we must remember as Americans that it is the Europeans who are engaged in this unique experiment and that they alone will decide how fast and how far they want to go and what the character of Europe should be.

II. Secondly, how do we work with the European Community? We want strong ties and cooperation and we are ready for any type of institutional, quasi-institutional or informal talks to maintain this cooperation. This cooperation is based on our inherent support for the Community and in short, our belief that our general objectives are mutually supportive.

We and the Community each have our own view of particular events; we should discuss those views — vigorously, if necessary. But, if we disagree and cannot find solutions, we should at least understand the differences and what lies behind them. We should try, if we

can, to avoid surprises — this is a most important goal of the consulting process. We should seek to consult in advance to see if there are ways to achieve the goals of one side without causing havoc on the other side. In many of the areas we have been discussing at this conference, certainly in the area of environmental standards, there are often many different, equally valid ways to achieve these goals.

We have several mechanisms to help us in this consultation endeavor. We have bilateral mechanisms. There is a United States Mission to the European Communities located in Brussels with its own Ambassador, Deane Hinton; he represents the United States' interests to the Commission of the European Communities. Likewise, in Washington there is a delegation of the European Communities under Fernand Spaak who represents Community interests here in the United States.

These two posts conduct the day-to-day business between the United States and the Community. If we have something to tell the Community, I arrange for an instruction to go to Deane Hinton and he in turn presents our views to the Commission. If there is an answer, the Ambassador will relay the Commission's response to Washington; or the Commission will contact Fernand Spaak who will contact our Assistant Secretaries of State, and so forth.

This dialogue is quite intensive, thanks to the high degree of cooperation which exists in both Brussels and Washington. A great number of unpleasant surprises can be avoided through this channel.

Then we have a more formal, though not institutionalized, mechanism for communication. This is the series of talks called the semi-annual consultations, between the Commission's Vice President in charge of external affairs — presently Mr. Haferkamp — and by this country's Under Secretary of State for Economic Affairs, Dick Cooper. These sessions take place in the spring in Brussels, and in the fall in Washington. At these meetings, we cover the whole range of political-economic issues affecting the United States and the Community. We cover everything from energy and trade to the general economic and political situation.

For example, one accomplishment of these meetings is the now regular exchange of views between the United States and the Community on environmental questions. These exchanges start in the context of the semi-annual consultations and are followed up by talks on specific issues as the leaders can get together and discuss them.

We also have a dialogue with the Community, not specifically with the Commission, but with the President of the nine EC member states in the Council. The dialogue includes a variety of political is-

sues and has been going on for several years now. It is extremely useful to make sure we are on the same general wave length in dealing with some of these political issues: for example, the problems in Southern Africa, or from time to time Cyprus or the Euro-Arab dialogue.

On the multilateral side, we deal and work closely with the Commission in a variety of forums. Wherever we can, we try to align our positions with those of the Community. This is true in the United Nations, certainly in trade negotiations where it is essential to have United States-Community agreement. In the OECD, there are a number of issues that come up; as many of you know, we have been working hard on investment and government procurement within this organization.

On still another plane, there are the summit meetings, and I think it was a major step forward that the Community did participate in the last economic London summit of heads of industrialized democracies.

Finally, you probably noticed that this Administration is giving significantly more attention to the Community. This is shown by Vice-President Mondale's visit to the Commission immediately after the Inauguration and by the announcement that President Carter will be going to Brussels at the end of this year.

III. Thirdly, what are the problems that we face? There are many. Let me just highlight a few. The major problem that we face is the economic situation in the OECD countries, and throughout the world — a situation of stagnation and serious unemployment. The extent to which we can work with the Community in this area is somewhat limited because, as you know, the Community is not as strong in the economic policy field as it is in the specific areas of trade and agriculture.

Another significant problem we face is protectionism. This is an area in which both the United States and the Community have very heavy responsibilities. The steel controversy, of course, is very much on everyone's mind. If you have been reading the papers, you know that there is tremendous Congressional pressure for action. We have a situation in which European steel exports have increased over 100% in the first 6 months of 1977 compared with 1976. The Japanese steel exports have actually slowed down recently, but the American steel industry is hurting and there is great pressure for protectionist action. One is often asked: "Who started all of this?" Some will say the Japanese started it by being too competitive. Or, the Europeans started it by making an agreement with the Japanese not to ship too

much steel. One could go on and on pointing the finger.

Because of the recession in Europe, European representatives negotiating with developing countries are taking very tough stands for their own domestic political reasons. And yet, if they are too successful in cutting back on exports from the major developing countries, there are others watching. There are industries watching in the United States who will then say — "look how successfully the Europeans have protected their industries, we want protection too."

You can see the threat of spiraling protectionism. Such a trend would certainly weaken the prospects of economic recovery. Unfortunately, there are no easy solutions to this problem, as the political pressures domestically are very real. They are real in the political sense that Presidents of both the United States and the European Commission must take these pressures into account. There are elections allegedly to be won or lost on these issues, and hence it becomes very difficult to take a statesman-like attitude. Nevertheless, the progress the United States and the Community have made just by exchanging views and keeping each other alert to this matter has been very helpful so far, and we hope it will bear fruit.

This leads me to what is perhaps the major potential achievement and an important safety valve — the Multilateral Trade Negotiations. As you know, Ambassador Strauss, working with the EC Commission, has come up with a compromise approach on tariffs which means that these negotiations can now get underway seriously. They will cover not only tariffs, but also the whole area of countervailing duties and standards, and will provide a framework where, hopefully, some of the protectionist pressures can be contained and where we can develop fair rules of trade which will respect the internal policies of both sides.

There are a few other issues — such as energy — which are absolutely crucial. As you know, the United States is struggling to develop a comprehensive energy policy. The European Community is also struggling to formulate an energy policy among its nine member states. Fortunately, in terms of the situation we faced some years ago, we do have an institution — the International Energy Agency in Paris — which serves the major industrialized countries through a very strenuous program aimed at developing alternative sources of supply, encouraging conservation and so forth. We are doing something; but of course, central to the success of this effort is the United States' role as a leader and that depends on establishing our own energy program. And not far behind this in importance is the need for

the European Community countries to develop a common energy program.

The final area where there are numerous problems is the so-called North/South dialogue. Here I believe we have had eminent success in working closely with the European Community and with the other OECD countries to reach a consensus among industrialized nations as to just how far we should go, and in what direction, to meet the demands of the developing countries in a sensible way. I firmly believe that if the United States and the European Community can get together and agree, we will have a consensus from which many good and sensible policies will develop.

Excerpts from the Treaty Establishing the European Economic Community

APPENDIX

The Treaty was signed in Rome in 1957, ratified by the High Contracting Parties in that same year and came into force on January 1, 1958. The English text became authentic on January 1, 1973, the date of accession of the United Kingdom, Ireland and Denmark to the Community.

PART ONE: PRINCIPLES

Article 1

By this Treaty, the HIGH CONTRACTING PARTIES establish among themselves a EUROPEAN ECONOMIC COMMUNITY.

Article 2

The Community shall have as its task, by establishing a common market and progressively approximating the economic policies of Member States, to promote throughout the Community a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, an accelerated raising of the standard of living and closer relations between the States belonging to it.

Article 3

For the purposes set out in Article 2, the activities of the Community shall include, as provided in this Treaty and in accordance with the timetable set out therein

(a) the elimination, as between Member States, of customs duties and of quantitative restrictions on the import and export of goods, and of all other measures having equivalent effect;

(b) the establishment of a common customs tariff and of a common commercial policy towards third countries;

(c) the abolition, as between Member States, of obstacles to freedom of movement for persons, services and capital;

(d) the adoption of a common policy in the sphere of agriculture;

(e) the adoption of a common policy in the sphere of transport;

(f) the institution of a system ensuring that competition in the common market is not distorted;

(g) the application of procedures by which the economic policies of Member States can be coordinated and disequilibria in their balances of payments remedied;

(h) the approximation of the laws of Member States to the extent required for the proper functioning of the common market;

(i) the creation of a European Social Fund in order to improve employment opportunities for workers and to contribute to the raising of their standard of living;

(j) the establishment of a European Investment Bank to facilitate the economic expansion of the Community by opening up fresh resources;

(k) the association of the overseas countries and territories in order to increase trade and to promote jointly economic and social development.

Article 4

1. The tasks entrusted to the Community shall be carried out by the following institutions:

an ASSEMBLY,

a COUNCIL,

a COMMISSION,

a COURT OF JUSTICE.

Each institution shall act within the limits of the powers conferred upon it by this Treaty.

2. The Council and the Commission shall be assisted by an Economic and Social Committee acting in an advisory capacity.

Article 5

Member States shall take all appropriate measures, whether general or particular, to ensure fulfillment of the obligations arising out of this Treaty or resulting from action taken by the institutions of the Community. They shall facilitate the achievement of

the Community's tasks.

They shall abstain from any measure which could jeopardize the attainment of the objections of this Treaty.

Article 6

1. Member States shall, in close cooperation with the institutions of the Community, coordinate their respective economic policies to the extent necessary to attain the objectives of this Treaty.

2. The institutions of the Community shall take care not to prejudice the internal and external financial stability of the Member States.

Article 7

Within the scope of application of this Treaty, and without prejudice to any special provisions contained therein, any discrimination on grounds of nationality shall be prohibited.

The Council may, on a proposal from the Commission and after consulting the Assembly, adopt, by a qualified majority, rules designed to prohibit such discrimination.

Article 8

1. The common market shall be progressively established during a transitional period of twelve years.

This transitional period shall be divided into three stages of four years each; the length of each stage may be altered in accordance with the provisions set out below.

2. To each stage there shall be assigned a set of actions to be initiated and carried through concurrently.

3. Transition from the first to the second stage shall be conditional upon a finding that the objectives specifically laid down in this Treaty for the first stage have in fact been attained in substance and that, subject to the exceptions and procedures provided for in this Treaty, the obligations have been fulfilled.

This finding shall be made at the end of the fourth year by the Council, acting unanimously on a report from the Commission. A Member State may not, however, prevent unanimity by relying upon the non-fulfillment of its own obligations. Failing unanimity, the first stage shall automatically be extended for one year.

At the end of the fifth year, the Council shall make its finding under the same conditions. Failing unanimity, the first stage shall automatically be extended for a further year.

At the end of the sixth year, the Council shall make its finding, acting by a qualified majority on a report from the Commission.

4. Within one month of the last-mentioned vote any Member State which voted with

the minority or, if the required majority was not obtained, any Member State shall be entitled to call upon the Council to appoint an arbitration board whose decision shall be binding upon all Member States and upon the institutions of the Community. The arbitration board shall consist of three members appointed by the Council acting unanimously on a proposal from the Commission.

If the Council has not appointed the members of the arbitration board within one month of being called upon to do so, they shall be appointed by the Court of Justice within a further period of one month.

The arbitration board shall elect its own Chairman.

The board shall make its award within six months of the date of the Council vote referred to in the last subparagraph of paragraph 3.

5. The second and third stages may not be extended or curtailed except by a decision of the Council, acting unanimously on a proposal from the Commission.

6. Nothing in the preceding paragraphs shall cause the transitional period to last more than fifteen years after the entry into force of this Treaty.

7. Save for the exceptions or derogations provided for in this Treaty, the expiry of the transitional period shall constitute the latest date by which all the rules laid down must enter into force and all the measures required for establishing the common market must be implemented.

PART TWO: FOUNDATION OF THE COMMUNITY

Title I: Free Movement of Goods

Article 9

1. The Community shall be based upon a customs union which shall cover all trade in goods and which shall involve the prohibition between Member States of customs duties on imports and exports and of all charges having equivalent effect, and the adoption of a common customs tariff in their relations with third countries.

2. The provisions of Chapter 1, Section 1, and of Chapter 2 of this Title shall apply to products originating in Member States and to products coming from third countries which are in free circulation in Member States.

Article 10

1. Products coming from a third country shall be considered to be in free circulation in a Member State if the import formalities have been complied with and any customs duties or charges having equivalent effect which are payable have been levied in that Member State, and if they have not benefited from a total or partial drawback of such duties or charges.

2. The Commission shall, before the end of the first year after the entry into force of this Treaty, determine the methods of administrative cooperation to be adopted for the purpose of applying Article 9 (2), taking into account the need to reduce as much as

possible formalities imposed on trade.

Before the end of the first year after the entry into force of this Treaty, the Commission shall lay down the provisions applicable, as regards trade between Member States, to goods originating in another Member State in whose manufacture products have been used on which the exporting Member State has not levied the appropriate customs duties or charges having equivalent effect, or which have benefited from a total or partial drawback of such duties or charges.

In adopting these provisions, the Commission shall take into account the rules for the elimination of customs duties within the Community and for the progressive application of the common customs tariff.

Article 11

Member States shall take all appropriate measures to enable Governments to carry out, within the periods of time laid down, the obligations with regard to customs duties which devolve upon them pursuant to this Treaty.

Chapter 2: Elimination of Quantitative Restrictions Between Member States

Article 30

Quantitative restrictions on imports and all measures having equivalent effect shall, without prejudice to the following provisions, be prohibited between Member States.

Article 31

Member States shall refrain from introducing between themselves any new quantitative restrictions or measures having equivalent effect.

This obligation shall, however, relate only to the degree of liberalization attained in pursuance of the decisions of the Council of the Organization for European Economic Cooperation of 14 January 1955. Member States shall supply the Commission, not later than six months after the entry into force of this Treaty, with lists of the products liberalized by them in pursuance of these decisions. These lists shall be consolidated between Member States.

Article 32

In their trade with one another Member States shall refrain from making more restrictive the quotas and measures having equivalent effect existing at the date of the entry into force of this Treaty.

These quotas shall be abolished by the end of the transitional period at the latest. During that period, they shall be progressively abolished in accordance with the following provisions.

Article 33

1. One year after the entry into force of this Treaty, each Member State shall convert any bilateral quotas open to any other Member States into global quotas open without discrimination to all other Member States.

On the same date, Member States shall increase the aggregate of the global quotas so established in such a manner as to bring about an increase of not less than 20% in their total value as compared with the preceding year. The global quota for each product, however, shall be increased by not less than 10%.

The quotas shall be increased annually in accordance with the same rules and in the same proportions in relation to the preceding year.

The fourth increase shall take place at the end of the fourth year after the entry into force of this Treaty; the fifth, one year after the beginning of the second stage.

2. Where, in the case of a product which has not been liberalized, the global quota does not amount to 3% of the national production of the State concerned, a quota equal to not less than 3% of such national production shall be introduced not later than one year after the entry into force of this Treaty. This quota shall be raised to 4% at the end of the second year, and to 5% at the end of the third. Thereafter, the Member State concerned shall increase the quota by not less than 15% annually.

Where there is no such national production, the Commission shall take a decision establishing an appropriate quota.

3. At the end of the tenth year, each quota shall be equal to not less than 20% of the national production.

4. If the Commission finds by means of a decision that during two successive years the imports of any product have been below the level of the quota opened, this global quota shall not be taken into account in calculating the total value of the global quotas. In such case, the Member State shall abolish quota restrictions on the product concerned.

5. In the case of quotas representing more than 20% of the national production of the product concerned, the Council may, acting by a qualified majority on a proposal from the Commission, reduce the minimum percentage of 10% laid down in paragraph 1. This alteration shall not, however, affect the obligation to increase the total value of global quotas by 20% annually.

6. Member States which have exceeded their obligations as regards the degree of liberalization attained in pursuance of the decisions of the Council of the Organization for European Economic Cooperation of 14 January 1955 shall be entitled, when calculating the annual total increase of 20% provided for in paragraph 1, to take into account the amount of imports liberalized by autonomous action. Such calculation shall be submitted to the Commission for its prior approval.

7. The Commission shall issue directives establishing the procedure and timetable in accordance with which Member States shall abolish, as between themselves, any measures in existence when this Treaty enters into force which have an effect equivalent to quotas.

8. If the Commission finds that the application of the provisions of this Article, and in particular of the provisions concerning percentages, makes it impossible to ensure that the abolition of quotas provided for in the second paragraph of Article 32 is carried out progressively, the Council may, on a proposal from the Commission, acting unanimously during the first stage and by a qualified majority thereafter, amend the procedure laid down in this Article and may, in particular, increase the percentage fixed.

Article 34

1. Quantitative restrictions on exports, and all measures having equivalent effect, shall be prohibited between Member States.

2. Member States shall, by the end of the first stage at the latest, abolish all quantitative restrictions on exports and any measures having equivalent effect which are in existence when this Treaty enters into force.

Article 35

The Member States declare their readiness to abolish quantitative restrictions on imports from and exports to other Member States more rapidly than is provided for in the preceding Articles, if their general economic situation and the situation of the economic sector concerned so permit.

To this end, the Commission shall make recommendations to the States concerned.

Article 36

The provisions of Articles 30 to 34 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants; the protection of national treasures possessing artistic, historic or archaeological value; or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.

Article 37

1. Member States shall progressively adjust any State monopolies of a commercial character so as to ensure that when the transitional period has ended no discrimination regarding the conditions under which goods are procured and marketed exists between nationals of Member States.

The provisions of this Article shall apply to any body through which a Member State, in law or in fact, either directly or indirectly supervises, determines or appreciably influences imports or exports between Member States. These provisions shall likewise apply to monopolies delegated by the State to others.

2. Member States shall refrain from introducing any new measure which is contrary to the principles laid down in paragraph 1 or which restricts the scope of the Articles dealing with the abolition of customs duties and quantitative restrictions between Member States.

3. The timetable for the measures referred to in paragraph 1 shall be harmonized with the abolition of quantitative restrictions on the same products provided for in Articles 30 to 34.

If a product is subject to a State monopoly of a commercial character in only one or some Member States, the Commission may authorize the other Member States to apply protective measures until the adjustment provided for in paragraph 1 has been effected; the Commission shall determine the conditions and details of such measures.

4. If a State monopoly of a commercial character has rules which are designed to make it easier to dispose of agricultural products or obtain for them the best return, steps should be taken in applying the rules contained in this Article to ensure equivalent safeguards for the employment and standard of living of the producers concerned, account being taken of the adjustments that will be possible and the specialization that will be needed with the passage of time.

5. The obligations on Member States shall be binding only in so far as they are compatible with existing international agreements.

6. With effect from the first stage the Commission shall make recommendations as to the manner in which and the timetable according to which the adjustment provided for in this Article shall be carried out.

PART THREE: POLICY OF THE COMMUNITY

Title I: Common Rules

Chapter 1: Rules on Competition

Article 85

1. The following shall be prohibited as incompatible with the common market: all agreements between undertakings, decision by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effort the prevention, restriction or distortion of competition within the common market, and in particular those which:

(a) directly or indirectly fix purchase or selling prices or any other trading conditions;

(b) limit or control production, markets, technical development, or investment;

(c) share markets or souces of supply;

(d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

2. Any agreements or decisions prohibited pursuant to this Article shall be automatically void.

3. The provisions of paragraph 1 may, however, be declared inapplicable in the case of:

— any agreement or category of agreements between undertakings;

— any decision or category of decisions by associations of undertakings;

— any concerted practice or category of concerted practices;

which contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which does not:

(a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives;

(b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.

Article 86

Any abuse by one or more undertakings of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market in so far as it may affect trade between Member States.

Such abuse may, in particular, consist in:

(a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;

(b) limiting production, markets or technical development to the prejudice of consumers;

(c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

Article 87

1. Within three years of the entry into force of this Treaty the Council shall, acting unanimously on a proposal from the Commission and after consulting the Assembly, adopt any appropriate regulations or directives to give effect to the principles set out in Articles 85 and 86.

If such provisions have not been adopted within the period mentioned, they shall be laid down by the Council, acting by a qualified majority on a proposal from the Commission and after consulting the Assembly.

2. The regulations or directives referred to in paragraph 1 shall be designed in particular:

(a) to ensure compliance with the prohibitions laid down in Article 85 (1) and in Article 86 by making provision for fines and periodic penalty payments;

(b) to lay down detailed rules for the application of Article 85 (3), taking into account the need to ensure effective supervision on the one hand, and to simplifity administration to the greatest possible extent on the other;

(c) to define, if need be, in the various branches of the economy, the scope of the provisions of Articles 85 and 86;

(d) to define the respective functions of the Commission and of the Court of Justice in applying the provisions laid down in this paragraph;

(e) to determine the relationship between national laws and the provisions contained in this Section or adopted pursuant to this Article.

Article 88

Until the entry into force of the provisions in pursuance of Article 87, the authorities in Member States shall rule on the admissibility of agreements, decisions and concerted practices and on abuse of a dominant position in the common market in accordance with the law of their country and with the provisions of Article 85, in particular paragraph 3,and of Article 86.

Article 89

1. Without prejudice to Article 88, the Commission shall, as soon as it takes up its duties, ensure the application of the principles laid down in Articles 85 and 86. On application by a Member State or on its own initiative, and in cooperation with the competent authorities in the Member States, who shall give it their assistance, the Commission shall investigate cases of suspected infringement of these principles. If it finds that there has been an infringement, it shall propose appropriate measures to bring it to an end.

2. If the infringement is not brought to an end, the Commission shall record such infringement of the principles in a reasoned decision. The Commission may publish its decision and authorize Member States to take the measures, the conditions and details of which it shall determine, needed to remedy the situation.

Article 90

1. In the case of public undertakings and undertakings to which Member States grant special or exclusive rights, Member States shall neither enact nor maintain in force any measure contrary to the rules contained in this Treaty, in particular to those rules provided for in Article 7 and Articles 85 to 94.

2. Undertakings entrusted with the operation of services of general economic interest or having the character of a revenue-producing monopoly shall be subject to the rules contained in this Treaty, in particular to the rules on competiton, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them. The development of trade must not be affected to such an extent as would be contrary to the interests of the Community.

3. The Commission shall ensure the application of the provisions of this Article and shall, where necessary, address appropriate directives or decisions to Member States.

Article 91

1. If, during the transitional period, the Commission, on application by a Member State or by any other interested party, finds that dumping is being practiced within the common market, it shall address recommendations to the person or persons with whom such practices originate for the purpose of putting an end to them.

Should the practices continue, the Commission shall authorize the injured Member State to take protective measures, the conditions and details of which the Commission shall determine.

2. As soon as this Treaty enters into force, products which originate or are in free circulation in one Member State and which have been exported to another Member State shall, on reimportation, be admitted into the territory of the first-mentioned State free of all customs duties, quantitative restrictions or measures having equivalent effect. The Commission shall lay down appropriate rules for the application of this paragraph.

Article 92

1. Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market.

2. The following shall be compatible with the common market:

(a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned;

(b) aid to make good the damage caused by natural disasters or exceptional occurrences;

(c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division.

3. The following may be considered to be compatible with the common market:

(a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious under-employment;

(b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;

(c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest. However, the aids granted to shipbuilding as of 1 January 1957 shall, in so far as they serve only to compensate for the absence of customs protection, be progressively reduced under the same conditions as apply to the elimination of customs duties subject to the provisions of this Treaty concerning common commercial policy towards third countries.

(d) such other categories of aid as may be specified by decision of the Council acting by a qualified majority on a proposal from the Commission.

Article 93

1. The Commission shall, in cooperation with Member States, keep under constant review all systems of aid existing in those States. It shall propose to the latter any appropriate measures required by the progressive development or by the functioning of the common market.

2. If, after giving notice to the parties concerned to submit their comments, the Commission finds that aid granted by a State or through State resources is not compatible with the common market having regard to Article 92, or that such aid is being misused, it shall decide that the State concerned shall abolish or alter such aid within a period of time to be determined by the Commission.

If the State concerned does not comply with this decision within the prescribed time, the Commission or any other interested State may, in derogation from the provisions of Articles 169 and 170, refer the matter to the Court of Justice direct.

On application by a Member State, the Council, may, acting unanimously, decide that aid which that State is granting or intends to grant shall be considered to be compatible with the common market, in derogation from the provisions of Article 92 or from the regulations provided for in Article 94, if such a decision is justified by exceptional circumstances. If, as regards the aid in question, the Commission has already initiated the procedure provided for in the first subparagraph of this paragraph, the fact that the State concerned has made its application to the Council shall have the effect of suspending that procedure until the Council has made its attitude known.

If, however, the Council has not made its attitude known within three months of the said application being made, the Commission shall give its decision on the case.

3. The Commission shall be informed, in sufficient time to enable it to submit its comments, of any plans to grant or alter aid. If it considers that any such plan is not compatible with the common market having regard to Article 92, it shall without delay initiate the procedure provided for in paragraph 2. The Member State concerned shall not put its proposed measures into effect until this procedure has resulted in a final decision.

Article 94

The Council may, acting by a qualified majority on a proposal from the Commission, make any appropriate regulations for the application of Articles 92 and 93 and may in particular determine the conditions in which Article 93 (3) shall apply and the categories of aid exempted from this procedure.

Chapter 2: Tax Provisions

Article 95

No Member State shall impose, directly or indirectly, on the products of other Member States any internal taxation of any kind in excess of that imposed directly or indirectly on similar domestic products.

Furthermore, no Member State shall impose on the products of other Member States any internal taxation of such a nature as to afford indirect protection to other products.

Member States shall, not later than at the beginning of the second stage, repeal or amend any provisions existing when this Treaty enters into force which conflict with the preceding rules.

Article 96

Where products are exported to the territory of any Member State, any repayment of internal taxation shall not exceed the internal taxation imposed on them whether directly or indirectly.

Article 97

Member States which levy a turnover tax calculated on a cumulative multi-stage tax system may, in the case of internal taxation imposed by them on imported products or of repayments allowed by them on exported products, establish average rates for products or groups of products, provided that there is no infringement of the principles laid down in Articles 95 and 96.

Where the average rates established by a Member State do not conform to these principles, the Commission shall address appropriate directives or decisions to the State concerned.

Article 98

In the case of charges other than turnover taxes, excise duties and other forms of indirect taxation, remissions and repayments in respect of exports to other Member States may not be granted countervailing charges in respect of imports from Member States may not be imposed unless the measures contemplated have been previously approved for a limited period by the Council acting by a qualified majority on a proposal from the Commission.

Article 99

The Commission shall consider how the legislation of the various Member States concerning turnover taxes, excise duties and other forms of indirect taxation, including countervailing measures applicable to trade between Member States, can be harmonized in the interest of the common market.

The Commission shall submit proposals to the Council, which shall act unanimously without prejudice to the provisions of Articles 100 and 101.

Chapter 3: Approximation of Laws

Article 100

The Council shall, acting unanimously on a proposal from the Commission, issue directives for the approximation of such provisions laid down by law, regulation or administrative action in Member States as directly affect the establishment or functioning of the common market.

The Assembly and the Economic and Social Committee shall be consulted in the case of directives whose implementation would, in one or more Member States, involve the amendment of legislation.

Article 101

Where the Commission finds that a difference between the provisions laid down by law, regulation or administrative action in Member States is distorting the conditions of competition in the common market and that the resultant distortion needs to be eliminated, it shall consult the Member States concerned.

If such consultation does not result in an agreement eliminating the distortion in question, the Council shall, on a proposal from the Commission, acting unanimously during the first stage and by a qualified majority thereafter, issue the necessary directives. The Commission and the Council may take any other appropriate measures provided for in this Treaty.

Article 102

1. Where there is reason to fear that the adoption or amendment of a provision laid down by law, regulation or administrative action may cause distortion within the meaning of Article 101, a Member State desiring to proceed therewith shall consult the Commission. After consulting the Member States, the Commission shall recommend to the States concerned such measures as may be appropriate to avoid the distortion in question.

2. If a State desiring to introduce or amend its own provisions does not comply with the recommendation addressed to it by the Commission, other Member States shall not be required, in pursuance of Article 101, to amend their own provisions in order to eliminate such distortion. If the Member State which has ignored the recommendation of the Commission causes distortion detrimental only to itself, the provisions of Article 101 shall not apply.

Title II: Economic Policy
Chapter 3: Commercial Policy

Article 110

By establishing a customs union between themselves Member States aim to contribute, in the common interest, to the harmonious development of world trade, the progressive abolition of restrictions on internal trade and the lowering of customs barriers.

The common commercial policy shall take into account the favourable effect which the abolition of customs duties between Member States may have on the increase in the competitive strength of undertakings in those States.

Article 111

The following provisions shall, without prejudice to Articles 115 and 116, apply during the transitional period:

1. Member States shall coordinate their trade relations with third countries so as to bring about, by the end of the transitional period, the conditions needed for implementing a common policy in the field of external trade.

The Commission shall submit to the Council proposals regarding the procedure for common action to be followed during the transitional period and regarding the achievement of uniformity in their commercial policies.

2. The Commission shall submit to the Council recommendations for tariff negotiations with third countries in respect of the common customs tariff.

The Council shall authorize the Commission to open such negotiations.

The Commission shall conduct these negotiations in consultation with a special committee appointed by the Council to assist the Commission in this task and within the framework of such directives as the Council may issue to it.

3. In exercising the powers conferred upon it by this Article, the Council shall act unanimously during the first two stages and by a qualified majority thereafter.

4. Member States shall, in consultation with the Commission, take all necessary measures, particularly those designed to bring about an adjustment of tariff agreements in force with third countries, in order that the entry into force of the common customs tariff shall not be delayed.

5. Member States shall aim at securing as high a level of uniformity as possible between themselves as regards their liberalization lists in relation to third countries or groups of third countries. To this end, the Commission shall make all appropriate recommendations to Member States.

If Member States abolish or reduce quantitative restrictions in relation to third countries, they shall inform the Commission beforehand and shall accord the same treatment to other Member States.

Article 112

1. Without prejudice to obligations undertaken by them within the framework of other international organizations, Member States shall, before the end of the transitional period, progressively harmonize the systems whereby they grant aid for exports to third countries, to the extent necessary to ensure that competition between undertakings of the Community is not distorted.

On a proposal from the Commission, the Council, shall, acting unanimously until the

end of the second stage and by a qualified majority thereafter, issue any directives needed for this purpose.

2. The preceding provisions shall not apply to such drawback of customs duties or charges having equivalent effect nor to such repayment of indirect taxation including turnover taxes, excise duties and other indirect taxes as is allowed when goods are exported from a Member State to a third country, in so far as such drawback or repayment does not exceed the amount imposed, directly or indirectly, on the products exported.

Article 113

1. After the transitional period has ended, the common commercial policy shall be based on uniform principles, particularly in regard to changes in tariff rates, the conclusion of tariff and trade agreements, the achievement of uniformity in measures of liberalization, export policy and measures to protect trade such as those to be taken in case of dumping or subsidies.

2. The Commisssion shall submit proposals to the Council for implementing the common commercial policy.

3. Where agreements with third countries need to be negotiated, the Commission shall make recommendations to the Council, which shall authorize the Commission to open the necessary negotiations.

The Commission shall conduct these negotiations in consultation with a special committee appointed by the Council to assist the Commission in this task and within the framework of such directives as the Council may issue to it.

4. In exercising the powers conferred upon it by this Article, the Council shall act by a qualified majority.

Article 114

The agreements referred to in Article 111 (2) and in Article 113 shall be concluded by the Council on behalf of the Community, acting unanimously during the first two stages and by a qualified majority thereafter.

Article 115

In order to ensure that the execution of measures of commercial policy taken in accordance with this Treaty by any Member State is not obstructed by deflection of trade, or where differences between such measures lead to economic difficulties in one or more of the Member States, the Commission shall recommend the methods for the requisite cooperation between Member States. Failing this, the Commission shall authorize Member States to take the necessary protective measures, the conditions and details of which it shall determine.

In case of urgency during the transitional period, Member States may themselves take the necessary measures and shall notify them to the other Member States and to the Commission, which may decide that the States concerned shall amend or abolish

such measures.

In the selection of such measures, priority shall be given to those which cause the least disturbance to the functioning of the common market and which take into account the need to expedite, as far as possible, the introduction of the common customs tariff.

Article 116

From the end of the transitional period onwards, Member States shall, in respect of all matters of particular interest to the common market, proceed within the framework of international organizations of an economic character only by common action. To this end, the Commission shall submit to the Council, which shall act by a qualified majority, proposals concerning the scope and implementation of such common action.

During the transitional period, Member States shall consult each other for the purpose of concerting the action they take and adopting as far as possible a uniform attitude.

PART FIVE: INSTITUTIONS OF THE COMMUNITY

Title I: Provisions Governing the Institutions

Chapter I: The Institutions

Section I: The Assembly

Article 137

The Assembly, which shall consist of representatives of the peoples of the States brought together in the Community, shall exercise the advisory and supervisory powers which are conferred upon it by this Treaty.

Article 138

1. The Assembly shall consist of delegates who shall be designated by the respective Parliaments from among their members in accordance with the procedure laid down by each Member State.

2. The number of these delegates shall be as follows:

Belgium	14
Denmark	10
Germany	36
France	36
Ireland	10
Italy	36
Luxembourg	6
Netherlands	14
United Kingdom	36[1]

[1] Paragraph 2 as amended by Article 10 of the Act of Accession, modified by Article 4 of the Adaptation Decision.

3. The Assembly shall draw up proposals for elections by direct universal suffrage in accordance with a uniform procedure in all Member States.

The Council shall, acting unanimously, lay down the appropriate provisions, which it shall recommend to Member States for adoption in accordance with their respective constitutional requirements.

Article 139

The Assembly shall hold an annual session. It shall meet, without requiring to be convened, on the second Tuesday in March.[2]

The Assembly may meet in extraordinary session at the request of a majority of its members or at the request of the Council or of the Commission.

Article 140

The Assembly shall elect its President and its officers from among its members.

Members of the Commission may attend all meetings and shall, at their request, be heard on behalf of the Commission.

The Commission shall reply orally or in writing to questions put to it by the Assembly or by its members.

The Council shall be heard by the Assembly in accordance with the conditions laid down by the Council in its rules of procedure.

Article 141

Save as otherwise provided in this Treaty, the Assembly shall act by an absolute majority of the votes cast.

The rules of procedure shall determine the quorum.

Article 142

The Assembly shall adopt its rules of procedure, acting by a majority of its members.

The proceedings of the Assembly shall be published in the manner laid down in its rules of procedure.

Article 143

The Assembly shall discuss in open session the annual general report submitted to it by the Commission.

Article 144

If a motion of censure on the activities of the Commission is tabled before it, the

[2] First paragraph as amended by Article 27 (1) of the Merger Treaty.

Assembly shall not vote thereon until at least three days after the motion has been tabled and only by open vote.

If the motion of censure is carried by a two-thirds majority of the votes cast, representing a majority of the members of the Assembly, the members of the Commission shall resign as a body. They shall continue to deal with current business until they are replaced in accordance with Article 158.[3]

Section 2: The Council

Article 145

To ensure that the objectives set out in this Treaty are attained, the Council shall, in accordance with the provisions of this Treaty:

— ensure coordination of the general economic policies of the Member States;

— have power to take decisions.

Article 148

1. Save as otherwise provided in this Treaty, the Council shall act by a majority of its members.

2. Where the Council is required to act by a qualified majority, the votes of its members shall be weighted as follows:[4]

Belgium	5
Denmark	3
Germany	10
France	10
Ireland	3
Italy	10
Luxembourg	2
Netherlands	5
United Kingdom	10

For their adoption, acts of the Council shall require at least:

— forty-one votes in favour where this Treaty requires them to be adopted on a proposal from the Commission,

— forty-one votes in favour, cast by at least six members, in other cases.

3. Abstentions by members present in person or represented shall not prevent the adoption by the Council of acts which require unanimity.

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[3] Article 158 is repealed by Article 19 of the Merger Treaty.

[4] Paragraph (2) as amended by Article 14 of the Act of Accession, modified by Article 8 of the Adaptation Decision.

Article 149

Where, in pursuance of this Treaty, the Council acts on a proposal from the Commission, unanimity shall be required for an act constituting an amendment to that proposal.

As long as the Council has not acted, the Commission may alter its original proposal, in particular where the Assembly has been consulted on that proposal.

Article 150

Where a vote is taken, any member of the Council may also act on behalf of not more than one other member.

Article 152

The Council may request the Commission to undertake any studies which the Council considers desirable for the attainment of the common objectives, and to submit to it any appropriate proposals.

Article 153

The Council shall, after receiving an opinion from the Commission, determine the rules governing the committees provided for in this Treaty.

Section 3: The Commission

Article 155

In order to ensure the proper functioning and development of the common market, the Commission shall:

— ensure that the provisions of this Treaty and the measures taken by the institutions pursuant thereto are applied;

— formulate recommendations or deliver opinions on matters dealt with in this Treaty, if it expressly so provides or if the Commission considers it necessary;

— have its own power of decision and participate in the shaping of measures taken by the Council and by the Assembly in the manner provided for in this Treaty;

— exercise the powers conferred on it by the Council for the implementation of the rules laid down by the latter.

Section 4: The Court of Justice

Article 164

The Court of Justice shall ensure that in the interpretation and application of this Treaty the law is observed.

Article 165

The Court of Justice shall consist of nine Judges.[5]

The Court of Justice shall sit in plenary session. It may, however, form chambers, each consisting of three or five Judges, either to undertake certain preparatory inquiries or to adjudicate on particular categories of cases in accordance with rules laid down for these purposes.

Whenever the Court of Justice hears cases brought before it by a Member State or by one of the institutions of the Community or has to give preliminary rulings on questions submitted to it pursuant to Article 177, it shall sit in plenary session.

Should the Court of Justice so request, the Council may, acting unanimously, increase the number of Judges and make the necessary adjustments to the second and third paragraphs of this Article and to the second paragraph of Article 167.

Article 166

The Court of Justice shall be assisted by four Advocates-General.[6]

It shall be the duty of the Advocate-General, acting with complete impartiality and independence, to make, in open court, reasoned submissions on cases brought before the Court of Justice, in order to assist the Court in the performance of the task assigned to it in Article 164.

Should the Court of Justice so request, the Council may, acting unanimously, increase the number of Advocates-General and make the necessary adjustments to the third paragraph of Article 167.

Article 167

The Judges and Advocates-General shall be chosen from persons whose independence is beyond doubt and who possess the qualifications required for appointment to the highest judicial offices in their respective countries or who are jurisconsults of recognized competence; they shall be appointed by common accord of the Governments of the Member States for a term of six years.

Every three years there shall be a partial replacement of the Judges. Five and four Judges shall be replaced alternately.[7]

Every three years there shall be a partial replacement of the Advocates-General. Two Advocates-General shall be replaced on each occasion.[8]

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[5] First paragraph as amended by Article 17 of the Act of Accession, modified by Article 9 of the Adaptation Decision.

[6] First paragraph as amended by Article 1 of the Council Decision of 1 January 1973 increasing the number of Advocates-General *(Official Journal of the European Communities,* No L 2, 1 January 1973, p. 29).

[7] Second paragraph as amended by Article 19 of the Act of Accession, modified by Article 10 of the Adaptation Decision.

[8] Third paragraph as amended by Article 2 of the Council Decision of 1 January 1973 increasing the number of Advocates-General *(Official Journal of the European Communities* No L 2, 1 January 1973, p. 29).

Retiring Judges and Advocates-General shall be eligible for reappointment.

The Judges shall elect the President of the Court of Justice from among their number for a term of three years. He may be re-elected.

Article 168

The Court of Justice shall appoint its Registrar and lay down the rules governing his service.

Article 169

If the Commission considers that a Member State has failed to fulfill an obligation under this Treaty, it shall deliver a reasoned opinion on the matter after giving the State concerned the opportunity to submit its observations.

If the State concerned does not comply with the opinion within the period laid down by the Commission, the latter may bring the matter before the Court of Justice.

Article 170

A Member State which considers that another Member State has failed to fulfill an obligation under this Treaty may bring the matter before the Court of Justice.

Before a Member State brings an action against another Member State for an alleged infringement of an obligation under this Treaty, it shall bring the matter before the Commission.

The Commission shall deliver a reasoned opinion after each of the States concerned has been given the opportunity to submit its own case and its observations on the other party's case both orally and in writing.

If the Commission has not delivered an opinion within three months of the date on which the matter was brought before it, the absence of such opinion shall not prevent the matter from being brought before the Court of Justice.

Article 171

If the Court of Justice finds that a Member State has failed to fulfill an obligation under this Treaty, the State shall be required to take the necessary measures to comply with the judgment of the Court of Justice.

Article 172

Regulations made by the Council pursuant to the provisions of this Treaty may give the Court of Justice unlimited jurisdiction in regard to the penalties provided for in such regulations.

Article 173

The Court of Justice shall review the legality of acts of the Council and the Commis-

sion other than recommendations or opinions. It shall for this purpose have jurisdiction in actions brought by a Member State, the Council or the Commission on grounds of lack of competence, infringement of an essential procedural requirement, infringement of this Treaty, or of any rule of law relating to its application, or misuse of powers.

Any natural or legal person may, under the same conditions, institute proceedings against a decision addressed to that person or against a decision which, although in the form of a regulation or a decision addressed to another person, is of direct and individual concern to the former.

The proceedings provided for in this Article shall be instituted within two months of the publication of the measure, or of its notification to the plaintiff, or, in the absence thereof, of the day on which it came to the knowledge of the latter, as the case may be.

Article 174

If the action is well founded, the Court of Justice shall declare the act concerned to be void.

In the case of a regulation, however, the Court of Justice shall, if it considers this necessary, state which of the effects of the regulation which it has declared void shall be considered as definitive.

Article 175

Should the Council or the Commission, in infringement of this Treaty, fail to act, the Member States and the other institutions of the Community may bring an action before the Court of Justice to have the infringement established.

The action shall be admissible only if the institution concerned has first been called upon to act. If, within two months of being so called upon, the institution concerned has not defined its position, the action may be brought within a further period of two months.

Any natural or legal person may, under the conditions laid down in the preceding paragraphs, complain to the Court of Justice that an institution of the Community has failed to address to that person any act other than a recommendation or an opinion.

Article 176

The institution whose act has been declared void or whose failure to act has been declared contrary to this Treaty shall be required to take the necessary measures to comply with the judgment of the Court of Justice.

This obligation shall not affect any obligation which may result from the application of the second paragraph of Article 215.

Article 177

The Court of Justice shall have jurisdiction to give preliminary rulings concerning:

(a) the interpretation of this Treaty;

(b) the validity and interpretation of acts of the institutions of the Community;

(c) the interpretation of the statutes of bodies established by an act of the Council, where those statutes so provide.

Where such a question is raised before any court or tribunal of a Member State, that court or tribunal may, if it considers that a decision on the question is necessary to enable it to give judgment, request the Court of Justice to give a ruling thereon.

Where any such question is raised in a case pending before a court or tribunal of a Member State, against whose decisions there is no judicial remedy under national law, that court or tribunal shall bring the matter before the Court of Justice.

Article 178

The Court of Justice shall have jurisdiction in disputes relating to compensation for damage provided for in the second paragraph of Article 215.

Article 179

The Court of Justice shall have jurisdiction in any dispute between the Community and its servants within the Limits and under the conditions laid down in the Staff Regulations or the Conditions of Employment.

Article 180

The Court of Justice shall, within the limits hereinafter laid down, have jurisdiction in disputes concerning:

(a) the fulfillment by Member States of obligations under the Statute of the European Investment Bank. In this connection, the Board of Directors of the Bank shall enjoy the powers conferred upon the Commission by Article 169;

(b) measures adopted by the Board of Governors of the Bank. In this connection, any Member State, the Commission or the Board of Directors of the Bank may institute proceedings under the conditions laid down in Article 173;

(c) measures adopted by the Board of Directors of the Bank. Proceedings against such measures may be instituted only by Member States or by the Commission, under the conditions laid down in Article 173, and solely on the grounds of non-compliance with the procedure provided for in Article 21 (2), (5), (6) and (7) of the Statute of the Bank.

Article 181

The Court of Justice shall have jurisdiction to give judgment pursuant to any arbitration clause contained in a contract concluded by or on behalf of the Community, whether that contract be governed by public or private law.

Article 182

The Court of Justice shall have jurisdiction in any dispute between Member States which relates to the subject matter of this Treaty if the dispute is submitted to it under a special agreement between the parties.

Article 183

Save where jurisdiction is conferred on the Court of Justice by this Treaty, disputes to which the Community is a party shall not on that ground be excluded from the jurisdiction of the courts or tribunals of the Member States.

Article 184

Notwithstanding the expiry of the period laid down in the third paragraph of Article 173, any party may, in proceedings in which a regulation of the Council or of the Commission is in issue, plead the grounds specified in the first paragraph of Article 173, in order to invoke before the Court of Justice the inapplicability of that regulation.

Article 185

Actions brought before the Court of Justice shall not have suspensory effect. The Court of Justice may, however, if it considers that circumstances so require, order that application of the contested act be suspended.

Article 186

The Court of Justice may in any cases before it prescribe any necessary interim measures.

Article 187

The judgments of the Court of Justice shall be enforceable under the conditions laid down in Article 192.

Article 188

The Statute of the Court of Justice is laid down in a separate Protocol.

The Court of Justice shall adopt its rules of procedure. These shall require the unanimous approval of the Council.

Chapter 2: Provisions Common to Several Institutions

Article 189

In order to carry out their task the Council and the Commission shall, in accordance with the provisions of this Treaty, make regulations, issue directives, take decisions, make recommendations or deliver opinions.

A regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States.

A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods.

A decision shall be binding in its entirety upon those to whom it is addressed.

Recommendations and opinions shall have no binding force.

Article 190

Regulations, directives and decisions of the Council and of the Commission shall state the reasons on which they are based and shall refer to any proposals or opinions which were required to be obtained pursuant to this Treaty.

Article 191

Regulations shall be published in the Official Journal of the Community. They shall enter into force on the date specified in them or, in the absence thereof, on the twentieth day following their publication.

Directives and decisions shall be notified to those to whom they are addressed and shall take effect upon such notification.

Article 192

Decisions of the Council or of the Commission which impose a pecuniary obligation on persons other than States shall be enforceable.

Enforcement shall be governed by the rules of civil procedure in force in the State in the territory of which it is carried out. The order for its enforcement shall be appended to the decision, without other formality than verification of the authenticity of the decision, by the national authority which the Government of each Member State shall designate for this purpose and shall make known to the Commission and to the Court of Justice.

When these formalities have been completed on application by the party concerned, the latter may proceed to enforcement in accordance with the national law, by bringing the matter directly before the competent authority.

Enforcement may be suspended only by a decision of the Court of Justice. However, the courts of the country concerned shall have jurisdiction over complaints that enforcement is being carried out in an irregular manner.

PART SIX: GENERAL AND FINAL PROVISIONS

Article 210

The Community shall have legal personality.

Article 211

In each of the Member States, the Community shall enjoy the most extensive legal capacity accorded to legal persons under their laws; it may, in particular, acquire or dispose of movable and immovable property and may be a party to legal proceedings. To this end, the Community shall be represented by the Commission.

Article 213

The Commission may, within the limits and under the conditions laid down by the Council in accordance with the provisions of this Treaty, collect any information and carry out any checks required for the performance of the tasks entrusted to it.

Article 214

The members of the institutions of the Community, the members of committees, and the officials and other servants of the Community shall be required, even after their duties have ceased, not to disclose information of the kind covered by the obligation of professional secrecy, in particular information about undertakings, their business relations or their cost components.

Article 215

The contractual liability of the Community shall be governed by the law applicable to the contract in question.

In the case of non-contractual liability, the Community shall, in accordance with the general principles common to the laws of the Member States, make good any damage caused by its institutions or by its servants in the performance of their duties.

The personal liability of its servants towards the Community shall be governed by the provisions laid down in their Staff Regulations or in the Conditions of Employment applicable to them.

Article 216

The seat of the institutions of the Community shall be determined by common accord of the Governments of the Member States.

Article 217

The rules governing the languages of the institutions of the Community shall, without prejudice to the provisions contained in the rules of procedure of the Court of Justice, be determined by the Council, acting unanimously.

Article 219

Member States undertake not to submit a dispute concerning the interpretation or application of this Treaty to any method of settlement other than those provided for therein.

Article 220

Member States shall, so far as is necessary, enter into negotiations with each other with a view to securing for the benefit of their nationals:

— the protection of persons and the enjoyment and protection of rights under the same conditions as those accorded by each State to its own nationals;

— the abolition of double taxation within the Community;

— the mutual recognition of companies or firms within the meaning of the second paragraph of Article 58, the retention of legal personality in the event of transfer of their seat from one country to another, and the possibility of mergers between companies or firms governed by the laws of different countries;

— the simplification of formalities governing the reciprocal recognition and enforcement of judgments of courts or tribunals and of arbitration awards.

Article 221

Within three years of the entry into force of this Treaty, Member States shall accord nationals of the other Member States the same treatment as their own nationals as regards participation in the capital of companies or firms within the meaning of Article 58, without prejudice to the application of the other provisions of this Treaty.

Article 222

This Treaty shall in no way prejudice the rules in Member States governing the system of property ownership.

Article 223

1. The provisions of this Treaty shall not preclude the application of the following rules:

(a) No Member State shall be obliged to supply information the disclosure of which it considers contrary to the essential interests of its security;

(b) Any Member State may take such measures as it considers necessary for the protection of the essential interests of its security which are connected with the production of or trade in arms, munitions and war material; such measures shall not adversely affect the conditions of competition in the common market regarding products which are not intended for specifically military purposes.

2. During the first year after the entry into force of this Treaty, the Council shall, acting unanimously, draw up a list of products to which the provisions of paragraph 1 *(b)* shall apply.

3. The Council may, acting unanimously on a proposal from the Commission, make changes in this list.

Article 224

Member States shall consult each other with a view to taking together the steps needed to prevent the functioning of the common market being affected by measures which a Member State may be called upon to take in the event of serious internal disturbances affecting the maintenance of law and order, in the event of war serious international tension constituting a threat of war, or in order to carry out obligations it has accepted for the purpose of maintaining peace and international security.

Article 225

If measures taken in the circumstances referred to in Articles 223 and 224 have the effect of distorting the conditions of competition in the common market, the Commission shall, together with the State concerned, examine how these measures can be adjusted to the rules laid down in this Treaty.

By way of derogation from the procedure laid down in Articles 169 and 170, the Commission or any Member State may bring the matter directly before the Court of Justice if it considers that another Member State is making improper use of the powers provided for in Articles 223 and 224. The Court of Justice shall give its ruling *in camera*.

Article 226

1. If, during the transitional period, difficulties arise which are serious and liable to persist in any sector of the economy or which could bring about serious deterioration in the economic situation of a given area, a Member State may apply for authorization to take protective measures in order to rectify the situation and adjust the sector concerned to the economy of the common market.

2. On application by the State concerned, the Commission shall, by emergency procedure, determine without delay the protective measures which it considers necessary, specifying the circumstances and the manner in which they are to be put into effect.

3. The measures authorized under paragraph 2 may involve derogations from the rules of this Treaty, to such an extent and for such periods as are strictly necessary in order to attain the objectives referred to in paragraph 1. Priority shall be given to such measures as will least disturb the functioning of the common market.

Article 227

1. This Treaty shall apply to the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the United Kingdom of Great Britain and North Ireland.[9]

2. With regard to Algeria and the French overseas departments, the general and particular provisions of this Treaty relating to:

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[9] Paragraph (1) as amended by Article 26 (1) of the Act of Accession, modified by Article 15 (1) of the Adaptation Decision.

— the free movement of goods;

— agriculture, save for Article 40 (4);

— the liberalization of services;

— the rules on competition;

— the protective measures provided for in Articles 108, 109 and 226;

— the institutions,

shall apply as soon as this Treaty enters into force.

The conditions under which the other provisions of this Treaty are to apply shall be determined, within two years of the entry into force of this Treaty, by decisions of the Council, acting unanimously on a proposal from the Commission.

The institutions of the Community will, within the framework of the procedures provided for in this Treaty, in particular Article 226, take care that the economic and social development of these areas is made possible.

3. The special arrangements for association set out in Part Four of this Treaty shall apply to the overseas countries and territories listed in Annex IV to this Treaty.

This Treaty shall not apply to those overseas countries and territories having special relations with the United Kingdom of Great Britain and Northern Ireland which are not included in the aforementioned list.[10]

4. The provisions of this Treaty shall apply to the European territories for whose external relations a Member State is responsible.

5. Notwithstanding the preceding paragraphs:[11]

(a) This Treaty shall not apply to the Faroe Islands. The Government of the Kingdom of Denmark may, however, give notice, by a declaration deposited by 31 December 1975 at the latest with the Government of the Italian Republic, which shall transmit a certified copy thereof to each of the Governments of the other Member States, that this Treaty shall apply to those Islands. In that event, this Treaty shall apply to those Islands from the first day of the second month following the deposit of the declaration.

(b) This Treaty shall not apply to the Sovereign Base Areas of the United Kingdom of Great Britain and Northern Ireland in Cyprus.

(c) This Treaty shall apply to the Channel Islands and the Isle of Man only to the extent necessary to ensure the implementation of the arrangements for those islands set out in the Treaty concerning the accession of new Member States to the European Economic Community and to the European Atomic Energy Community signed on 22 January 1972.

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[10] Second subparagraph added by Article 26 (2) of the Act of Accession.

[11] Paragraph 5 added by Article 26 (3) of the Act of Accession, modified by Article 15 (2) of the Adaptation Decision.

Article 228

1. Where this Treaty provides for the conclusion of agreements between the Community and one or more States or an international organization, such agreements shall be negotiated by the Commission. Subject to the powers vested in the Commission in this field, such agreements shall be concluded by the Council, after consulting the Assembly where required by this Treaty.

The Council, the Commission or a Member State may obtain beforehand the opinion of the Court of Justice as to whether an agreement envisaged is compatible with the provisions of this Treaty. Where the opinion of the Court of Justice is adverse, the agreement may enter into force only in accordance with Article 236.

2. Agreements concluded under these conditions shall be binding on the institutions of the Community and on Member States.

Article 229

It shall be for the Commission to ensure the maintenance of all appropriate relations with the organs of the United Nations, of its specialized agencies and of the General Agreement on Tariffs and Trade.

The Commission shall also maintain such relations as are appropriate with all international organizations.

Article 230

The Community shall establish all appropriate forms of cooperation with the Council of Europe.

Article 231

The Community shall establish close cooperation with the Organization for European Economic Cooperation, the details to be determined by common accord.

Article 232

1. The provisions of this Treaty shall not affect the provisions of the Treaty establishing the European Coal and Steel Community, in particular as regards the rights and obligations of Member States, the powers of the institutions of that Community and the rules laid down by that Treaty for the Functioning of the common market in coal and steel.

2. The provisions of this Treaty shall not derogate from those of the Treaty establishing the European Atomic Energy Community.

Article 233

The provisions of this Treaty shall not preclude the existence or completion of regional unions between Belgium and Luxembourg, or between Belgium, Luxembourg

and the Netherlands, to the extent that the objectives of these regional unions are not attained by application of this Treaty.

Article 234

The rights and obligations arising from agreements concluded before the entry into force of this Treaty between one or more Member States on the one hand, and one or more third countries on the other, shall not be affected by the provisions of this Treaty.

To the extent that such agreements are not compatible with this Treaty, the Member State or States concerned shall take all appropriate steps to eliminate the incompatibilities established. Member States shall, where necessary, assist each other to this end and shall, where appropriate, adopt a common attitude.

In applying the agreements referred to in the first paragraph, Member States shall take into account the fact that the advantages accorded under this Treaty by each Member State form an integral part of the establishment of the Community and are thereby inseparably linked with the creation of common institutions, the conferring of powers upon them and the granting of the same advantages by all the other Member States.

Article 235

If action by the Community should prove necessary to attain, in the course of the operation of the common market, one of the objectives of the Community and this Treaty has not provided the necessary powers, the Council shall, acting unanimously on a proposal from the Commission and after consulting the Assembly, take the appropriate measures.

Article 236

The Government of any Member State or the Commission may submit to the Council proposals for the amendment of this Treaty.

If the Council, after consulting the Assembly and, where appropriate, the Commission, delivers an opinion in favour of calling a conference of representatives of the Governments of the Member States, the conference shall be convened by the President of the Council for the purpose of determining by common accord the amendments to be made to this Treaty.

The amendments shall enter into force after being ratified by all the Member States in accordance with their respective constitutional requirements.

Article 237

Any European State may apply to become a member of the Community. It shall address its application to the Council, which shall act unanimously after obtaining the opinion of the Commission.

The conditions of admission and the adjustments to this Treaty necessitated thereby shall be the subject of an agreement between the Member States and the applicant

State. This agreement shall be submitted for ratification by all the Contracting States in accordance with their respective constitutional requirements.

Article 238

The Community may conclude with a third State, a union of States or an international organization agreements establishing an association involving reciprocal rights and obligations, common action and special procedures.

These agreements shall be concluded by the Council, acting unanimously after consulting the Assembly.

Where such agreements call for amendments to this Treaty, these amendments shall first be adopted in accordance with the procedure laid down in Article 236.

Article 239

The Protocols annexed to this Treaty by common accord of the Member States shall form an integral part thereof.

Article 240

This Treaty is concluded for an unlimited period.

To Promote the Progress of Science and Useful Arts: Public Law and Technological Innovation

GERALD G. UDELL*

When our Founding Fathers made provision for a patent system in the United States Constitution, they did so with a specific purpose in mind. That purpose is clearly indicated in article I, section 8: "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." The key words here are " . . .To promote the Progress of Science and useful Arts. . . ."

The British, during the War of 1812, considered the United States patent system and the technological information stored in the patent library to be of such major importance to British welfare, that the patent library was left untouched when they burned Washington, D.C.

The Britisher's confidence was not illfounded. Since the War of 1812, the American patent system has played a significant historical role in producing many of the world's most important technological innovations. Just as our patent system has proven to be a major incentive for technological innovation in the past, it will continue to do so in the future.

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Although periodic modifications to the patent system have been made, (and were finally codified in 1952[1]), the basic structure of the patent system has remained unchanged since 1836.[2]

Several attempts at patent reform have been made in recent years. Hearings on patent reform legislation were held in 1967, 1968, 1971 and 1973 by the Patent, Trademarks and Copyrights Subcommittee of the Senate Committee on the Judiciary, and culminated in 1976 with the favorable reporting of S.2255, a compromise bill.[3]

There is no question that the body of patent law codified in title 35 of the United States Code exerts a substantial influence on technological innovation. The theme of this article, however, deals with the need for public policy to go beyond the patent system if technological innovation is to be properly stimulated.

Going beyond the patent system encompasses, then, the need to recognize the interdisciplinary and interrelated nature of the innovation process. There have been several basic changes in the circumstances under which technological innovation takes place. Renovation of the patent system may be in order, but changes to the patent system alone will not be sufficient to shore up the current sagging rate of technological innovation in the United States.

The Declining Rate of U.S. Technological Innovation

High investment costs, new governmental regulations and controls, increasingly sophisticated technology, complex marketing procedures and shortened product life cycles have caused some observers to conclude that American innovation is breaking down. Unfortunately, this is happening just at a time when technological innovation is urgently needed.

Supporting this contention are some alarming national trends:

— *Patents*

We now rank fifth in the number of patents issued on a per capita bais. Four countries (Japan, Sweden, Germany and Switzerland) now issue more patents on a per capita basis than the United States (which is on par with the Soviet Union).[4] The

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[1] 35 U.S.C. §§ 1-293 (1970).

[2] SENATE COMM. ON THE JUDICIARY, PATENT LAW REVISION REPORT, S. REP. NO. 642, 94th Cong., 1st Sess. 5 (1975) [hereinafter cited as PATENT LAW REVISION].

[3] S. 2255, 94th Cong., 1st Sess. (1975). For an analysis of S. 2255 and a history of recent attempts at patent law revision, *see* PATENT LAW REVISION, *supra* note 2; *see also* Bowes, *Patents and the Public Interest*, 61 A.B.A.J. 1521 (1975).

percentage of patents issued to private citizens has decreased by 22% since 1963. In that year, independent inventors accounted for 27% of all patents granted; today, it is running about 21%.[5] In addition, the number of United States patents granted to foreign nationals has increased 85% and now accounts for about 23% of the patents issued.[6]

— *Rate of Technological Innovation*

The American rate of technological innovation is decreasing.[7] In the machine tool industry, for example, the United States has lost its position of leadership and now trails behind West Germany, Japan and France. The United States equals Russia in machine tool production, but they produce better equipment.[8]

— *New Product Failure Rate*

New product failure rates remain high. It is estimated that between 37%[9] and 80% of all new products fail.[10]

— *Productivity*

The United States now ranks 11th in its rate of productivity increase among the eleven developed nations. American growth in productivity from 1960-1973 was 3.4% annually. During the same period, European productivity increased 5.7% and Japan increased at the rate of 10.5% per year.[11] In a few years, American output per worker will slip behind that of West Germany, Japan and France. There has been little or no growth in productivity in the retail industry and little in manufacturing, but there have been substantial increases in agriculture. In the latter area, the United States has the highest level of productivity and the highest rate of productivity increases in the world.

— *Capital Investment*

American capital investment per worker is down. We currently

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[4] *Is American Genius Being Stifled?*, U.S. NEWS & WORLD REP., Dec. 23, 1974, at 46.

[5] Haber, *The Decline of the Better Idea*, THE SCIENCES, Oct. 23, 1974, at 46.

[6] Lein, *Synergistic Effects through Licensing*, LES NOUVELLES: J. LICENSING EXECUTIVES SOC'Y, Dec. 1975, at 223.

[7] *The Breakdown of U.S. Innovation*, BUS. WEEK, Feb. 16, 1976, at 56.

[8] Address by Henry Warren, University Business Development Center Advisory Meeting, Scottsdale, Arizona, Jan. 17, 1977 [hereinafter cited as Warren].

[9] BOOZ, ALLEN & HAMILTON, THE MANAGEMENT OF NEW PRODUCTS 12 (1968).

[10] *New Products: The Push is on Marketing*, BUS. WEEK, Mar. 4, 1972, at 38.

[11] *Statement of Mitchel P. Kobelinski Before the Senate Select Comm. on Small Business*, 95th Cong., 1st Sess. (1977).

spend $223 annually per worker. Japan spends $336 and West Germany is investing in new plants and equipment at the annual rate of $700 per worker.[12]

— *Research*

Since 1968, total government and industry research spending has dropped more than 6% in real (non-inflationary) dollars. During the last decade, the real industrial investment for basic research has slipped 12% and federal funding on industrial basic research fell 45%.

— *Natural Resources*

Supplies of natural resources are diminishing. For example, 1976 world oil production was 57,210,500 barrels per day. At that rate of consumption, proven world reserves of 598,990,320,000 barrels will last less than thirty years.[14]

— *Balance of Payments*

Since about 1970, the United States has experienced a negative balance of payments.[15] As our dependency on external sources of supply for basic raw materials (such as oil) increases, we will become increasingly dependent upon the export of technological goods and services to offset our imports of raw materials.

The total current annual industrial investment in innovation probably is somewhere between $39.7 billion and $51.7 billion:

— Private R&D expenditures for 1975 are estimated at between $11.9 billion and $15.5 billion.[16]

— R&D expenditures are estimated to account for about 30% of the total cost of developing a new product.[17]

Booz, Allen and Hamilton estimates that about two-thirds of this investment is committed to new products which are either dropped before market introduction or fail to produce a satisfactory return.[18]

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[12] Warren, *supra* note 8.

[13] NATIONAL SCIENCE FOUNDATION, NATIONAL PATTERNS OF R&D RESOURCES (1973) [hereinafter cited as R&D RESOURCES].

[14] *Worldwide Oil and Gas at a Glance,* OIL & GAS J., Dec. 27, 1976, at 105.

[15] 30 INT'L FINANCIAL STATISTICS 370-371 (1977).

[16] R&D RESOURCES, *supra* note 13.

[17] BOOZ, ALLEN & HAMILTON, A PROGRAM FOR NEW PRODUCT EVALUATION, PRODUCT STRATEGY AND MANAGEMENT 339 (ed. T.L. Berg & A. Shushman 1965).

[18] *Id.*

The high cost and risk of innovation has caused many firms to reduce their R&D activity and to focus on product improvement rather than product innovation. According to *Business Week*, one of the prime villians in the breakdown of American innovation has been the no-risk, supercautious attitude of management. The economic impact of a more cautious management approach to innovation is illustrated by a comparison of the performance records of five leading high technology innovators (IBM, Xerox, Texas Instruments, 3M and Polaroid) and six typically mature or less innovative firms (Bethlehem Steel, GE, DuPont, P&G, General Foods and International Paper). From 1945 through 1974, the annual compounded growth rate of the innovators was 16.5% in sales and 10.8% in jobs. For the non-innovators, the corresponding increases were 7.8% in sales and 1.9% in jobs.[19]

There is an obvious need, then, to stimulate innovation in order to counteract this apparent management conservatism, and existing trends of technological breakdown.

A Technological Watershed

In a very real sense, the decade of the 1970s represents a sort of "technological watershed." Technological innovation has, in the past, been one of the cornerstones of modern civilization. We have coveted technological innovation because it led to a higher level of living. For example,

— electricity has expanded our productive capacity and extended the hours of human activity;
— the automobile greatly facilitated travel and transportation;
— radio made worldwide communication feasible and inexpensive; and
— X-ray advanced medical technology and has saved countless lives.

The history of the United States is intertwined with the history of invention and innovation. In modern societies, there is virtually no area which has been untouched by technological innovation.

This interdependency will continue into the future. As we face the 1980s and beyond, technological innovation will play an even more critical role in maintaining our current standard of living and, perhaps, the basic fabric of modern civilization.

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[19] *The Breakdown of U.S. Innovation, supra* note 7.

Without innovation, we face a future of inevitable decline. As a matter of national policy, we must continue to innovate at an increasing rate if we are to achieve solutions to social, economic, environmental and material-shortage crises.

Distinguishing between Invention and Innovation

The words "invention" and "innovation" have created a considerable amount of confusion. Perhaps one of the reasons for this confusion is that they have been used as equivalents. Before examining the sources of technological innovation, it is appropriate that we pause to distinguish between "invention" and "innovation."

The patent system is designed to grant certain legal rights for inventions; that is, technological, intellectual property that is novel and non-obvious.[20] Unfortunately, public law sometimes treats certain stages of the innovation process as ends unto themselves, rather than as means to an end.

An invention — a new concept, discovery or device — is only the beginning. It has value only if it is put to use by society as (1) a building block for further developments (*i.e.*, inventions) or (2) a new process, product or service (*i.e.*, innovations). All of those activities, including invention, which precede the innovation are part of the innovation process. Therefore, while invention is a necessary precedent to innovation, it is not sufficient to complete the process. The "residual argument" concept applies here. If one wants to know the meaning and purpose of a phenomenon, it is necessary to look at the final outcome. Paul Billheimer uses an appropriate example:

> The automobile was once but a concept, an idea, a dream in the mind of a man. But that idea gave rise to a great enterprise. To manufacture the automobile, huge building complexes covering thousands of acres of land have been errected at astronomical cost. These plants have been fitted with sophisticated machines, tools and equipment, involving enormous amounts of capital. The operation requires limitless raw materials of many kinds from around the world in proportions that stagger the imagination. These industrial complexes employ millions of men and women from engineers to assembly line operators. And all of this for one purpose and one alone: a tiny automobile. When that first small vehicle comes from the assembly line, the purpose of this vast conglomerate of industries becomes perfectly clear. All that has gone before, including the huge outlay, the processing of raw material with its vast wastes in huge amounts... everything from the drawing board to the last bolt, is illuminated by one thing and one thing alone: the existence of a motor car.[21]

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[20] 35 U.S.C. §§ 100-104 (1970).

[21] P.E. BILLHEIMER, DESTINED FOR THE THRONE 30-31 (1975).

An innovation is " . . . a complex series of activities, beginning at first conception where the original idea is conceived, proceeding through a succession of interwoven steps of research, development, and management decision making . . . culminating when a product, which might be a thing, a technique, or a process, is accepted in the marketplace."[22]

The Innovation Process

This definition is illustrated in *Figure 1*.

Inherent in the innovation process is the fact that at the different stages, different types of skills are necessary. For example,

- — at the idea generation (invention) stage, creativity is probably the key ingredient;
- — analytical ability and technical and business acumen tend to dominate the idea evaluation and analysis stages;
- — technical know-how is paramount during the technical R&D stage;
- — whereas a thorough understanding of the marketplace is more important during the product (market) R&D stage.

The point to be made here is that the innovation process requires different players; both inventors and innovators, possessing both technological and business skills.[23]

Sources of Technological Invention

Where, then, can we turn to for this necessary innovation? Since all technological innovation begins with technological invention, it is appropriate that we identify the several sources of invention in the United States. Since the framing of the Constitution, the term "inventor" has developed several new dimensions; inventions are the output of several diverse groups, as illustrated in *Figure 2*.

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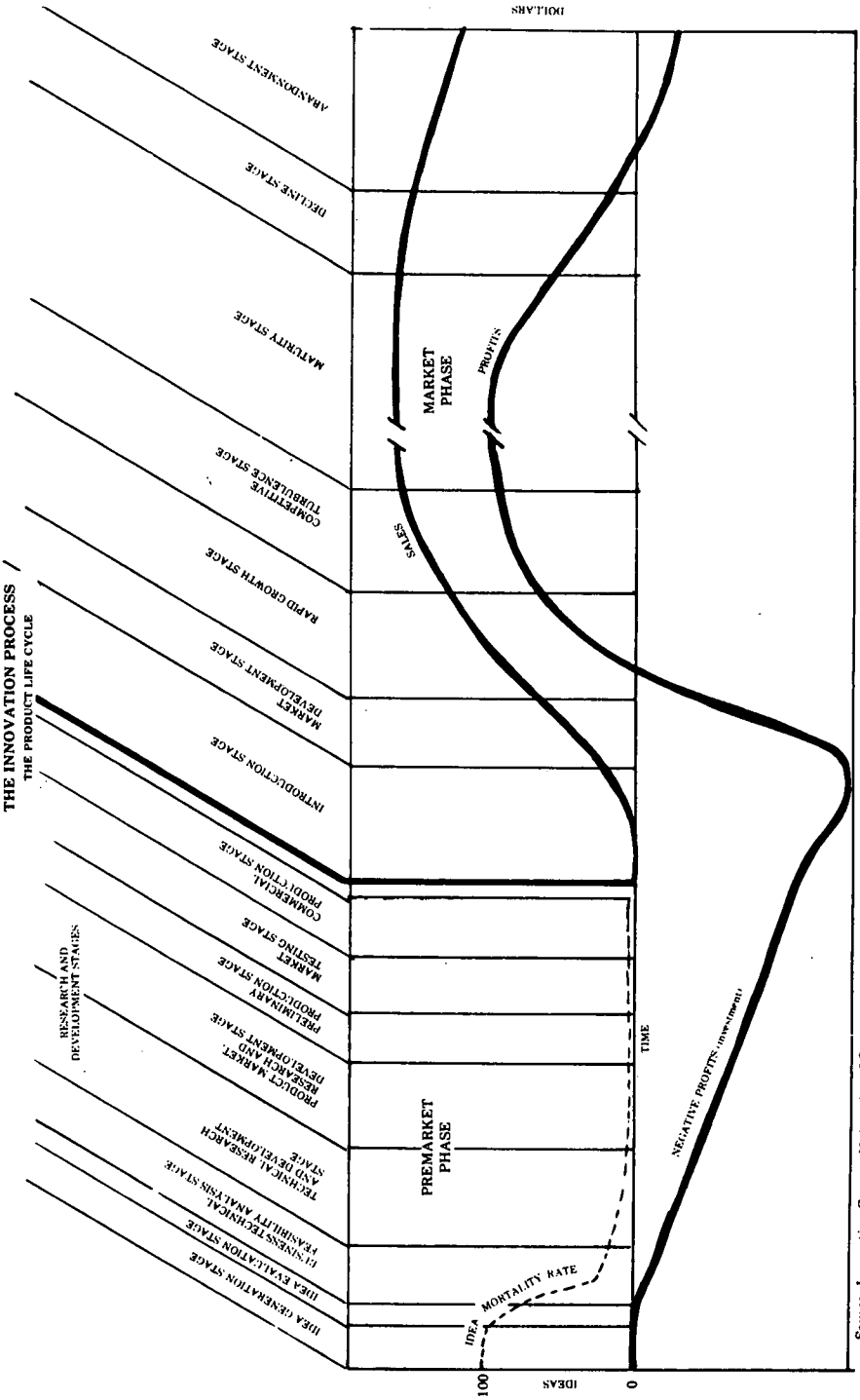
[22] Johnson, *Inventions, Innovations and Incentives*, THE PUBLIC NEED AND THE ROLE OF THE INVENTOR 6 (National Bureau of Standards, 1976).

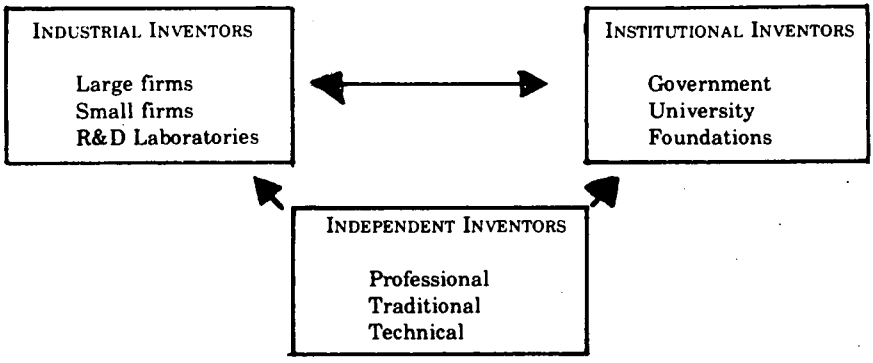
[23] For additional information on the nature of the innovation process, *see* E.A. PESSIMIER, PRODUCT MANAGEMENT (1977).



Source: Innovation Center, University of Oregon.

Figure 1
The Innovation Process

Figure 2
Sources of Technological Innovation



As *Table 1* indicates, expenditures for technological research and development have, likewise, taken on new dimension and new costs.

Table 1
1975 Estimated United States R&D Expenditures by Source of Funds and Performer (in Billions $)

	Source of Funds		Performer*	
	$	%	$	%
Total (Institutional & Industrial)	37.7	100.0	37.7	100
Industrial[1]	15.5	41.0	25.3	67
Large Corporations	4.0	37.0	22.8	60
Small Firms[2]	1.5	4.0	2.5	7
Independent R&D Labs	—	—	—	—
Institutional*	22.3	59.0	12.5	33
Federal Government	20.0	53.0	5.7	15
University	1.5	4.0	5.3	14
Foundations (& other non-profit)	.8	2.0	1.5	4
Independent				
Professional	—	—	—	—
Traditional	—	—	—	—
Technical	—	—	—	—

[1] Based on National Science Foundation estimate of 1975 R&D expenditures; *see* NATIONAL SCIENCE FOUNDATION, NATIONAL PATTERNS OF R&D RESOURCES (1973).

[2] These categories are estimated at 10% of total R&D expenditures. *See* Peters, *70% of New Products Come From Small Companies*, ADVERTISING AGE, January 13, 1969.

* Defined as the one who does (performs) research, such as a University conducting federally funded R&D.

It would appear that both the funding and performance of technological research is heavily concentrated within the institutional and industrial groups. But what is the potential of these groups to produce technological innovations?

Corporate Inventors

For the last several decades, it has become an increasingly popular notion that large corporations have become the dominate source of technological innovation. For example, Galbraith once stated:

> There is no more pleasant fiction than that technical change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbor. Unhappily, it is a fiction. Technological development has long since become the preserve of the scientist and engineer. Most of the cheap and simple inventions have, to put it bluntly and unpersuasively, been made . . . because development is costly; it follows that it can be carried on only by a firm that has the resources which are associated with considerable size.[24]

Now, twenty years later, there is still ample evidence to support his earlier conclusion:

— Technology has advanced substantially. While many worthy inventions do not involve new or high level technology, basic technological advances usually involve sophisticated technology requiring complex and lengthy development.

— Accelerating costs coupled with uncertainty have increased the risk of inventing. As indicated in *Table 1,* costs are substantial, and estimates of the new product failure rates are high.

— Today's marketplace is more complex. Regulations, product standards, production, finance and marketing create obstacles that are beyond the capabilities of the individual inventor or entrepreneur.

— The marketplace is, to a degree, hostile to ideas from independent inventors. Most companies prefer to pursue an orderly, internal program of product development that reflects the needs, mission and direction of the company. Outside ideas represent a public relations headache and a legal hazard to the corporation.[25]

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[24] J.K. GALBRAITH, AMERICAN CAPITALISM 86-87 (rev. ed. 1956).

[25] Hawkins and Udell, *Corporate Caution and Unsolicited New Product Ideas: A Survey of Corporate Waiver Requirements,* 58 J. PAT. OFF. SOC'Y 375 (1976).

There is no doubt that our nation's corporations have become a very important source of technological innovation. However, to assume that industry has become the *only* source of technological invention is not borne out by recent American experiences.

Institutional Inventors

The data in *Table 1* clearly indicate that the largest source of funding is institutional in nature. Although the federal investment in R&D ($20 billion) is immense, the number of patents held by the federal government is small.[26] Of the nearly one million "live" United States patents, the government owns only 22,000, or slightly more than 2% of the total. On an annual basis, the government receives less than 8% of the more than 70,000 domestic patents granted each year.[27] The government's track record in transferring that technology has not been particularly noteworthy.

Universities employ approximately 13% of the scientists and engineers engaged in R&D activities in the United States and account for about 16% of R&D expenditures. However, they hold only about 2% of the patents.[28] Thus, the nation's universities are not likely to singlehandedly bail the United States out of its technological doldrums.

Independent Inventors

As noted in *Figure 2,* there are three basic types of independent inventors: professional, traditional and technological. Professional inventors are those persons who make their living by inventing. Their number is small, but their output significant. The traditional inventor is basically a creative problem solver who, when faced with a problem, *invents* a solution to that problem. This group is much larger than the professional group. It draws its members from a cross section of society and includes the tinkerer, the housewife or anyone else capable of creative and innovative problem solving. This group comes closest to fitting the current stereotype of the independent inventor. The third group, technological inventors, represents a technically elite segment of society. This group is composed of scientists, engineers and other technologically trained individuals who invent outside of a corporate or institutional framework even though they might be employed within such an environment.

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[26] R&D RESOURCES, *supra* note 13.

[27] Johnson, *supra* note 22.

[28] R&D RESOURCES, *supra* note 13.

Historically, independent inventors have played a major role in non-technical innovation. Jacob Rabinow, formerly Chief of the Office of Invention and Innovation at the National Bureau of Standards, points out that most of the major inventions of this century — with the exception of the transistor and color television — have come from individual inventors.[29] F.M. Scherer cites several studies which credit large corporations with no more than a third of the more important innovations.[30]

Small Business Inventors

Although small business inventors have been classified as industrial inventors in *Figure 2,* they are, in many respects, more like independent inventors. They, too, can be categorized into traditional, professional and technological inventors. While the latter two groups are a minority among the ten million or so small businesses, they contribute heavily to our overall rate of technological innovation.[31] In addition to being an important source of technological innovation, small businesses employ 55% of the American workforce and produce 44% of the nation's gross national product.[32] However, the small business failure rate is high. Nearly half (44%) of all small businesses fail within the first two years.[33] In over 93% of these cases, lack of adequate management skills is the primary reason for their failure.[34] In addition, the small business share of manufacturing had fallen from 50% of the assets and 41% of the profits in 1960 to 30% and 25% respectively by 1972.[35]

While there is apparently no data available on the rate of technological innovation in the small business sector, it seems reasonable to assume that it is probably declining as well.

Stimulating Technological Innovation through Public Law

To summarize what has been said up to this point:

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[29] *Is American Genius Being Stifled?, supra* note 4.

[30] Haber, *supra* note 5, at 12.

[31] *Id.*

[32] *Id.*

[33] *Statement of Kurt Mayer Before the Senate Select Comm. on Small Business,* 94th Cong., 1st Sess. 425 (1975).

[34] DUN & BRADSTREET, THE FAILURE RECORD THROUGH 1971 (1972); *see also* SMALL BUSINESS ADMINISTRATION, SBA FACTS 12 (1975) [hereinafter cited as SBA FACTS].

[35] Address of Jimmy Carter, Presidential Nominee of the Democratic Party, Atlanta, Georgia, 1976.

— technological innovation is an essential part of our economic, environmental and social future;

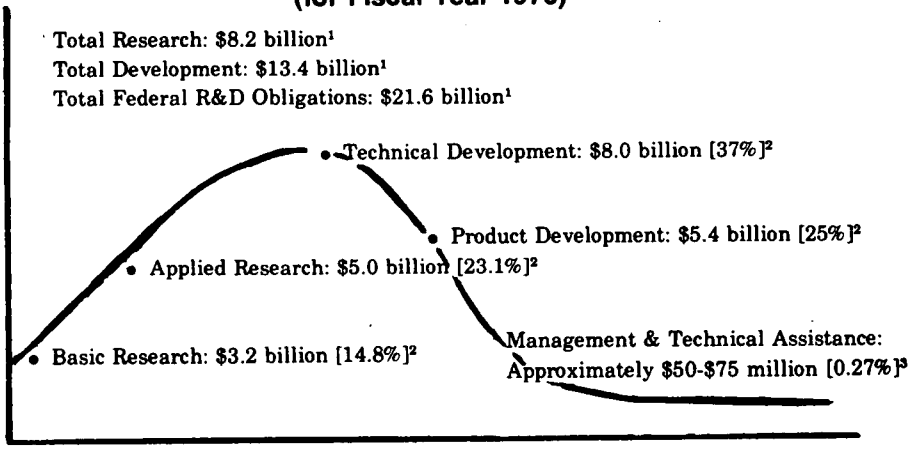
— our rate of technological innovation has been slowed to the point where we lag behind several other developed nations;

— the innovation process is a complex series of interdisciplinary and inter-related activities which begins with the conception of an idea and ends when a product, process or service is established in the marketplace.

The thesis of this section is that public law must recognize the complex nature of the innovation process if it is to stimulate technological innovation in an efficient and effective manner. That is, we will have to extend public incentives beyond the patent system (and funding of technological R&D) if we are to stimulate future technological innovation.

The general pattern of public expenditures for innovation related activities is illustrated by *Figure 3*.

Figure 3
Hypothetical Distribution of Public Funds for Innovation Related Activities*
(for Fiscal Year 1976)



* For purposes of illustration only; not drawn to scale.

[1] Federal Council for Science & Technology; estimates for 1976.

[2] Combined NSF (National Science Foundation) and SBA (Small Business Administration) estimates for 1976 management and technical (non-farm) assistance.

[3] Combined NSF and (Oregon) Innovation Center estimate.

The bulk of federal expenditures for innovation related activities is heavily oriented toward the early stages of the innovation process. Total federal R&D expenditures for fiscal year 1976 are estimated at $22.6 billion,[36] with research accounting for approximately 38%, development 62%, and management and technical assistance about .3% of the total federal expenditure for innovation related activities.

There are several factors not accounted for in *Figure 3* which affect the shape of the curve. First, National Aeronautics and Space Administration (NASA) and Department of Defense (DOD) R&D expenditures ($2.9 and $11.4 billion respectively) are hardware or product development oriented and thereby tend to inflate the amount of public funds devoted to latter stage R&D activities. Second, this would be offset by financial assistance to business in the form of Small Business Administration and other loan programs. Third, federal management and technical assistance includes funding of non-innovation related activities. The net effect of these factors is that the curve depicted in *Figure 3* should be shifted to the left. That is, when DOD and NASA are excluded, federal expenditures for innovation related activities place an even greater emphasis on the early stages of the innovation process.

It should be noted here that it is difficult to differentiate between "technical" and "market" research and development. The former is more oriented toward establishing technical and functional feasibility. The latter activity carries development to the point where the "technology" or "product" is ready to be put into use.

Despite these uncertainties about the precise distribution of federal expenditures for technological innovation, it is obvious that current public policy pays very little attention to the latter stages of the innovation process. *Figure 4* illustrates how well this fits the nature of the innovation process.

Obviously, public expenditures for innovation related activities do not follow the same pattern as commercial expenditures. However, this does not imply that the federal investment in basic and applied research and in technical development is misplaced. To the contrary, a public commitment to the early stages of the innovation process is essential, especially in the area of high priority technology, such as energy or health.

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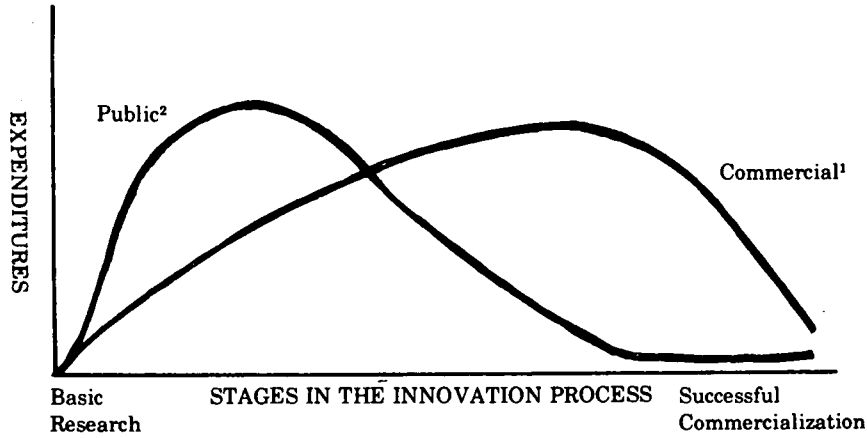
[36] FEDERAL COUNCIL FOR SCIENCE & TECHNOLOGY, REPORT ON THE FEDERAL R&D PROGRAM (1976).

Figure 4

Comparison of the Hypothetical Distribution of Public Funds Commercial Expenditures for Innovation Related Activities



[1] Extrapolated from *Figure 1.*

[2] *See Figure 3.*

George Russell, Vice-Chancellor for Research and Dean of the Graduate College at the University of Illinois, emphasizes the importance of basic research.[37]

> A careful analysis of successful solutions to some of the major problems this nation has faced in the past, whether it be in food production, communication, transportation, medicine, . . .will reveal two essential ingredients for success: a core of basic knowledge, generated in most cases from " non-relevant" research, and a cadre of well-trained individuals who can extend and expand or redirect their fundamental research to the solution of the pressing problems of the time. In the corn country of Illinois, we do not today reap 150-200 bushels of corn to the acre because we set this as a goal, and did "relevant" research to achieve that goal, but because basic "non-relevant" research in plant genetics helped to obtain the fundamental insights needed to make the slow but steady process in agricultural technology that was required.

Without public expenditures for basic research, innovation in this country could degenerate into little more than a marginal technology activity with an occasional accidental technological breakthrough. The point to be made here is that while basic and applied research, and technical and product development, are necessary they are not sufficient. Technological innovation requires a sustained commitment

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[37] Opack, *Likenesses of Licensing and Franchising,* LES NOUVELLES: J. LICENSING EXECUTIVES SOC'Y, June 1977, at 107.

throughout the process in order to bear fruit. Thus, public support of R&D suffers from the same deficiency as the patent system — it simply does not go far enough.

Corporate Innovation

There are two major players in the commercial innovation game: large corporations and small to mid-sized businesses. Large corporations are already making huge investments, estimated at between $39.7 and $51.7 billion in new products. However, as noted earlier, this investment is more oriented toward product improvement rather than product innovation. Thus, the problem of stimulating corporate technology is not financial, but centers around the supercautious attitude of management. This attitude is further fueled by high development costs and high failure rate of new products. As pointed out earlier, the most significant factor in product failure is poor management. Some of the most common management related errors contributing to the high failure rate are:[38]

1. overestimating initial and long term sales;
2. underestimating the strength of competitive response;
3. introducing the new product at the wrong time;
4. failure to provide sufficient marketing effort (advertising and sales promotion) to establish the product; and
5. underestimating the cost of "developing" and marketing the product.

How, then, do we improve the rate of corporate technological innovation? It is not likely that federal financial stimulants would have much of an impact on management related new product failures; nor are they likely to have much of an impact upon corporate attitudes toward innovation. What is needed is research into the innovation process itself and the development of better new product and management decision making tools.

If better techniques for managing innovation are to be developed, the responsibility for doing so would most appropriately be assigned to private research firms and the nation's universities. However, if the results of this research are to be widely disseminated through publication and education, it will probably have to be publicly supported. This does not mean to imply that corporations are not interested in developing more effective and efficient methods of de-

[38] PESSIMIER, *supra* note 23, at 8; *see also* T.S. ROBERTSON, INNOVATIVE BEHAVIOR AND COMMUNICATION 16-20 (1972).

veloping and marketing new products. It simply means they are not (and quite understandably) willing to share their research findings with others, especially competitors.

Public Law and Non-Corporate Innovation

Despite the fact that small businesses lack the financial and managerial resources of the large corporation, they still play a major role in producing major technological innovations. Less tied to the skirts of their existing product lines and better endowed with the spirit of innovation, technological entrepreneurs and small businesses represent a significant source of technological innovation. For the most part, this is in spite of their lack of necessary financial and interdisciplinary resources.

There are more than 100 different programs in over ten federal agencies which provide assistance to businesses.[39] Unfortunately, these programs of financial, technical and managerial assistance are frequently not coordinated and rarely focus on technological innovation. The Small Business Administration, for example, provides $3 billion in financial loan assistance and has a total staff of nearly 4,000 employees to process and supervise these loans.[40] In contrast, it has only 425 personnel with a budget of $27 million devoted to management assistance.[41] It is readily apparent that this program, like other federal programs, is heavily oriented toward financial assistance.

At this point, it is appropriate to put the federal program of management and technical assistance to small business into proper perspective. There are an estimated 9 to 10 million small businesses in the United States.[42] According to recent SBA estimates, each of these businesses receives an average of $2-3 in management and technical assistance.[43] This is hardly enough to have much impact upon the national rate of technological innovation. In contrast, approximately $600 million is devoted to managerial and technical assistance (and research) for farming in the United States.[44] It is probably no mere coincidence that American agriculture leads the world in both productivity and the rate of increase of productivity.

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[39] The Eugene (Oregon) Register Guard, June 30, 1977, § B, at 12.

[40] SBA FACTS, *supra* note 34, at 3.

[41] *Id.*

[42] *Id.*

[43] Warren, *supra* note 8.

[44] *Id.*

Previously, we defined the innovation process as a complex series of interdependent and interdisciplinary activities. Public policy must recognize the interdependent and interdisciplinary nature of these activities if it is to effectively and efficiently stimulate technological innovation. This is especially true in the case of small business. As noted previously, small business frequently lacks the interdisciplinary skills and resources to traverse the path to innovation. As a result, viable technology is frequently lost by the innovator through improper financial planning or inadequate attention to marketing. In short, the fruits of technological incentives can be lost in the latter stages of the innovation process through non-technological failures.

In recent years, the importance of the entrepreneur and small business appear to have gained some recognition in public policy. For example, under the Federal Non-Nuclear Energy Research and Development Act of 1974,[45] the National Bureau of Standards is directed to evaluate energy related inventions submitted by individual inventors and small companies for the purpose of obtaining direct grants from the Department of Energy.[46]

Horizontal Incentives for Non-Corporate Innovators

To correct this situation, financial assistance should be linked to managerial and technical assistance. That is, incentives to innovation should be applied horizontally (on an interdisciplinary, multi-stage basis) rather than vertically (on an intradisciplinary, single-stage basis).

In some cases, it might be necessary to extend such incentives to the user. For example, energy conservation now has a high national priority. Huge sums of money are now being allocated to energy research and development of energy conservation technology.[47]

In some cases, this will not be sufficient to bring about the implementation of this technology. To the extent this technology violates existing use patterns, requires user education or increases either short or long term costs, adoption of the technology might be

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[45] 42 U.S.C. § 5913 (Supp. V, 1975).

[46] *Id.*

[47] For example, Congress has authorized the expenditure of $1,175,671,000 for non-nuclear energy research, development and demonstration of fossil, solar, geothermal and other forms of energy, for energy conservation and for scientific and technical education programs; *see* Act of June 3, 1977, Pub. L. No. 95-39, 91 Stat. 180.

impeded.[48] In recognition of this problem, Congress has created the Energy Extension Service.[49] This service, patterned somewhat after the Cooperative Extension Service, is designed to increase user awareness of energy conservation and alternative energy technologies.

Another example of a horizontal incentive is the proposed Small Business Development Center Act.[50] This act would authorize funding for the establishment of a number of university-based centers to provide management and technical assistance to small business. While these centers are not specifically oriented toward technology-related small business, recognition of the need to tie financial assistance with management and technical assistance is inherent in the language of the legislation.

In the Public Interest

The concept that it is in the public interest to promote technological innovation is well established. However, the quest to protect the public interest in this area has sometimes been counter-productive. The patent system itself has long been the target for criticism of those adverse to "patent monopolies." In addition, publicly funded patentable inventions are frequently the target of special restrictive and sometimes discriminatory covenants in public law. For example, many states (and several federal agencies) require university inventors to disclose their inventions to the university. This, in turn, would disclose the invention to the sponsoring agency which may elect to grant non-exclusive licenses to all who are interested.

In many cases, the reaction of the faculty inventor is to refuse to disclose the invention or to publish findings, thereby placing the invention in the public domain. In the case of inventions requiring further commitment of R&D resources and effort the results are usually quite deadly. The absence of a patent monopoly, in effect, has destroyed the economic incentive for prospective innovators since many innovators would be reluctant to incur the cost and risk of innovation only to see the marketplace flooded with competitors as soon as the new product is established.

The same desire to protect the public by avoiding the grant of special economic advantages through the use of public funds has proba-

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[48] For a more complete discussion of these and other market-oriented barriers to innovation, *see* G. UDELL, M. O'NEILL & K. BAKER, GUIDE TO INVENTION AND INNOVATION EVALUATION (National Science Foundation, 1977).

[49] Act of June 3, 1977, Pub. L. No. 95-39, 91 Stat. 180.

[50] *See* S. 972, H.R. 5754 and H.R. 7261, 95th Cong., 1st Sess. (1977).

bly inhibited the development of a more effective and efficient means to stimulate technological innovation. Briefly, by providing incentives early in the innovation process, the results are available to anyone and the problem of special favors is avoided. This is an awkward situation since without specific management and technical assistance to the individual innovator, budding technology may wither and die; however, special assistance to some would put non-recipients at a competitive disadvantage, which obviously raises a moral issue.

Providing Latter Stage Incentives to Non-Corporate Innovation

This inspires the question of how latter stage incentives should be applied. Again, the complex nature of the innovation process provides a clue. Financial aid to individual innovators to acquire the necessary technical and managerial skills would be expensive, inefficient and perhaps ineffective. Similarly, as noted earlier, the marshaling of the necessary managerial and technical skills within the federal government is probably not appropriate. The most logical delivery mechanism for latter stage incentives appears to be the nation's universities and colleges and appropriate private sector institutions and firms. Universities and colleges are, by the nature of their function, interdisciplinary and amenable to providing educational consulting services to private sector innovators. Similarly, firms, foundations and associations focusing on innovation are also likely delivery mechanisms. Perhaps a disclaimer of sorts is appropriate at this point. Latter stage incentives in the form of management and technical assistance to small and mid-sized businesses is not a simple answer to a complex problem. Neither is federally sponsored innovation-related research. At present, public law incentives to innovation tend to be simplistic and incomplete. As a result, our rate of technological innovation falls short of the mark.

Conclusions

The patent system will continue to play a vital role in American technological innovation; so will scientific and technological basic and applied research. However, neither are sufficient to shore up the country's sagging rate of technological innovation. We need to learn more about the process through which new technology is developed and implemented.

Research into the innovation process will benefit both large and small business and will indirectly impact upon our rate of technological innovation. However, research alone is not likely to deter further

errosion of the rate of technological innovation in our economy. Public policy must recognize the complex nature of the innovation process and the realities of innovation in a modern complex economy. We cannot continue to rely on vertical incentives, but should provide horizontal incentives throughout the innovation process. This is not to say that the heavy expenditure of resources for research and development is inappropriate. Quite the contrary, the nature of the innovation process dictates that substantial investments in basic research and applied R&D are often required. However, it also suggests that horizontal incentives in the latter stages of the innovation process might be necessary to trigger technological innovation.

This does not mean that a massive public program of management and technical assistance to the private sector is necessary. The corporate problem regarding the rate of technological innovation probably cannot be corrected through management and technical assistance. Their problems are, in large part, attitudinal and are more closely tied to the "state of the art" in new product development. Corporate needs are better met through basic research into the nature of the innovation process and the development of better new product decision making tools. Publicly funded management and technical assistance should be reserved for those sectors of the economy which still exhibit an element of creativity and the entrepreneurial spirit necessary for technological innovation to become a reality.

These essential ingredients are found in the entrepreneurs and small businesses of the United States. Unfortunately, entrepreneurs and small business frequently lack the management and technical skills necessary to traverse the path to successful innovation. Hence, their effectiveness as technological innovators is diminished. This is a loss that society can ill afford. If it is to survive, society has no choice but to innovate. And innovation is, and has been since the founding of this country, a matter of public law. That law, however, must take on a new dimension.

Application of Article 36 of the Treaty of Rome to Intellectual Property: A Review of the Case Law*

BRYAN HARRIS**

1. Although this paper is concerned with the meaning and full implications of Article 36 of the Treaty of Rome, the substantive provisions, from which it affords some exceptions, are contained in article 30. Certain assumptions are therefore made as to the general meaning of article 30, governing the elimination of quantitative restrictions and of all measures having equivalent effect.[1] As it happens, article 36 is concerned with matters other than intellectual property; but, for the purposes of this paper the problems involved in, for example, the export of "national treasures possessing artistic, historic and archeological value" are not taken into consideration.[2]

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[1] *See* E.E.C. Comm. Dir. 70/50, 13 E.E.C. J.O. 29 (1970); *see also* Procureur du Roi v. Benoit et Gustave Dassonville, [1974] E.C.R. 837, 2 Comm. Mkt. L.R. 436 (1974).

[2] For example of a case involving "public health" in relation to article 36, see Public Prosecutor (Rotterdam) v. Adrian de Peijper and Centrafarm, 2 Comm. Mkt. L.R. 271 (1976). *See also* Note, 1 EU. L. REV. 469 (1976). This is not to be confused with the *Centrafarm* cases cited in note 37 *infra*. *See also* Commission v. Italy, [1968] E.C.R. 423, Comm. Mkt. L.R. 1 (1969).

Definition of Intellectual Property

2. Before discussing article 36 in detail, it is as well to determine exactly what the term "intellectual property" may be taken to comprehend. It is by no means universally accepted; nor indeed is it specifically referred to in the treaty itself. Where the term is used, it is generally taken to mean industrial property and artistic property, that is to say, patents, trade marks and the like, on the one hand, and copyright and related rights on the other. Certainly, this is the sense in which the term is understood by the World Intellectual Property Organization.[3]

3. However, article 36 speaks of "industrial and commercial property," which at first sight is a narrower concept than intellectual property. Industrial property is a familiar concept: it is in fact virtually defined in the Paris Convention for the protection of industrial property, where the object of protection is described as "patents, utility models, industrial designs, trade marks, service marks, trade names, indications of source or appellations of origin, and the repression of unfair competition."[4] It would be surprising if the European Court were to diverge materially from this definition; and although, in the *Sekt/Weinbrand* case, the Court rejected the German government's reliance on indications of source as a form of industrial property to invoke article 36, this was because it thought that the names in question failed to come within the definition of indications of source, not that indications of source failed to come within the definition of industrial property.[5]

4. Moreover, the use of the compendious phrase, "industrial and commercial property," though technically explicable on purely linguistic grounds, may perhaps enable the Court to go further than the definition contained in the Paris Convention. Several types of industrial property, in the commonly understood meaning of the term, are not yet covered by the Paris Convention, such as commercial secrets and "know-how";[6] but they are so closely on a par with the forms of

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[3] In the field of intellectual property, a distinction must be made between industrial property on the one hand, ... and literary and artistic property on the other ...." World Intellectual Property Organization, Document 415 (F), Geneva (1973).

[4] March 20, 1883; Stockholm version of July 14, 1967. World Intellectual Property Organization, Document 201 (E), Geneva (1974).

[5] Commission v. Germany, [1975] E.C.R. 181. Three names were involved: "Sekt," "Weinbrand" and "Prädikatsekt."

[6] On average, the Paris Convention is revised every fourteen years; since 1883, there have been revisions in 1900, 1911, 1925, 1934, 1958 and 1967. Current proposals

property now covered by the Convention that the Court might reasonably feel justified in treating them as such. Similarly, the law of copyright and analogous or associated laws ought as a matter of logic and equity to be treated likewise. It is worth noting that one of the leading cases in the field of intellectual property law coming to the attention of the Court of Justice of the European Communities — the *Deutsche Grammophon* case — related to rights in recorded material: not even strictly a case of copyright law, properly so-called, but of a right somewhat resembling it.[7]

General Object of Article 36

5. On a superficial view it is the object of article 36 to take intellectual property rights out of the scope of the provisions governing the free movement of goods within the common market. Since the disillusionment experienced by Van Zuylen Frères in their action against Hag AG, it is doubtful whether many legal advisors now regard article 36 as in any unqualified sense an escape route from the prohibitions contained in articles 30 to 34 on quantitative restrictions and measures having equivalent effect.[8] Certainly the first sentence of article 36 gives that initial impression; but it would be most unwise to belittle, still more to overlook, the importance of the second sentence. According to the Bible, the Lord hath given and the Lord hath taken away:[9] so too does article 36. The first sentence provides in effect that there are circumstances in which the need to protect intellectual property rights may override the need to respect the free movement of goods, while the second sentence provides in effect that there may be a further set of circumstances which reduces or nullifies the first set of circumstances. It is reasonable to suppose that the

for the revision of the convention are directed mainly towards the encouragement of developing countries, and are unlikely to result in a significant widening of the definition of industrial property.

[7] The words used by the Court are apparently non-committal: "Assuming that a right akin to a copyright can be covered by these provisions..." (*i.e.*, of article 36). In fact, the Court was safe in treating the right concerned as though it were an industrial or commercial property right, since it rejected the argument that a restriction on the free movement of goods was justified in the circumstances in question. *See* Deutsche Grammophon GmbH v. Metro-SB-Grossmärkte GmbH, Comm. Mkt. L.R. 631 (1971).

[8] Van Zuylen Frères v. Hag AG, [1974] E.C.R. 731, 2 Comm. Mkt. L.R. 127 (1974). Van Zuylens' disillusionment may have been modified by the reflection that, if Hag could invade Benelux, they might in turn be justified in invading Hag's own territory.

[9] Book of Job, 1, 21.

draftsmen of articles 30 to 36 of the treaty were not enthusiastic about the inclusion of exceptions to the principle of the free movement of goods. This supposition is reinforced by the tenor of the Court's judgments in the field.[10]

Analysis of Article 36

6. Even the first sentence of article 36 contains an important qualification, if looked at primarily as an escape clause. The article, shorn of its references to national treasures, public health and the like, reads as follows:

> The provisions of Articles 30 to 34 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of...the protection of industrial and commercial property. Such prohibitions...shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.

It will be noted that, even leaving aside the second sentence of the article, the protection of intellectual property is not an automatic reason for exemption from articles 30 to 34, since it is qualified by the important word "justified." It is, in fact, by no means self-evident that the mere need to protect intellectual property necessarily justifies that exemption in any particular case. In the last resort, the matter of justification is one for the European Court; and there is some indication that the Court is jealous of its powers in this respect.[11]

7. There is thus a first hurdle to be crossed in the first sentence of article 36. In the second sentence there are two more hurdles. One of these concerns the limitation of the free movement of goods in favor of the protection of intellectual property, where the limitation is used as a means of arbitrary discrimination. The fact that arbitrary discrimination may be somewhat difficult to prove may well be offset by the readiness of the Court, in individual cases, to infer it. Discrimination in this context is not explicitly restricted to national discrimina-

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[10] *See* Van Zuylen Frères v. Hag AG, [1974] E.C.R. 731, 2 Comm. Mkt. L.R. 127 (1974), Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, 2 Comm. Mkt. L.R. 480 (1974) and Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, 2 Comm. Mkt. L.R. 480 (1974).

[11] "The Court's task is to determine, by its case-law, the degree to which the exceptions permitted under Article 36 are justified.... The judge at Luxembourg, like his colleagues in the national courts, means to proceed step by step: extrapolating case-law is always a risky business." Address by Judge Mertens de Wilmars, Colloque de l'Union des Fabricants pour la Protection Internationale de la Propriété Industrielle et Artistique, Paris, November 6-7, 1976 [hereinafter cited as Mertens].

tion, which is in any case prohibited under the provisions of article 7.[12]

8. The other hurdle in the second sentence of article 36 presents a greater difficulty. If a limitation of the free movement of goods is used as a disguised restriction on trade between member states, then the possibility that in all other respects the limitation is justified by the protection of intellectual property will not suffice to bring that limitation out of the scope of articles 30 to 34. What precisely constitutes a "disguised" restriction is, once again, a matter for the Court to determine; the discretion of the Court, which is already introduced in the first sentence of article 36, is therefore reinforced in the second.

Case-Law on Article 36

9. On at least one point the European Court has been clear and unambiguous since the earliest decisions in the field of intellectual property law; namely, that article 36 does not prevent community law from having an influence on the exercise of industrial property rights under domestic law.[13] When this doctrine was first enunciated in the *Consten-Grundig* case, involving among other things the use of Grunding's international trade mark "GINT," it was in the context of a restrictive agreement falling within article 85, and the Court held that, while article 36 limited the application of the provisions on the liberalization of trade contained in title I, chapter 2, of the treaty, it did not limit the application of article 85. Since this paper is primarily concerned with the interaction of articles 30 and 36, article 85 is mentioned only in passing.[14] At the same time it is worth noting that, until quite recently, most of the cases coming before the Court and relating to intellectual property arose in connection with the rules on competition, rather than the prohibition of quantitative restrictions. This did not stop the parties to these cases pleading article 36, article 222 and various other articles of the EEC treaty, in support of their general contention that the protection of intellectual property justified a limitation on the competition rules.[15] Hence the relative

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[12] "Within the scope of application of this Treaty, and without prejudice to any special provisions contained therein, any discrimination on the grounds of nationality shall be prohibited . . . ."

[13] Establissements Consten and Grundig-Verkaufs GmbH v. Commission, [1966] E.C.R. 299, Comm. Mkt. L.R. 418 (1966).

[14] *See* text at paras. 10, 12 and 16 *infra*.

[15] *See, e.g.*, Establissements Consten and Grundig-Verkaufs GmbH v. Commission, [1966] E.C.R. 299, Comm. Mkt. L.R. 418 (1966) and Parke, Davis & Co. v. Probel et al, [1968] E.C.R. 55, Comm. Mkt. L.R. 47 (1968). Article 222 provides: " . . . this

abundance of case-law on article 36, even where articles 30 to 34 were not primarily at issue. In fact, article 36 is not wholly irrelevant to articles 85 and 86; as the Court said in the *Parke, Davis* case, articles 85 and 86 are "a comparable area" to that of articles 30 to 34.[16]

10. Although, in the *Consten-Grundig* case, the Court noted that Community law left intellectual property rights themselves "untouched" and that it limited their exercise only to the extent necessary to enforce the rules on competition, it was left to the *Parke, Davis* case, involving patents for the manufacture of an antibiotic called chloramphenicol, for a clear formulation of the distinction between the existence and the exercise of intellectual property rights.[17] For reasons which are discussed later in this paper, it can fairly be argued that the distinction is no longer necessary or useful.[18] At the time, however, it provided the opportunity for the Court to emphasize that the prohibitions contained in articles 85 (1) and 86, "viewed in possible conjunction with articles 36 and 222," did not affect the existence of rights granted by a member state to the holder of a patent of invention, and even that the exercise of such rights could not in itself be subject to those prohibitions in the absence of a restrictive agreement, decision or concerted practice, or of an abusive exploitation of a dominant market position. This conclusion was reached in the light of article 36. After quoting from the second sentence of article 36, the Court went on to say: "Thus, since the existence of a patent right at present depends entirely on domestic legislation, only the exercise of such a right could be subject to the rules of Community law . . .."[19]

11. Once again, the case was grounded in competition law but decided on the analogy, expressly recognized this time, between the rules on competition and the rules governing the free movement of

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Treaty shall in no way prejudice the rules in Member States governing the system of property ownership." It is even harder to invoke successfully than article 36. Article 234 was called in aid in the *Consten-Grundig* case, but summarily dismissed by the Court as irrelevant.

[16] Parke, Davis & Co. v. Probel et al, [1968] E.C.R. 55, Comm. Mkt. L.R. 47 (1968).

[17] *Id.* The Centrafarm company, well known for its role as plaintiff in the two cases cited in note 37 *infra*, and as defendant in the cases cited in note 2 *supra*, was one of the defendants in the *Parke, Davis* case.

[18] *See* text at para. 39 *infra*.

[19] The sentence continues: " . . . where the exercise of the right contributed to a dominant position whose abusive exploitation was likely to affect trade between Member States." It is submitted that, in the light of the passage quoted at para. 11 *infra*, the same principle applies *mutatis mutandis* to the exercise of the right constituting a disguised restriction on trade between member states.

goods. Indeed, the Court twice quotes the same passage from the second sentence of article 36, and in this instance the context in which the quotation appears foreshadows the views expressed in later cases:

> The national rules relating to the protection of industrial property have not yet been rendered uniform within the framework of the Community. In the absence of such a unification, the national scope of industrial property protection and the differences between the laws in this matter are likely to create obstacles both to the free movement of patented products and to competition within the common market. In the area of the provisions relating to the free movement of goods, import prohibitions and restrictions that are justified for reasons of industrial property protection are permitted by Article 36, but under the express condition that they 'shall not be used as a means of arbitrary discrimination nor as a disguised restriction on trade between Member States.' For similar reasons the exercise of the rights flowing from a patent granted under the laws of a Member State does not in itself violate the rules of competition set forth in the Treaty.

Much of this passage is repeated, word for word, in the judgment in the *Sirena* case.[20]

12. Like the *Parke, Davis* case, the *Sirena* case concerned the application of articles 85 and 86; but, unlike the former, it related to trade marks.[21] The principal trade mark under discussion was PREP, its use mainly connected with jars of medicated cosmetic cream. On several counts the case is of particular interest in a survey of the effects of article 36; first, in its reiteration of the need to unify or standardize intellectual property law within the Community; secondly, in its restatement of the principle of "existence" and "exercise"; and, thirdly, in its differentiation between the kinds of treatment afforded to certain categories of intellectual property. The first two points are clearly illustrated in the following passage from the judgment:

> Articles 85 *et seq.* of the Treaty do not expressly deal with the relationship between Community competition law and national laws relating to industrial and commercial property rights, specifically trade mark law. On the other hand, however, the national rules relating to the protection of industrial and commercial property have not yet been standardized within the Community frame-work, so that the national character of this protection could create obstacles both to the free movement of trademarked goods and to the Community competition system.
>
> For the provisions on the free movement of goods, Article 36 permits import prohibitions and restrictions that are justified on the grounds of protecting industrial and commercial property, but with the express proviso that they 'shall not be used as a means of arbitrary discrimination nor as a disguised restriction on trade between Member States.' Article 36, while it is included in the chapter on quantitative restrictions on trade between

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[20] Sirena S.r.l. v. Eda GmbH, Comm. Mkt. L.R. 260 (1971).

[21] *Id.*

> Member States, is based on a principle that can also find application to competition law in the sense that, while the existence of industrial and commercial property rights granted under the law of a Member State is not affected by Articles 85 and 86 of the Treaty, the exercise of such rights may come within the prohibitions contained in these provisions.

It should be noted, so far as the last few words are concerned, that the Court says the exercise of such rights "may" come within the prohibitions and not that it must necessarily or always come within them; this is an important difference.[22]

13. The third point of special interest in this context — namely, the differentiation between the kinds of treatment afforded to certain categories of intellectual property — is illustrated in the following passage from the judgment:

> The exercise of the trademark right is particularly apt to contribute to the partitioning of markets and thus to impair the free movement of goods between States, which is essential to the common market. In addition, the trademark right differs from other industrial property rights in that the things that are protected by the latter are often of greater importance and greater value than the rights deriving from a trademark.

It is unusual for the Court to be tempted to indulge in a subjective judgment of this sort.[23] However, it is submitted that the real significance of the Court's observation is this: that, when article 36 is prayed in aid of a party's case for exemption from articles 30 to 34, the onus of proving to the Court's satisfaction that the exemption is "justified" may rest not only on the criteria already mentioned (and expressly referred to in article 36) but also on the additional criteria

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[22] It may, however, be argued that a stricter application of the rule extends to cases involving the free circulation of goods than to cases involving the rules on competition and that therefore the former category of cases might well justify a more rigorous interpretation of the distinction between "existence" and "exercise." *See* text at para. 38 *infra*.

[23] At least the Court did not go so far as the tempter (the Advocate-General, M. Alain Dutheillet de Lamothe), whose contrasted trade marks most unfavorably with patents:

> Originally a trade mark served to guarantee for the consumer the quality of a product, but now it serves increasingly, as national laws show, simply to support an advertising campaign. From the human standpoint, surely the debt that society might owe to the 'inventor' of the name 'Prep Good Morning' is not the same, to say the least, as mankind's debt to the inventor of penicillin.

This is true; but, in economic terms, the importance of a device for cutting off the top of a hard-boiled egg (U.K. patent No. BP1 400 835) simply cannot be compared with, say, the importance of the trade mark "Shell."

of the category and relative importance of the intellectual property right concerned.

14. In the *Deutsche Grammophon* case, which followed soon after the *Sirena* case, a new concept — the "specific object" — was introduced into the Court's analysis of the effects of article 36.[24] According to the Court, "while Article 36 permits prohibitions or restrictions on the free movement of goods that are justified for reasons of industrial and commercial property protection, it permits exceptions from this freedom only to the extent that they are justified in order to safeguard rights that are the specific object of such property."[25] It was left to later cases to describe what precisely the Court meant by this expression.[26]

15. Meanwhile the Court provided in the *Deutsche Grammophon* case a clear statement of what it considered to be "arbitrary discrimination or a disguised restriction on trade" within the meaning of article 36.[27] On several counts the following passage is important:

> Where a right akin to a copyright is invoked to prohibit the sale in a Member State of products which are distributed by its owner, or with the owner's consent, in the territory of another Member State, for the sole reason that the distribution does not take place on the domestic territory, such prohibition, since it serves to separate national markets, conflicts with the essential goal of the Treaty, which is to merge the national markets into a single market. This goal could not be achieved if, because of the various legal systems of the Member States, nationals of these States were able to partition the market and bring about arbitrary discriminations or disguised restrictions on trade between Member States. That is why the exercise, by a producer of sound recordings, of the exclusive right under the laws of a Member State to distribute the protected products, in order to prohibit the sale in that State of products which were distributed in another Member State by the producer or with his consent, solely for the reason that such distribution did not take place in the territory of the first Member State, is contrary to the rules providing for the free movement of goods within the common market.

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[24] Deutsche Grammophon GmbH v. Metro-SB-Grossmärkte GmbH, Comm. Mkt. L. R. 631 (1971). *See* discussion at note 7 *supra*.

[25] It is probably no accident that the word "justified" is used twice in the same sentence. *See* Mertens, *supra* note 11.

[26] *See* Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, 2 Comm. Mkt. L.R. 480 (1974) and Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, 2 Comm. Mkt. L.R. 480 (1974).

[27] The statement is not exhaustive; but the types of case which it covers are wide. The Court did not differentiate between discriminations and restrictions in relation to the facts of the case, perhaps regarding it as a compendious phrase; but if it had differentiated, it would presumably have treated the facts primarily as constituting a disguised restriction on trade between member states.

An important element here is the first appearance of the expression "partition the market." This phrase is used even more emphatically in subsequent cases; already, however, in the *Deutsche Grammophon* case, it is evident that practices having the effect of partitioning the market are going to be hard to justify in terms of article 36.

16. It is tempting, when discussing the *Hag* case, which was the next to be considered by the Court in this field, to go well beyond the terms of reference of this paper.[28] There are, indeed, many aspects of the *Hag* case which are both interesting and controversial. However, since the object of this paper is to throw some light on the meaning of article 36, and not to dilate on some of the wider issues, the temptation has to be resisted. The case concerned the use in Luxembourg of a trade mark assigned by the original German proprietor as regards Belgium to a subsidiary which he had established and controlled but which became independent as a result of an act by a public authority. In Luxembourg the owner had a valid trade mark; the German owner of the identical mark had a registration valid in West Germany. When the latter delivered his coffee to Luxembourg retailers under the German trade mark, the former began infringement proceedings. Since there was no legal, financial, technical or economic link between the present proprietors, the Communities' rules on competition, as contained in article 85, were not applicable; and the case fell to be considered in the light of the rules relating to the free movement of goods.

17. The Court therefore referred to the prohibition contained in article 30 and to the exception therefrom contained in article 36, adding that it was shown by the latter article, in particular its second sentence, as well as by the context that while the treaty did not affect the existence of rights recognized by the legislation of a member state in matters of industrial and commercial property, the exercise of those rights might nevertheless, depending on the circumstances, be affected by the prohibitions in the treaty. At first sight, this is a mere repetition of the formula adopted in the *Deutsche Grammophon* case.[29] But in one minor respect and one major respect it is different. In the first place, the words "might . . . , depending on the circumstances, be affected by the prohibitions" are far more cautious, and stress more strongly the element of discretion, than the words "can . . . be subject to the prohibitions."

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[28] Van Zuylen Frères v. Hag AG, [1974] E.C.R. 731, 2 Comm. Mkt. L.R. 127 (1974).

[29] *See* discussion at note 22 *supra*.

18. In the second place, the Court now defines more precisely what the circumstances are, in which the exercise of intellectual property rights may be affected by the prohibitions in question. It does so by reference to what it now describes as the "specific object of this property" (an expression repeated and amplified in the *Centrafarm* cases):[30]

> Article 36 in fact admits exceptions from the free movement of goods only to the extent that such exceptions are justified for the purpose of safeguarding rights which constitute the specific object of this property. Thus the application of the legislation relating to the protection of trade marks at any rate protects the legitimate holder of the trade mark against infringement on the part of persons who lack any legal title.

In this passage from the Court's judgment in the *Hag* case, it is laid down in effect that the principle of the free movement of goods should not override the right, conferred on the owner of the trade mark by national laws, to take infringement proceedings against persons who have no right to use the trade mark at all. This is a narrow interpretation of the right flowing from the ownership of intellectual property, but is perfectly accurate within the context of this case. The problem lies in the use of the phrase "persons who lack any legal title."

19. There are at least three categories of persons against whom infringement proceedings are likely to be taken. First, there are those who have no title under any member state's laws to the intellectual property in question and no right to trade in the products to which the intellectual property rights apply; this category, which accounts for the great majority of infringement cases, is broadly unaffected by Community law and may be dealt with by national infringement procedures. Secondly, there are those who have no title under the laws of the member state in which infringement proceedings are taken, but who have a valid title under the laws of another member state. Thirdly, there are those who have no title under any member state's laws, but may have a right to trade in the products in question.[31]

20. The *Hag* case was concerned with the second of these two categories. In answering the point of law referred to it by the municipal court in Luxembourg, the European Court drew an implied distinction between cases in which the identical trade marks belonging

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[30] Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, 2 Comm. Mkt. L.R. 480 (1974) and Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, 2 Comm. Mkt. L.R. 480 (1974).

[31] *Id.* This third category was at issue in the *Centrafarm* cases; *see* text at paras. 23 to 26 *infra*.

to the respective owners have a common origin and cases where they do not. In the *Hag* case, the two trade marks were once in the same hands. The Court therefore concluded as follows:

> One cannot allow the holder of a trade mark to rely upon the exclusiveness of a trade mark right, which may be the consequence of the territorial limitation of national legislations, with a view to prohibiting the marketing in a Member State of goods legally produced in another Member State under an identical trade mark having the same origin. Such a prohibition, which would legitimate the partitioning of national markets, would conflict with one of the essential objects of the Treaty, which is to unite national markets in a single market.

Whether the distinction between trade marks which had a common origin and those which did not was either valid or permanent, or whether it was a fortuitous reflection of the peculiar circumstances of the *Hag* case, was a matter for much learned speculation during the period of nearly two years between the decision in the *Hag* case and the decision in the *Terrapin* case.[32]

21. Before leaving the *Hag* case, there is one other aspect of the judgment which has a bearing on the application of article 36. It has already been pointed out, in connection with the *Sirena* case, that for the purposes of article 36, the Court may attach a different degree of importance to different types of intellectual property.[33] In the *Hag* case, the Court reinforced its earlier reasons for treating trade marks more strictly than, say, patents. It did so on two grounds. First, the Court stressed the permanent character of the trade mark right: " . . . the exercise of a trade mark right tends to contribute to the partitioning of the markets and thus to affect the free movement of goods between Member States, all the more so since, unlike other rights of industrial and commercial property, it is not subject to limitations in point of time."[34] Secondly, the Court appears to have thought that, at least from the consumers' point of view, trade marks as such were not essential: " . . . while . . . the indication of origin of a product covered by a trade mark is useful, information to consumers on this point may be ensured by means other than such as would affect the free movement of goods."[35]

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[32] Terrapin (Overseas) Ltd. v. Fa. Terranova Industrie C.A. Kapferer & Co., 2 Comm. Mkt. L.R. 482 (1976). *See* text at para. 29 *infra*.

[33] *See* text at para. 13 *supra*.

[34] Not all forms of intellectual property are subject to a time limit: business names and indications of source, for example, are generally protected on a lasting basis.

[35] Such means might, however, be open to objections on other counts. Experience of the use of supplementary designations, for example, has rarely been altogether satisfactory.

22. Following the decision in the *Hag* case, another case intervened which, while it did not contribute substantially to the Court's interpretation of article 36, nevertheless deserves a mention; this was the *Dassonville/Scotch Whisky* case,[36] concerning Belgian rules on indications of source. Insofar as the rules made it more difficult for nationals of other member states to comply with the rules than for Belgians, the Court held that the rules constituted a measure having equivalent effect to a quantitative restriction; and, while indications of source were undoubtedly a form of intellectual property and their protection would legitimately be pleaded under article 36 as a possible justification for an exception to the prohibition of such measures, the Belgian rules could not be so justified if they were an arbitrary discrimination or a disguised restriction on trade between member states. The interest of the case in the context of this paper lies primarily in the fact that it was a government and not a holder of an intellectual property right relying on article 36 in defense of an alleged restriction on trade.

23. While the *Hag* case dealt with the category of infringements by persons who had no title under the laws of the member state in which infringement proceedings were taken but who had a valid title under the laws of another member state, it was left to the *Centrafarm* cases to deal with the category of infringements by persons with no title but with certain rights. These cases related to a patent for a medicament named *acidum nalidixicum* and a trade mark NEGRAM, respectively.[37] Sterling Drug holds patents for the product in the United Kingdom and in the Netherlands, and elsewhere; its subsidiary in the United Kingdom, Sterling — Winthrop Group Ltd., and the latter's subsidiary in the Netherlands, Winthrop BV, owned the British and Dutch trade marks. Centrafarm imported into the Netherlands and offered for sale products manufactured according to the patented method, some of which had the trade mark NEGRAM, without the agreement of Sterling Drug, from the United Kingdom and the Federal Republic of Germany, where they had been put on to the market in a regular manner by subsidiaries of Sterling Drug. In infringement proceedings against Centrafarm, Sterling Drug relied largely (and, in the Dutch courts, successfully) on the law in the

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[36] Procureur du Roi v. Benoit et Gustave Dassonville, [1974] E.C.R. 837, 2 Comm. Mkt. L.R. 436 (1974).

[37] Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, 2 Comm. Mkt. L.R. 480 (1974) and Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, 2 Comm. Mkt. L.R. 480 (1974).

Netherlands to the effect that a patentee's right to protect his patent was not affected by the marketing of the patented product in another member state. However, the European Court held that, while this law might justify (in the sense of article 36) a restriction on the free movement of goods in cases in which the product was not patentable and had been manufactured by third parties without the consent of the patentee, and in cases in which there existed patents, whose original proprietors were legally and economically independent, it was not justified in the present circumstances. There was a similar finding, *mutatis mutandis,* in respect of trade marks. The reasoning was as follows.

24. In the first stage of the argument, the Court repeats exactly the principles which it set out in the *Hag* case governing the application of article 36, the distinction between the existence and the exercise of intellectual property rights and the justification of restrictions by reference to the specific object of this property.[38] There is no need to repeat the argumentation here.[39] In the second stage of the argument, the Court defines the specific object of the property; and here there is a difference, not only between the two *Centrafarm* cases (which was not surprising, since one dealt with patents and the other with trade marks) but also between the second *Centrafarm* case and the *Hag* case (both of which dealt with trade marks).[40] Whereas, in the *Hag* case, the Court had been content with a brief allusion to the right to oppose infringements, it expatiated more freely and, so far as patents are concerned, more positively, in the *Centrafarm* cases. Thus, in relation to patents,

> ... the specific object of the industrial property is the guarantee that the patentee, to reward the creative effort of the inventor, has the exclusive right to use an invention with a view to manufacturing industrial products and putting them into circulation for the first time, either directly or by the grant of licenses to third parties, as well as the right to oppose infringements, [while in relation to trade marks] the specific object of the industrial property is the guarantee that the owner of the trade mark has

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[38] Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, at paras. 7-8, 2 Comm. Mkt. L.R. 480, at paras. 7-8 (1974), Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, at paras. 6-7, 2 Comm. Mkt. L.R. 480, at paras. 6-7 (1974) and Van Zuylen Frères v. Hag AG, [1974] E.C.R. 731, at paras. 8-9, 2 Comm. Mkt. L.R. 127, at paras. 8-9 (1974).

[39] *See* text at paras. 17 and 18 *supra.*

[40] Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, at para. 9, 2 Comm. Mkt. L.R. 480, at para. 9 (1974), Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, at para. 8, 2 Comm. Mkt. L.R. 480, at para. 8 (1974) and Van Zuylen Frères v. Hag AG, [1974] E.C.R. 731, at para. 10, 2 Comm. Mkt. L.R. 127, at para. 10 (1974).

> the exclusive right to use that trade mark, for the purpose of putting products protected by the mark into circulation for the first time, and is therefore intended to protect him against competitors wishing to take advantage of the status and reputation of the trade mark by selling products illegally bearing that trade mark.

25. In the third stage of the argument, a new element comes in, which was not at issue in the *Hag* case. This concerns the limitation on the right to take action for infringement once the patented or trade marked goods have been placed on the market; or, to express it in a slightly different way, the recognition of the right of a third party to market the patented or trade marked goods, without risk of an infringement action, once certain conditions have been fulfilled. The principal condition is that the goods should have been marketed in the first place by the owner of the patent or trade mark or with his consent. As the passage relating to patents has already been quoted, the full reference to trade marks is as follows:[41]

> An obstacle to the free movement of goods may arise out of the existence, within a national legislation concerning industrial and commercial property, of provisions laying down that a trade mark owner's right is not exhausted when the product protected by the trade mark is marketed in another Member State, with the result that the trade mark owner can prevent importation of the product into his own Member State when it has been marketed in another Member State. Such an obstacle is not justified when the product has been put onto the market in a legal manner in the Member State from which it has been imported, by the trade mark owner himself or with his consent, so that there can be no question of abuse or infringement of the trade mark.

26. In the fourth stage of the argument, the Court repeats the now familiar observation on the partitioning of the markets; and in the final stage of the argument, the conclusion is reached that the exercise by a patentee or by the owner of a trade mark of the right which he enjoys under the legislation of a member state to prohibit the sale in that state of the patented or trade marked product, which has been marketed in another member state by the patentee or trade mark owner, or with his consent, is incompatible with the provisions of the EEC treaty on the free movement of goods within the common market.[42] Thus article 36 cannot be invoked in the name of the pro-

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[41] Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, at paras. 9-10, 2 Comm. Mkt. L.R. 480, at paras. 9-10 (1974). *See also* text at para. 24 *supra*.

[42] Centrafarm B.V. and de Peijper v. Winthrop B.V., [1974] E.C.R. 1183, at para. 12, 2 Comm. Mkt. L.R. 480, at para. 12 (1974) and Centrafarm B.V. and de Peijper v. Sterling Drug Inc., [1974] E.C.R. 1147, at para. 15, 2 Comm. Mkt. L.R. 480, at para. 15 (1974).

tection of intellectual property when in fact the intellectual property right concerned has been exhausted. Moreover, the test of exhaustion is the legitimate marketing of the product anywhere in the Common Market and not just in a single member state.

27. Before the landmark of the *Terrapin* decision was reached, two other cases in this field were dealt with by the European Court. The first of these has already been briefly mentioned; the effect of the Court's decision in the *Sekt/Weinbrand* case was that article 36 could not be relied upon, since the names concerned, though protected by laws in the Federal Republic of Germany, were not true indications of source and therefore not a form of intellectual property.[43]

28. The second case originally appeared to involve only the free movement of goods, but shifted its ground to the rules on competition as the proceedings followed their course; this was the *EMI/CBS* case, in which, so far as article 36 was concerned, the unusual factor was the marketing of products coming from a non-member state under a trade mark identical with a trade mark protected in a member state.[44] The Court's view was unequivocal: article 36 specifically refers to trade "between Member States"; the owner of the trade mark in the non-member state could not therefore claim that the exercise of a trade mark right in infringement proceedings against him was a disguised restriction on trade between member states, for although this constituted a measure having an effect equivalent to a quantitative restriction, it did not affect the free movement of goods between member states. The Court considered whether the marketing of the products within the Community by a subsidiary of the owner in a non-member state altered the position, but concluded as follows:

> In fact the protection of industrial and commercial property established by Article 36 would be rendered meaningless if an undertaking other than the proprietor of the mark in the Member State could be allowed to manufacture and market their products bearing the same mark since such conduct would amount to an actual infringement of the protected mark. The steps taken by the proprietor of a mark to prevent a person other than the proprietor of that mark in the Member State from manufacturing and distributing these products bearing the same mark cannot be classified as a means of arbitrary discrimination or as a disguised restriction on trade between Member States within the meaning of Article 36.

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[43] Commission v. Germany, [1975] E.C.R. 181; *see* discussion at note 5 *supra*. *See also* E.E.C. Comm. Dir. 70/50, art. 2(3) (s).

[44] EMI Records Ltd. v. CBS United Kingdom Ltd., 2 Comm. Mkt. L.R. 235 (1976); parallel Danish and German cases are reported at the same citation. *See also* Note, 1 EU. L. REV. 499 (1976).

29. This approach by the Court not only reflected a far more sympathetic attitude towards the rights of trade mark owners but also provided a clue to its reasoning in the subsequent *Terrapin* case.[45] Following the decision in the *Hag* case it was clear that it would only be a matter of time before a case came before the Court of Justice involving trade marks having an independent origin, and that the Court would then have a chance to place beyond all doubt whether the doctrine in the *Hag* case was indeed limited to trade marks having a common origin or whether it was to be substantially extended. This was precisely the issue in the *Terrapin* case. The question was referred to the Court in the following terms:

> Is it compatible with the provisions governing the free movement of goods for a firm, on the basis of its right to use a trade mark and a business name in one Member State A and established in that Member State, to oppose the importation of similar products originating from a firm established in another Member State B, where, first, these products have been carrying a trade mark in State B which is capable of creating confusion with the trade mark and business name which are protected in country A in favour of the firm established there; secondly, there is no connection between the two firms; thirdly, their national trade mark rights came into being separately and independently of one another (no common origin); and fourthly, at the present time there is no economic or legal link between the two firms?

30. There had been a history of litigation in a variety of courts between Terrapin and Terranova since the 1960s, but the reference to the European Court was from the Federal Court of Appeal in Karlsruhe, which had upheld a decision of the provincial Court of Appeal in Munich. This latter decision was as follows:

> The defendant is prohibited from using the name TERRAPIN within the territory of the Federal Republic of Germany (including Berlin) either as a trade mark or as a business name in respect of buildings comprising portable prefabricated parts assembled on site or comprising units made up of those parts, and particularly from using the name TERRAPIN in the form of the business name Terrapin (Overseas) Ltd., or the business name of its subsidiary Terrapin Systembau Nordeuropa GmbH., as well as from using the name TERRAPIN in advertisements, prospectuses, price-lists, business letters, circulars, invoices and other documents relating to the buildings in question or to the units comprising parts which go into the construction of the buildings.

31. At first sight the most attractive solution to the problem in the *Terrapin* case would have been a declaration that the two trade marks in question, judged by the standards generally prevalent within the Community, were not in fact confusingly similar; several

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[45] Terrapin (Overseas) Ltd. v. Fa. Terranova Industrie C.A. Kapferer & Co., 2 Comm. Mkt. L.R. 482 (1976).

parties making submissions to the Court hinted that this could be a convenient and acceptable outcome.[46] It is very much to the credit of the Court that the temptation to query the decision reached by the German courts was resisted, not only for the formal reason given by the Court — that "it has not been seized of any question on this subject" — but also because the fundamental problem raised by the Federal Court would simply have been deferred, leaving commerce and industry in prolonged doubt about the extent to which the *Hag* principle had to be applied. (Nevertheless, the Court makes it clear that in certain cases a firm's reliance on the risk of confusion "may possibly justify the application of Community law, particularly as regards Article 36 of the Treaty"; and it stresses the duty of the national judge in cases of this sort to enquire whether "arbitrary discrimination" or a "disguised restriction" is involved, and "to check in particular whether the rights in question are indeed being exercised by their owner and to do so with the same strictness, whatever the national origin of the alleged infringer.")

32. Having disposed of this preliminary point, the Court went on to rehearse the reasoning which it employed in the *Centrafarm/ Winthrop* case.[47] As in *Winthrop,* it held that the owner of an industrial and commercial property right protected by a member state's laws could not rely on those laws to oppose the importation of a product which had been legitimately marketed in another member state by the owner himself or with his consent. The Court then said that a similar rule applied to trade marks having a common origin:

> The same is true when the right concerned results from the division — whether voluntary or by reason of an act of state — of a trade mark right which originally belonged to a single owner. Indeed, under these circumstances, the essential function of the trade mark, that of providing for consumers a guarantee as to the identity of a product's origin, is already found to have been put in question by the division of the original right.

It is submitted that this is in fact a more convincing rationale of the judgment in the *Hag* case than the arguments used in the *Hag* case itself.[48] Moreover, the reason for it being more convincing may be that the Court had simply not made up its mind at the time of the *Hag* case whether or not it would extend the principle it enunciated

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[46] At first sight, this is what the submissions made on behalf of the Commission were proposing; but in fact the Commission was only postulating this solution for the purposes of an argument which came down firmly in favor of an affirmative answer by the Court to the question set out in para. 29 *supra.*

[47] *See* text at para. 24 *supra.*

[48] *See* text at para. 20 *supra.*

then to trade marks having a separate origin. In the *Hag* case, the Court was not called upon to pronounce on the latter point; so, intentionally or otherwise, and at the risk of being somewhat cryptic, especially about the essential function of the trade mark, the Court kept its options open for the future.

33. At all events, having said that article 36 could not be invoked to justify reliance on national law in opposing imports in cases of exhaustion of trade mark rights or in cases where the trade marks had a common origin, the Court in the *Terrapin* case firmly differentiated cases where the trade mark had originated independently:

> On the other hand, in the present state of Community law, an industrial and commercial property right may be legitimately pleaded, by virtue of the first sentence of Article 36 of the Treaty, in opposing the importation of products marketed under a designation which leads to confusion, where the rights in question have been introduced, by distinct and independent owners, under the authority of different national laws. Indeed, if in such a case the principle of free circulation of goods were to prevail over the protection afforded by the respective national laws, the specific object of industrial and commercial property rights would be jeopardized. In any given situation the reconciliation of the requirements of the free movement of goods with the respect due to industrial and commercial property rights must be effected in such a way that protection is afforded to the legitimate use of rights conferred by national laws, as regards prohibitions of importation, where they are 'justified' within the meaning of Article 36 of the Treaty, but is refused on the other hand in respect of any such abusive exercise of those rights as may lead to the maintenance or establishment of artificial partitions within the common market.

Since this passage seems likely to command fairly extensive support from practitioners in the intellectual property field, it would perhaps be churlish to lay too much stress on the fact that, while in previous cases the Court has condemned "the partitioning of the market," it now refers to "artificial partitions." The use of the word "artificial" in this context possibly helps to underline the distinction between the rules evolved in the *Deutsche Grammophon, Hag* and *Centrafarm* cases and the rules laid down in the *Terrapin* case; but it does not in itself help the practitioner to differentiate between the legitimate use and the abusive exercise of intellectual property rights.[49] There is no test of artificiality which helps to determine whether a practice is likely to satisfy the requirements of article 36 or not; rather, the fact that a practice fails to satisfy those requirements means that it is, *ipso facto,* artificial.

34. Nevertheless, whatever path the Court followed in reaching its destination, it felt able to answer the question submitted to it with a

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[49] *Cf.* text at paras. 15, 20 and 26 *supra.*

salutary affirmative and to hold that it was indeed compatible with the provisions of the EEC treaty relating to the free circulation of goods for a firm established in a member state to oppose, on the basis of a right to a trade mark or business name, protected by the laws of that state, the importation of products of a firm established in another member state and bearing, by virtue of the laws of that state, a designation leading to confusion with the trade mark and business name of the first firm; on condition, however, that there was no form of agreement restricting competition and no kind of legal or economic relationship between firms in question and that their respective rights had been created independently of one another.[50]

35. As a footnote to the foregoing comments, it is to be observed that the Court uses the phrase, "in the present state of Community law." In the ordinary way, the phrase might seem otiose; the Court is not, after all, concerned with some earlier and possibly superseded state of Community law, nor with some future and entirely hypothetical state of the law. It is, however, reasonable to suppose that the Court was to some extent influenced, and perhaps even encouraged to give an affirmative answer to the question submitted to it, by the fact that the Commission in its formal submissions to the Court had indicated its intention to publish proposals for legislation on a Community basis on trade mark law.[51] Already, in the *Parke, Davis* and *Sirena* cases, the Court had drawn attention to the need for legislation.[52] Now that there was a concrete proposal in the offing, the Court could afford to be more tolerant of intellectual property rights protected by national laws.[53] At the time of the *Hag* case, the Court might well have believed that the legislative institutions of the Community were dawdling over proposals for the integration of trade marks in a single trading unit and that it was being left to the Court to right single handed the battle to make a reality of the free circulation of goods; but at the time of its decision in the *Terrapin* case, the Court was reinforced by the knowledge of the Commission's plans, having been officially seized of them.

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[50] The reference to restrictive agreements is *ex abundanti cautela;* there was no question of an agreement in the *Terrapin* case.

[51] These have now been published by the Commission; *see Proposals for the Creation of an EEC Trade Mark,* 8 BULL. E.C. (Supp. 1976).

[52] *See* text at paras. 11-12 *supra.*

[53] Fortified, perhaps, by the assurance contained in the submissions by the Commission in the course of the case that special measures would be taken to deal with conflicts involving future national rights.

Conclusions

36. In the light of the case law on article 36, in so far as it applies to intellectual property rights, practitioners may find it helpful to bear in mind the following general considerations. First, the European Court is concerned with the establishment and functioning of the Common Market; it is helping in the creation of a single trading block having in the long run as few internal hindrances to commerce as there have been hitherto within individual member states. The Court can scarcely be expected to regard favorably exceptions to this principle. Even the exceptions specifically provided for in article 36 have to pass a series of severe tests before they can be accepted by the Court. They have to be "justified"; and the onus of justification is a heavy one. They have to take into account the fact that, as a matter of principle, article 36 has to be strictly interpreted.[54] They have to meet the entrenched objection that they result in a partitioning of the market, a state of affairs which is inconsistent with the idea of a single economic community and is generally abhorrent to the Court. They have to depend on the argument that the disadvantages of the territorial barriers created by the operation of national laws on intellectual property are offset by certain advantages peculiar to the individual case. Practitioners are sometimes surprised at the severity of these tests. They should not be. The whole purpose of creating a Common Market is to minimize the hindrances and dismantle the barriers. The Common Market does not end at Calais or Ventimiglia or Puttgarden, any more than England ends at the Trent or Denmark at Kørsor or Germany at the Main.

37. Secondly, subject to the foregoing comments, article 36 has to be interpreted by the Court on a discretionary basis in the light of individual circumstances coming to its attention. This stems partly from the very use of the word "justifies" in article 36 and is indeed suggested by the whole context of the word; it also stems partly from the language of the Court itself. It is reflected to a large extent in the *Hag* case, where the circumstances, to say the least of it, were not altogether typical of trade mark infringement cases. It is also reflected in the different emphasis which the Court has placed on the importance of different types of intellectual property. This discretionary power is important. For as many persons as are surprised by the severity of the tests implicit in article 36 there are those who are surprised that in practice article 36 permits any exceptions at all. Yet

[54] Commission v. Italy, [1968] E.C.R. 423, Comm. Mkt. L.R. 1 (1969). Although this case concerned article 36, it did not concern intellectual property rights.

it is precisely because of this discretionary power that the Court felt able in the *Terrapin* case to give an affirmative answer; in other words, to treat the *Hag* case as the limit to which it was prepared to allow Community rules on the free movement of goods to override national rules on the protection of intellectual property.

38. Thirdly, even where Community rules override national rules in this field, it is far from being the object of Community rules to prevent national legislation from granting intellectual property rights and from providing the means, within national boundaries, of enforcing them. This is probably the main reason for the Court making a distinction between the existence and exercise of the rights. Although it has a certain validity, there is a hint of sophistry about this distinction; and unfortunately it has given rise to a contrary sophistry, to the effect that, if the Court attacks the exercise of a right, it matters little that its existence is unimpaired. Mere existence, without the chance of exercise, so the argument goes, is a hollow advantage. This would be true if it were the whole of the exercise of the right which were vitiated by a decision of the Court; but in practice it is not. Even after the decisions in the *Deutsche Grammophon* case, the *Hag* case and the two *Centrafarm* cases, the extent to which Community rules override national rules, at any rate in terms of the number of infringement cases likely to be affected, is relatively circumscribed.

39. Fourthly, a more valid distinction than that between the existence and exercise of the intellectual property right is that between the specific object or subject matter of the right, and the adventitious characteristics which have to yield to the rules on the free movement of goods because they do not put that specific object at issue.[55] It is true, as has been well said, that the Court's definition of the specific object, particularly of trade marks, looks more to the procedural rights conferred on the proprietor than to the economic justification for conferring the rights in the first place; and this is regrettable, since it gives the impression that the Court has not hitherto been fully seized of the economic importance of intellectual property rights in what is, after all, the European Economic Community. However, it is undoubtedly the procedural right which enables the proprietor to protect his intellectual property; and it is evident from the case-law that the proprietor is fully entitled to take action against persons infringing his rights except where he relies on those rights to seek to prohibit:

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[55] Mertens, *supra* note 11.

(a) the sale in a member state of a product distributed by himself or with his consent in the territory of another member state, for the sole reason that the distribution does not take place on the domestic territory;

(b) the sale in a member state of a product legally bearing a trade mark in another member state, for the sole reason that an identical trade mark having the same origin exists in the first state; or

(c) the sale in the state in which he takes action of a patented or trade marked product which has been marketed in another member state by himself, by the patentee or trade mark owner concerned, or with his consent.

40. Fifthly, it is abundantly clear that, both as a method of reconciling the protection of industrial property with the rules on the free movement of goods and as a method of facilitating protection throughout the Common Market and thus encouraging intra-Community trade, measures of unification or harmonization in this field are urgently required. In the absence of such measures, the Court has in a sense been making the law itself; but the Court's decisions, important though they are, are no substitute for legislation, as the Court itself recognized in both the *Parke, Davis* and *Sirena* cases. Political decisions inhibited action by the Commission and Council from 1964 until at least 1969, and it has proved difficult to make up for lost time; but progress has been made. So far as patents are concerned, the laborious and extremely cumbersome process of preparing the European Patent Convention and Community Patent Convention has recently been completed, though it seems likely that they may need to be accompanied by directives for the harmonization of national laws, unless member states spontaneously rectify some of the discrepancies between their laws and the Community Patent Law. So far as trade marks are concerned, the legislative process within the Community may now be said to have begun.[56] So far as other forms of intellectural property are concerned, the Commission is preparing policies or measures in respect of indications of source, models and designs, commercial secrets and know-how, the protection of software and certain aspects of the law of copyright and associated rights and of the repression of unfair competition.[57] Implementation of these policies and measures may well affect the manner in which article 36 is applied in the future. But for the time being, in "the present state

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[56] *See Proposals for the Creation of an EEC Trade Mark*, 8 BULL. E.C. (Supp. 1976).

[57] *See* B. HARRIS, EUROPEAN PATENTS AT THE CROSSROADS (1976).

of Community law," it is submitted that, while article 36, so far as it relates to intellectual property, cannot easily be pleaded in support of a partitioning of the market, it is far from being a dead letter. Indeed, the result of the *Terrapin* case has done much to vindicate its existence.

Government Patents and the Public Interest

ROBERT VAN RAVENSWAAY*

The allocation of rights in patents arising from government sponsored research and development is generally governed by the Presidential Statement of Government Patent Policy.[1] Agencies with statutory mandates regarding patent rights interpret the government policy in light of their statutory requirements.

The government policy provides guidance to all executive departments and agencies on the procedures and policies to be followed in allocating rights in patents that arise from government sponsored research. The procedures are used by all agencies in one form or another.

The rights allocated are fairly simple. One side gets title to the patent (also called principal or exclusive rights) and the other side gets a nonexclusive, royalty-free license. The issuance of a patent gives the owner the legal right to sue others to enjoin them from practicing the subject-matter of the patent; so whoever holds title to the patent holds this right. Conversely, a nonexclusive license is a contractual agreement whereby the party holding title to the patent agrees not to sue the party granted the license, usually in return for royalties. The licenses provided under the Presidential policy are royalty-free, because both parties contributed to the creation of the patent so that the contribution of the party that does not receive title

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[1] 36 Fed. Reg. 16887 (1971); 3 C.F.R. § 1074 (1971-1975 compilation).

constitutes reasonable consideration for the license.

Procedurally, rights may be allocated at the time of contracting, or they may be allocated after an invention is identified. Generally, if the government plans to take title, the determination is deferred until after the invention is identified, since the contractor can always ask for greater rights than a nonexclusive license provides after the invention has been identified.

If the government takes title to the patent, there is little effect on the contractor. The government does not enforce patents which it holds, so no one is stopped from using them. If, however, the government grants an exclusive license under any of its patents, the licensee is able to enforce the patent. Under current practice, exclusive licenses are virtually never granted.

If the contractor takes title to the patent, the government holds a license and an array of other rights generally called "march-in" rights. The government march-in rights are specified in section 1(e) through (g) of the Presidential policy: (e) requires the contractor to make periodic reports on progress made in commercializing the invention; (f) permits the government to require licensing of third parties if the contractor is not commercializing the invention; (g) permits the government to require the licensing of third parties if the invention is required for public use by government regulation, if the invention is necessary to fulfill health or safety needs, or to fulfill other public purposes stipulated in the contract.

When the government takes a license under § 1(h) of the government policy it means that the government can make or have the invention made on its behalf. The agency may also license state and local governments to do the same.

Basic Issues in Government Regulation of Patent Ownership

The federal government spends more on research and development than all private American corporations combined.[2] Patents frequently result from government funded R&D. The basic concerns of government patent policy are to encourage the adoption of government sponsored technology, and to prevent private participants from gaining undue competitive advantage through participation in government sponsored R&D.

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[2] From 1970 to 1975 the average ratio shows the government spending 55% of all R&D money, industry spending 42%, and others spending 3%. *Hearings on Government Patent Policy Before the Subcomm. on Domestic and International Scientific Planning and Analysis of the House Comm. on Science and Technology*, 94th Cong., 2d Sess. 890 (1976) [hereinafter cited as *Hearings on Government Patent Policy*].

The arguments over the government policy generally follow one of two lines. The *license* advocates stress the problems of the government fostering the utilization of the technology that it owns. The *title* advocates stress the monopoly aspects of patents and contend the exercise of patent rights hurts the public.

The license advocates contend that the government's interest is best served if it takes a nonexclusive, royalty-free license. Their argument proceeds as follows: The government cannot contract for the making of inventions. It contracts for specific R&D work. The work is paid for regardless of whether or not an invention is produced. Whether one uses the non-obviousness test of invention or the flash of genius test, it is clear that an invention cannot be considered to be anticipated at the time that the contract is closed (unless it had already been constructively reduced to practice), so the invention could not have been the subject of the contract. Further, the contractor is selected for his expertise in the field and for his previous accumulation of facilities and trained personnel, so the equities of the situation do not flow exclusively toward the government for its funding of specific research. The license policy in this situation maximizes the incentives of the patent system, inducing prospective contractors to bring their background knowledge and commercial expertise to the service of the government, reducing the cost of government sponsored R&D. If an invention is made freely available to all, there is no incentive for anyone to exploit it. Since one of the economic justifications of the patent system is to encourage investment of risk capital to commercialize untried inventions, patents freely available to all make such investments difficult to justify. Patent rights can be critical for new and small businesses, much more so than for large corporations. A title policy would further reduce the ability of small businesses to compete with large corporations, thus restricting competition. The government will regain 50% of any "monopoly profits" gained on a patent through business taxation.

In contrast, the title advocates want the government to hold title to all patents resulting from government funded R&D work. If an invention is produced under a government contract, they argue, then it was bought and paid for like the research itself and is no different than any other end product. Hence, the government should own it, or it would be giving away public property. If the contractor retains the exclusive rights to the invention, then the public will be forced to pay for the invention twice. First, through the government's financing of the research and development; and second, by paying monopoly prices for the product in the commercial marketplace. If the contractors are

permitted to retain the exclusive rights, this will increase the concentration of economic power because most government R&D work is done with large corporations. Therefore, the inventions should be owned by the government and made freely available to all, since this open availability will lead to a broad case of utilization.

Under "Basic Considerations" in the Presidential policy, both title and license views are represented, so that each agency can choose whether to accept a title policy or a license policy by choosing the basic considerations that support their positions and giving them appropriate weight. Hence, in practice, each agency gives its own content to the Presidential policy.

Prior to the Second World War, there was no formal government policy regarding who was to hold the title to patents arising from government funded research and development. Instead, different agencies had adopted their own policies. Agencies such as the Departments of War and Navy acquired a royalty-free license for governmental purposes, leaving the contractor with title and exclusive commercial rights. Others, such as the United States Department of Agriculture (USDA) and the Department of Interior, had a policy of taking title to resulting inventions. Other agencies had no policy at all, which effectively left all rights in the contractor and none with the government. These policies seem to have emerged from agency usage in view of their orientation toward the public.[3]

In 1939, the total government expenditure for research was about $50 million, up from $20 million in 1920.[4] Most of this was spent in government laboratories run by various agencies. This was the area in which most of the legal controversies over patent rights arose. In a line of cases starting in 1870, the Supreme Court developed legal rules to allocate rights in inventions made by government employees.[5]

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[3] ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, THE PATENT POLICIES AFFECTING ERDA ENERGY PROGRAMS 216 (1976) [hereinafter cited as ERDA REPORT].

[4] UNITED STATES DEPARTMENT OF JUSTICE, 1 INVESTIGATION OF GOVERNMENT PATENT PRACTICES AND POLICIES: REPORT AND RECOMMENDATIONS OF THE ATTORNEY GENERAL TO THE PRESIDENT 14 (1947) [hereinafter cited as 1 ATTORNEY GENERAL'S REPORT].

[5] The earlier cases dealt with patents held by two Army officers, neither of whom was employed for research purposes; neither was able to recover royalties for governmental use. United States v. Burns, 79 U.S. 246 (1870) [tents]; United States v. Palmer, 128 U.S. 262 (1888) [infantry accoutrements]. In Solomons v. United States, 137 U.S. 342 (1890), recovery was denied because Solomons had been hired

The issue dealt with in these cases was the determination of when the law of employer-employee relationships would imply an assignment of employee inventions. In the 1933 case of *United States v. Dubilier Condenser Corporation,*[6] the Supreme Court summarized the standards it had formulated.

> One employed to make an invention, who succeeds, during his term of service, in accomplishing that task, is bound to assign to his employer any patent obtained. The reason is that he has only produced that which he was employed to invent. His invention is the precise subject of the contract of employment. A term of the agreement necessarily is that what he is paid to produce belongs to his pay-master . . . .On the other hand, if the employment be general, albeit it covers a field of labor and effort in the performance of which the employee conceived the invention for which he obtained a patent, the contract is not so broadly construed as to require an assignment of the patent . . . .
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> The reluctance of courts to imply or infer an agreement by the employee to assign his patent is due to a recognition of the peculiar nature of invention . . . .It is the result of an inventive act, the birth of an idea and its reduction to practice; the product of original thought; a concept demonstrated to be true by practical application or embodiment in tangible form . . . .
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> Though the mental concept is embodied or realized [physically] . . .the embodiment is not the invention and is not the subject of a patent. This distinction between the idea and its application in practice is the basis of the rule that employment merely to design or to construct or to devise methods of manufacture is not the same as employment to invent. Recognition of the nature of the act of invention also defines the limits of the so-called shop-right, which shortly stated, is that where a servant, during his hours of employment, working with his master's materials and appliances, conceives and perfects an invention for which he obtains a patent, he must accord his master a non-exclusive right to practice the invention . . . .This is an application of equitable principles.[7]

Faced with the reluctance on the part of the courts to imply an assignment of patent rights, some agencies required an assignment as a condition of employment. The earliest regulations were promulgated by the Secretary of Agriculture in 1905, requiring public dedication of all inventions made by employees.[8] The War and Navy De-

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to invent that which he patented. Gill v. United States, 160 U.S. 426 (1896), affirmed and applied *Solomons*. In Standard Parts v. Peck, 264 U.S. 52 (1924), the *Solomons* reasoning was applied to private employment. For an excellent discussion of the subject see Finnegan & Pogue, *Federal Employee Invention Rights: Time to Legislate*, 40 J. PAT. OFF. SOC'Y 252, 322 (1958).

[6] 289 U.S. 178 (1933).

[7] *Id.* at 187-188.

[8] UNITED STATES DEPARTMENT OF JUSTICE, 2 INVESTIGATION OF GOVERNMENT PATENT PRACTICES AND POLICIES: REPORT AND RECOMMENDATIONS OF THE ATTORNEY GENERAL TO THE PRESIDENT 7 (1949) [hereinafter cited as 2 ATTORNEY GENERAL'S REPORT].

partments adopted regulations after World War I that followed the common law development of the Supreme Court, but effectively left title with the employee-inventor, subject to a license in the government. Other agencies followed in the late 1930s and during the Second World War.[9]

The differing approaches of the Department of Agriculture and the Departments of War and Navy reflected their divergent perceptions of the role of patents in fulfilling the missions of their agencies. USDA has always been oriented toward serving the agricultural sector of the population, a sector forced to sell at wholesale and buy at retail. The subject-matter of patents arising from their work would only have application for the general public; hence, the retention of a shop-right had little use. The Departments of War and Navy, on the other hand, were generally the ultimate consumers of the subject-matter of patents arising under their research. They had no commercial intentions, but did not want to have to pay royalties to their employee-inventors; the retention of a shop-right was sufficient to fulfill their interests. If the patent could then be adapted to commercial use, so much the better, as that would be an unexpected by-product of the research.

The military agencies, in time, extended their policies to include patents developed under research contracts, simply taking royalty-free licenses.[10] USDA, and other agencies with civilian orientation, however, preferred to take title to resulting patents.

These differing policies might have co-existed for a long time, but several events occurred to bring them into collision. The first was the spectacular hearings conducted by the Temporary National Economic Committee (TNEC) in the late 1930s.[11] As part of its investigation of the concentration of economic power, the Committee spotlighted certain patent abuses, such as those conducted by Hartford-Empire, which used basic patents on equipment to make glass bottles to regiment an entire industry with precise allocations of territory, fields of

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[9] *Id.* at 22-27.

[10] *Id.* at 78-87.

[11] *Hearings on the Concentration of Economic Power Before the Temporary National Economic Comm.*, 75th Cong., 3d Sess. (1939). For an exhaustive, albeit flowery, account of the patent system's history see W. HAMILTON, PATENTS AND FREE ENTERPRISE (TNEC Monograph No. 31, 1941). This monograph was prepared under the auspices of the Temporary National Economic Committee, an inter-governmental task force with members from the Senate, House of Representatives and the executive branch. Thurman Arnold was very active in this committee.

manufacture and prices.[12] Not surprisingly, concern began to grow that patents resulting from government sponsored research might contribute to this concentration and work against the public interest.[13]

The second event which precipitated the collision of the differing policies was the Second World War. Funding of research and development skyrocketed from $50 million in 1938 to $700 million in 1944, with another $200 million spent on the Manhatten Project.[14]

This increase in expenditures, coupled with the TNEC revelations, created pressures for a uniform policy. Senator Kilgore introduced legislation[15] to require the government to take title to any invention resulting from research supported with "any money, credit, physical facilities, or personnel" from the federal government; concurrently, President Roosevelt authorized two studies of patent policy. Senator Kilgore's bill never passed; but the studies authorized by the President produced new fuel for the controversy as they reached opposite conclusions.

The first study was conducted by the National Patent Planning Commission, established in 1941 to investigate the patent abuses shown by TNEC. The commission issued its second report in 1943,[16] concluding that full ownership of patents should not normally be asserted by the government, although it should take a royalty-free license. It recognized, however, that a uniform contract clause to this effect was unrealistic, and that ownership of inventions resulting from such contracts should be established in light of the applicable circumstances.

The commission further determined that patents owned by the government should be available on an exclusive basis in cases where the

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[12] Hartford-Empire's practices were stopped by the Antitrust Division immediately thereafter. *See* United States v. Hartford-Empire Co., 46 F. Supp. 541 (N.D. Ohio 1942), *modified*, 323 U.S. 386 (1945). *See also* P. AREEDA, ANTITRUST ANALYSIS § 448 (2d ed. 1974) for a description of Hartford-Empire's use of patents to regiment and control the glass container industry.

[13] Thurman Arnold was undoubtedly the motivating force that has led the Antitrust Division into the continuing battle with the patent system. *See* Arnold, *The Abuse of Patents*, in PATENT PROPERTY AND THE ANTI-MONOPOLY LAWS 565-580 (Barnett ed. 1943). He felt that German cartels had manipulated patents so as to keep America unprepared for World War II.

[14] 1 ATTORNEY GENERAL'S REPORT, *supra* note 4, at 14.

[15] S. 702, 78th Cong., 1st Sess. § 7 (1943).

[16] They issued three reports, of which the second dealt solely with government patent policy. SECOND REPORT OF THE NATIONAL PATENT PLANNING COMMISSION, H.R. DOC. NO. 22, 79th Cong., 1st Sess. (1945).

invention would not otherwise come into general use. Examining the government licensing policy of granting only nonexclusive licenses, the commission observed:

> It often happens, however, particularly in new fields, that what is available for exploitation by everyone is undertaken by no one. There undoubtedly are government-owned patents which should be made available to the public in commercial form but which, because they call for substantial capital investment, private manufacturers have been unwilling to commercialize under a nonexclusive license. Accordingly, it seems evident that the government has been handicapped in its effort to further the promotion and development of some of its inventions to the point where they are available to the public in the form of a commercial product.[17]

The commission then quoted statements by the Department of Agriculture, the Secretary of War and the Director of the Office of Scientific Research and Development which made the same point.[18]

The second study was conducted by the Department of Justice, starting in 1943; the intent of the study was to investigate government patent policies and practices and to recommend a uniform policy for the entire government. The final report was submitted to President Truman in 1947, and included seventeen monographs on the practices of various agencies, foreign government practices, practices of educational institutions and applicable law.[19]

The report advocated the establishment of a centralized Patents Administration within the government headed by a Patents Administrator who would implement a uniform patent policy. The study recommended that all government research and development contracts contain a clause specifying that the government is entitled to all rights in inventions produced under the contract, except in those instances where inclusion of this clause would make cooperation with industry impossible and where the contractor had made an independent contribution. In the case of cooperative arrangements, it was suggested that exceptions could be made. The minimum government rights in those circumstances would be the retention of a royalty-free license and of "march-in rights" to be exercised if the invention was not being used.[20]

Throughout the report there was an assumption that to leave pat-

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[17] *Id.* at 3-4.

[18] *Id.* at 4-5.

[19] UNITED STATES DEPARTMENT OF JUSTICE, INVESTIGATION OF GOVERNMENT PATENT PRACTICES AND POLICIES: REPORT AND RECOMMENDATIONS OF THE ATTORNEY GENERAL TO THE PRESIDENT (1947).

[20] 1 ATTORNEY GENERAL'S REPORT, *supra* note 4, at 4-5.

ents which resulted from government sponsored research in the hands of private industry would work against the public interest. It is this extreme concern over patent misuse which forms the basis of the position that government should take title to inventions resulting from government sponsored research as often as possible:

> Because suppression, restricted use, or licensing at a royalty fixed in the patent owner's interest, are potential concomitants of private ownership of the patent, it follows that the patent rights should be entrusted to the government in respect of any technology resulting from its operations.[21]

In short, the scientist's concern over utilization is subordinated to the lawyer's concern over economic concentration.

This concern on the part of the report's authors became even more apparent in their consideration of patent licensing. The authors conceded that the availability of exclusive licenses for some inventions would accelerate utilization, but concluded, without citing support for this proposition, that exclusive licenses would enhance the competitive position of large corporations; they further concluded that it would be impossible to grant such licenses to new or small businesses,[22] and therefore that

> all government-owned inventions should be made fully, freely, and unconditionally available to industry, science, and the public . . .[e]ither by offering royalty-free, non-exclusive licenses to all applicants, or by public dedication of the invention.[23]

They suggested that publicity and further government financed development would lead to utilization.

The Attorney General's recommendation that the government take title to employee inventions was implemented on a uniform basis by President Truman in 1950.[24] Yet, contractor's rights remained a subject of controversy, with the commission report bolstering the license advocates and the Attorney General's report supporting the title advocates.

Between 1950 and the issuance of the first Presidential policy in 1963, Congress took action on this subject by writing patent policies into the enabling legislation of some programs. Both the Atomic Energy Commission (AEC)[25] and the National Aeronautics and Space

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[21] *Id.* at 30.

[22] *Id.* at 119-120.

[23] *Id.* at 130.

[24] Exec. Order No. 10096, 3 C.F.R. § 292 (1949-1953 compilation), 35 U.S.C. § 266 (1970); *see also* text at n. 70 *infra*.

[25] 42 U.S.C. § 2182 (1970).

Administration (NASA)[26] legislation provided that title to inventions was to vest in the government; there were, however, provisions for waiver of those rights in appropriate circumstances. The National Science Foundation (NSF) was ordered to allocate invention rights "in a manner to protect the public interest and the equities of the individual or organization with which the contract or other arrangement was executed."[27]

Other policies were enacted for specific programs, such as coal research[28] and saline water conversion,[29] both programs conducted by the Department of the Interior. These authorizations stated that research results should be made "available to the general public."

Given the diversity of government research and the inevitable overlap among departments, this fragmented approach caused problems. For example, a contractor might be under contract to perform similar research for NASA and Department of Defense (DOD), yet find that NASA required an assignment of patent rights, while DOD simply required a license.

The Presidential Patent Policy

In 1963, President Kennedy issued a patent policy[30] that attempted to reconcile the differences between the title and license advocates by seeking a middle ground between the two. The compromise policy had two major objectives: first, to create a consistent government-wide patent policy, which would take into account the differing missions of the various agencies, subject to statutory requirements; and second, to create common guidelines for the allocation of invention rights in a manner that would best serve the public interest. Specifically, the guidelines were designed to achieve rapid development and commercialization of government sponsored inventions; to obtain the cooperation of industry in assisting the government in its sponsored R&D; and to ensure that the rights were not distributed in such a manner as to concentrate economic power in any one industry or to otherwise substantially interfere with free competition in commercial markets. The operation of the policy was to be monitored by the Federal Council for Science and Technology.

Basically, the policy required the government to acquire title to

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[26] 42 U.S.C. § 2457 (1970).

[27] 42 U.S.C. § 1871(a) (1970).

[28] 30 U.S.C. § 666 (1970).

[29] 42 U.S.C. § 1954(b) (1970).

[30] 28 Fed. Reg. 10943 (1963).

inventions arising from research sponsored by civilian-oriented agencies, and to acquire a royalty-free license for inventions arising from research for direct governmental use (such as most military R&D). The title could be waived if the invention was incidental to the purpose of the contract. There was no provision for exclusive licensing of government owned patents.

In practice, the title and license groups operated as before. However, some civilian agencies found that they were acquiring title to various inventions which they were not capable of commercializing, since they could not waive title to inventions which were within the purpose of the contract.[31]

In the mid-1960s the Federal Council hired Harbridge House to conduct a major study of the factors that affect the utilization of government owned inventions, participation of industry in government R&D programs, and competition in commercial markets. The study, delivered in 1968,[32] concluded that the critical factors are the mission of the research sponsoring agency; the purpose and nature of the contract; the commercial applicability of and market potential for the invention; the extent to which the invention was developed by the research sponsoring agency; the promotional activities of the sponsoring agency; the prior commercial experience of the contractor in the field of the invention; the size of the contractor's privately financed R&D in the field of research; the contractor's attitude towards the capability to commercially promote the invention; and the size, nature and research orientation of the industry that will be using the invention commercially.[33] These conclusions are noted in point (b) of the memorandum that accompanied the patent policy of President Nixon.

The Committee on Government Patent Policy of the Federal Council for Science and Technology in turn made recommendations for changes in the Presidential policy after reviewing the Harbridge House conclusions.[34] The major change suggested was a revision of

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[31] *See* FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY, ANNUAL REPORT ON GOVERNMENT PATENT POLICY 15-16 (1972). This is not actually printed annually. It is an excellent source of data on government patent practices.

[32] HARBRIDGE HOUSE, GOVERNMENT PATENT POLICY STUDY, in FINAL REPORT OF THE FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY COMMITTEE ON GOVERNMENT PATENT POLICY (1968).

[33] FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY COMMITTEE ON GOVERNMENT PATENT POLICY, REPORT AND RECOMMENDATIONS ON GOVERNMENT PATENT POLICY 55-56 (unpublished), reprinted in ERDA REPORT, *supra* note 3, at Appendix A:4.

[34] *Id.*

section 1(a) of the Presidential policy; although the presumption of title in the government remained, the policy was altered to permit waiver of title after the invention was identified, if deemed necessary as an incentive to obtain private risk capital to commercialize the invention. A second major change was the recommendation that government held patents be licensed exclusively if necessary to achieve commercialization.

It was thought that these changes would provide a flexibility to government patent handling that had not previously existed. This meant that the agencies could take title to inventions at the time of contracting, but then later determine that title should be waived if waiver would facilitate delivery of the invention to the persons or industries that needed it. Unfortunately, the process contemplated did not function smoothly.

On August 23, 1971[35] President Nixon issued the revised patent policy which embodied the changes recommended by the Committee on Government Patent Policy. The new policy elicited favorable comment in most areas, particularly because it permitted exclusive licensing of government patents.

However, when the General Services Administration (GSA) issued proposed regulations to implement the new policy,[36] the exclusive licensing provisions were challenged by Public Citizen, Inc., a Ralph Nader group. The grounds for the challenge were constitutional. It was argued that under article IV, section 3, clause 2, only Congress has the power to dispose of property of the United States; without statutory authorization, GSA could not grant exclusive licenses on patents held by the government without abrogating this provision. The district court agreed with Public Citizen's argument and ordered GSA to rescind the regulations.[37] However, the appellate court dismissed the action for lack of standing, so the issue was never conclusively resolved.[38]

GSA finally issued its regulations in 1975,[39] without the provisions for exclusive licensing. These regulations were designed to be flexible; the drafters contemplated that the contractor would be able to negotiate, in certain circumstances, for exclusive rights before con-

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[35] 36 Fed. Reg. 16887 (1971); 3 C.F.R. § 1074 (1971-1975 compilation).

[36] 38 Fed. Reg. 23782 (1973).

[37] Public Citizen v. Sampson, 180 U.S.P.Q. 497 (D.D.C. 1974). The regulations were withdrawn at 39 Fed. Reg. 6110 (1974).

[38] Public Citizen v. Sampson, 515 F.2d 1018 (D.C. Cir. 1975).

[39] 41 C.F.R. § 1-9 *et. seq.* (1977).

tracting and even after the invention was identified. Under these regulations the government retained a nonexclusive royalty-free license, and the contractor retained a *revocable,* nonexclusive royalty-free license.[40]

The major difficulty with these regulations is that they impose a potentially massive administrative burden on all parties involved. Some agencies have clearly developed expertise in handling patent matters and endeavor to expedite the processing of waiver requests. Other agencies make decisions by committee and can take six months or more to arrive at a determination. More importantly, each agency has its own interpretation of the meaning of the policy, particularly with respect to interpretations of such sticky phases as "serve the public interest," which is used numerous times in the policy statement.

In point (D) of the basic considerations of the policy, the public interest is said to involve an economic test which balances the use of patent incentives for promoting private initiatives against the need to promote healthy competition. In some parts of the government, patents are seen as an inherent threat to competition that should be used sparingly. According to the Justice Department:

> [C]ompetitive policies emphasize the desirability of providing private patent monopolies only when necessary to achieve important public objectives....
>
> ....
>
> [The] basic policy of competition in our economy means that the creation of any exclusive rights, beyond those shown to be required, are unduly restrictive and therefore unwarranted.[41]

Opponents of the waiver policy frequently cite an instance where a contractor with the Department of Health, Education and Welfare (HEW) was allegedly granted exclusive rights in an invention even though another company requested a nonexclusive license. The invention involved in this case was an artificial kidney device. The company that gained the exclusive rights had committed substantial resources toward commercialization and was willing to spend an additional $800,000 to make the invention available commercially within 6 months if they obtained an exclusive license. The notice of application was placed in the *Federal Register* and another firm offered to develop the kidney device under a non-exclusive license. It was discovered that this latter firm was the dominant firm in the

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[40] 41 C.F.R. § 1-9.107-3(e)-(h) (1977) [minimum government rights]; 41 C.F.R. § 1-9.107-4(i) (1977) [minimum contractor rights].

[41] ERDA REPORT, *supra* note 3, at Appendix A:5 1-10.

field. Knowing that the first firm would not develop the invention without exclusivity, the latter firm offered to do so under a nonexclusive license — apparently to forestall competition, evidenced by their contention it would still take over 4 years to get the product onto the market. HEW granted the exclusive license, noting that this agreement would serve competition; ironically to have granted a nonexclusive license to the dominant firm would have enhanced its controlling position in the market.[42]

The contention that nonexclusive, nondiscriminatory, royalty-free licensing of government owned patents will best serve competition flies in the face of experience. Patent rights are much more valuable to new or small businesses than they are to large corporations. There are research and development contracts specifically set aside for small businesses, and as a result there has been a steady stream of new companies spinning off from universities.[43] These small businesses would be adversely affected if the government took title and then licensed nonexclusively.

Furthermore, the R&D components of many large corporations are frequently profit centers. Since they are not engaged in direct manufacture, they license patents on a nondiscriminatory basis to all comers, although the parent company may use it exclusively for several years.[44]

The Scope of Government Policy

The Presidential patent policy applies to "contracts, grants, agreements, and other arrangements where a purpose of the instrument is the conduct of experimental, developmental or research work."[45] However, the regulations adopted by GSA pursuant to the policy apply only to *contracts* where a purpose is the conduct of experimental, developmental or research work. The regulations "may also be used in grants, agreements, and other arrangements as agencies deem appropriate."[46] Thus, the agencies can select the instrument which best serves their needs in a particular instance.

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[42] *Id.* Appendix C:2 178-197 contains a detailed investigation of the facts of the case.

[43] Silicon Valley near Stanford and Route 128 businesses near Boston are the standard examples.

[44] MARKHAM, PATENTING AND LICENSING POLICY AND PRIVATE SECTOR PARTICIPATION IN ENERGY RESEARCH AND DEVELOPMENT 65-67 (Energy Research and Development Administration, 1977).

[45] This is the definition of "contract" in § 4(e) of the Presidential policy.

[46] 41 C.F.R. § 1-9.100 (1977).

Only one executive statement bears directly on grants; the statement provides that an agency shall determine rights in inventions and their disposition, unless there is an agreement to the contrary between the agency and the grant recipient. In the absence of such agreement, the rights "shall be allocated and administered in order to protect the public interest consistent with" the Presidential policy.[47]

The Presidential policy also influences demonstration projects, incentive programs such as loans, loan guarantees and price supports, the use of agency facilities by private parties and interagency agreements. The Energy Research and Development Administration[48] (ERDA) was forced to consider the relationship between R&D and demonstration projects, since demonstration contracts were included in the patent policy section of its statute. ERDA officials concluded that there were two types of demonstration projects and that the patent provisions should be applied differently depending on the type of demonstration which they were funding.

One type of demonstration project involves the application of new technology in order to prove its technical or economic feasibility. This project may have already gone through a pilot stage where the concepts were proven; but in the demonstration phase new technical developments may be needed. It was ERDA policy that in such circumstances it would take title to resulting inventions.[49]

The second type of demonstration project involves the demonstration of technology that has been demonstrated previously, but has not gained commercial acceptance because of social barriers or some other obstacle to commercialization of the technology. ERDA found that many of its solar heating and cooling demonstrations fell into this category. The systems are established, but the range of their viable use in various climatic conditions is unknown. Therefore, information is gathered by installing these systems in various types of buildings and monitoring their operations. Since the systems involved are already proprietary, ERDA determined that patent provisions need not apply to these projects.[50]

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[47] O.M.B. Circular 1-110, Item 8(a). The OMB circular has dubious validity. Its language is inconsistent with the Presidential policy. The Presidential statement speaks of using patent rights to *serve* the public interest, while the OMB circular speaks of use to *protect* the public interest. The words imply differing approaches to the allocation of rights.

[48] The Energy Research and Development Administration became part of the United States Department of Energy on October 1, 1977; *see* Act of August 4, 1977, Pub. L. No. 95-91, 91 Stat. 565.

[49] ERDA REPORT, *supra* note 3, at 120.

[50] *Id.* at 121-122.

Incentive programs such as loans, loan guarantee and price supports are not contracts in the sense of the Presidential policy since they do not call for the performance of research and development. Patent provisions are not used in the loan and loan guarantee programs of the Small Business Administration, the ship loan guarantees of the Federal Maritime Administration or in the loan guarantee program of the Overseas Private Investment Corporation.[51] ERDA has opposed using patent provisions in incentive programs, over Senate opposition, on grounds that these are fiscal arrangements that do not explicity call for work. Further, in the case of loan guarantees and price supports, the government's obligation does not arise until the work is finished.

Loans are considered to be a match between money and security. ERDA officials offered the following during hearings before the House Subcommittee on Energy Research, Development and Demonstration:

> [W]hile the lender may monitor the borrower's efforts to assure the adherence to the purpose of the loan and the nature of the security involved, the work in question is done solely by and on behalf of the borrower. This is not at all related to the situation where the work is performed by or on the Government's behalf under contract or otherwise.
>
> . . .[I]n a loan guarantee the loan "agreement" is between the borrower and the lender. The Government's guarantee is in the form of default insurance to protect the lender . . .and does not encompass, in itself, the performance of research, development or demonstration work even though that is the purpose for which the loan was made.
>
> . . .[A]n agreement to guarantee the price of a product which contains the understanding that a new plant is to be built to make the product, is not an "arrangement" which includes research, development or demonstration work. The party receiving the guarantee does all the demonstration type work on his own behalf. If the plant doesn't work, he takes all the losses. It is only after the standard products are on [the] market that the Government's fiscal obligation arises.[52]

When agency facilities are used by private parties, and the agency is fully reimbursed for the use, both AEC and ERDA have determined that title to any resulting patents generally should be waived; yet, the government should retain minimum rights.

The statutes for both AEC and ERDA use the same language as the Presidential policy; title must be acquired for any invention made or

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[51] *Id.* at 122.

[52] *Hearings on Loan Guarantees for New Energy Technologies and Capital Formation Before the Subcomm. on Energy Research, Development and Demonstration of the House Comm. on Science and Technology*, 94th Cong., 1st Sess. 271-274 (1975).

conceived "in the course of or under" a contract. This has been interpreted to include a situation where the contract provides that the government does the work and is fully reimbursed by private parties, leaving only a royalty-free nonexclusive license in the sponsor. Recognizing this to be inequitable, ERDA's policy is to grant waivers, with the government retaining its minimum rights, including march-in rights.[53]

Interagency agreements lead to special problems. Some agencies have statutory patent authority;[54] some are guided solely by the Presidential policy, with attendant variations in interpretation.[55] Generally, the policy of the agency with a statutory policy will control over that of an agency with no statutory policy.[56] If neither agency has a statutory policy, then the agency receiving the funds will use its own procurement authority in any contracts awarded using the other agency's funds.

When both agencies have differing statutory authority, difficulties are compounded. NASA and ERDA have joint programs, such as the ERDA-funded low-cost silicon solar energy cell program conducted by NASA at the Jet Propulsion Laboratory. Any waiver requested in this program must satisfy the statutory waiver requirements of both agencies, pursuant to the memorandum of agreement between the agencies.[57] This has led to some difficulties, which ERDA would like to resolve in favor of the funding agency's statutory policy.[58]

Another topic of interest concerns assignments. The government

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[53] ERDA REPORT, *supra* note 3, at 132-133.

[54] The agencies with stringent statutory provisions on patents are the National Aeronautics and Space Administration, 42 U.S.C. § 2457 (1970), and the Energy Research and Development Administration. The atomic energy component of ERDA is governed by 42 U.S.C. § 2182 (1970); the non-nuclear component is governed by 42 U.S.C. § 5908 (Supp. V, 1975). Agencies with vaguer statutory provisions include the Department of Agriculture, 7 U.S.C. § 427i(a) (1976), the Environmental Protection Agency, 42 U.S.C. § 3253 (1970), and the National Science Foundation, 42 U.S.C. § 1871(a) (1970).

[55] Agencies with no statutory authority of any significance include the Departments of Defense, Treasury, Housing and Urban Development, and Health, Education, and Welfare, the Federal Communications Commission, the Law Enforcement Assistance Administration, the Central Intelligence Agency, the Veterans' Administration, and the United States Postal Service.

[56] ERDA REPORT, *supra* note 3, at 129-131.

[57] Memorandum of Understanding between the Energy Research and Development Administration and the National Aeronautics and Space Administration (June 23, 1975).

[58] ERDA REPORT, *supra* note 3, at 131.

regulations require that a duly executed assignment of all right, title and interest in the invention be conveyed to the government upon request. If the invention is never reported to the government by the contractor, despite the reporting requirements, this assignment would not be made. In that case, if the invention is patented, the patentee holds good title against the world, except as against the government. Government rights cannot be asserted by third parties; hence, the government must itself discover the patent and institute proceedings to compel assignment.[59]

Finally, there are tailored clauses which may be used in contracts dealing with inventions for which there is a patent pending. Such clauses provide that if data generated under the contract is used in the prosecution of the patent, the government will have some interest in the patent to be determined later according to the equitities of the situation.

Difficulties

There are two major problems with the Presidential patent policy as it is currently applied. First, there are limited mechanisms for the government to attempt commercialization of patents that it holds, particularly since the government cannot grant exclusive licenses. Second, there is little attention given to the problem of government commercialization in the waiver process; as a result, some agencies take title to patents that they cannot commercialize.

Since the exclusive licensing regulations were withdrawn after court challenge, government patents have, in essence, ceased to exist.[60] An issued patent is simply a cause of action to exclude others from making, using or selling the patented subject-matter. The government does not enforce its patents, and a nonexclusive licensee cannot enforce a patent; hence, a government held patent is a techni-

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[59] Yablick v. Protecto Safety Corp., 21 F.2d 885 (3d Cir. 1927); Hazeltine Corp. v. Electric Service Engineering Corp., 18 F.2d 662 (S.D.N.Y. 1926); Dubilier Condenser Corp. v. Radio Corp. of America, 34 F.2d 450 (D. Del. 1929).

[60] The Energy Research and Development Administration and the National Aeronautics and Space Administration have statutory authority to issue exclusive licenses. The Department of Health, Education and Welfare has decided that it also has such authority and has issued several licenses; but in the summer of 1977, the Department apparently decided that it no longer had such authority. Only NASA and HEW have issued exclusive licenses domestically (a total of sixteen). Foreign rights are handled differently; NASA and the Atomic Energy Commission had issued a total of sixty exclusive licenses by 1972, seventy-four by 1975. *See Hearings on Government Patent Policy, supra* note 2, at 877.

cal type of public disclosure. Any transfer of the subject-matter from the public to the private sector proceeds solely on the merits of the technology involved.

Most agencies have established some sort of information dissemination office. The best-known of these is the National Technical Information Service (NTIS) in the Commerce Department. This is the central clearinghouse for the sale of government research reports. They presently carry some 850,000 titles and add about 65,000 new titles each year.[61]

Conferences are also used as a mode for transfering information. The National Institutes of Health (NIH), ERDA, NASA, the Navy and Air Force cosponsored a seminar on biomedical devices in November 1975 that led to the issurance of several licenses;[62] and NTIS and the Navy sponsored a conference on an antifouling marine paint that led to the issuance of eleven licenses. NASA, ERDA and other agencies frequently take booths at trade fairs to expose their inventions to the business community.[63]

NASA's Office of Applications is devoted to spinning off space technology into civilian uses. It has established application centers and teams to adapt NASA inventions for new uses. Additionally, it has a team that works with software. NASA's NASTRAN computer program, which allows structural analysis of cars, planes and buildings in different stress situations, has achieved general use throughout the transportation industry.[64]

If an agency invention concerns a product that the agency would like to procure, it may offer to buy the output of a business which will implement the technology. A similar approach involves the institution of price supports for the output of privately operated plants.[65]

Despite these efforts, the rate of licensing of government-held patents remains low. At the end of 1975, there were 27,573 patents available for licensing, of which 1,251 patents had been licensed with a total of 2,167 nonexclusive licenses and sixteen exclusive licenses (ten from NASA and six from HEW). The great bulk of the licensed pat-

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[61] GENERAL SERVICES ADMINISTRATION, UNITED STATES GOVERNMENT MANUAL 147-148 (1976).

[62] *Quesenberry, Government Sponsored Technology,* 18 IDEA (3) 16-17 (1976).

[63] *Id.* at 17.

[64] *See* NATIONAL AERONAUTICS AND SPACE ADMINISTRATION TECHNOLOGY UTILIZATION OFFICE, SPINOFF 1976 (1976).

[65] *See* text at n. 52 *supra.*

ents are held by USDA and the Department of Energy.[66] In 1975, USDA had issued 542 licenses on 197 patents, out of 1,685 patents available for licensing. ERDA had 1,050 licenses outstanding on 496 patents, out of 4,603 patents available for licensing. By contrast, the Navy had issued only 71 licenses on 71 patents, while having 9,149 patents available for licensing. DOT, EPA and NSF have yet to issue a license.[67]

This record is unimpressive. Despite the avowed dedication of agencies to transfer government technology to the private sector, it is generally conceded that government technology is underutilized and often ignored. The key issue is whether or not the removal of the patent incentive has hindered the diffusion of government R&D results. The consensus is that the absence of this incentive has seriously retarded the transfer of certain technologies.[68]

Recent Developments

The constitutionality of Presidential statements on patent rights

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[66] As successor to the Atomic Energy Commission, the Energy Research and Development Administration holds many atomic energy patents. The Department of Energy has now absorbed ERDA.

[67] *See Hearings on Government Patent Policy, supra* note 2, at 877-880. This chart uses data from these hearings (at 884) to derive the percentages of federal R&D spending for fiscal year 1975 that went to internal government R&D, to domestic for-profit corporations and to domestic non-profit corporations, omitting the small percentage of spending classified as "Foreign" or "Other."

Agency	Total R&D Funding FY 75 (million $)	% to internal government use	% to Domestic for-profit corporations	% to Domestic non-profit organizations
DHEW	2,403.7	18.57%	6.26%	66.23%
USDA	423.0	73.05%	.19%	24.82%
ERDA	1,906.5	3.0%	55.88%	41.06%
NSF	620.6	11.46%	4.87%	82.21%
EPA	286.0	33.64%	42.31%	17.31%
NASA	3,065.4	33.81%	59.18%	7.0%
Army	1,871.5	37.22%	59.38%	3.28%
Navy	3,121.3	31.46%	61.65%	6.73%
Air Force	3,346.3	24.91%	68.0%	7.0%
Total Federal Government	18,233.5	27.85%	48.71%	21.9%

[68] *See Quesenberry, supra* note 62, at 14.

have been questioned for some time.[69] The legal development reflected in the *Dubilier* case is at odds with the Executive Order on government employees and with the Presidential patent policy. The question has been whether the President needs explicit statutory authority to require assignment of patents, or whether this authority can be implied from legislation empowering the President to make contracts and to prescribe conditions of government employment.

Recently, a court faced this issue in *Kaplan v. Johnson.*[70] The case dealt with an invention made by an administrative employee of the Veterans' Administration, whose duties included the supervision of research. The court concluded that, under the rule of *Dubilier,* there was no implied agreement to assign the invention. Under the criteria of Executive Order 10096, an assignment to the government was clearly required. The court concluded that the Executive Order was in violation of the separation of powers, in that it changed the common law rules without legislative authority. The government contended that the President has statutory authority to prescribe conditions of employment within the executive branch of government, and this authority implied the power to require the assignment of patent rights. The district court rejected this argument, concluding that the Constitution gave Congress the power to determine how to promote the advance of the useful arts and it chose to give inventors exclusive rights. The President cannot negate this specific scheme, enacted by Congress and elaborated by the courts, under such general authority.

The appellate court reversed the decision, specifically finding that the general power to prescribe conditions of employment was sufficient to validate the Executive Order.[71] This would imply that the general contracting power would validate the Presidential patent policy, so long as Congress does not enact any comprehensive patent policy legislation.

Currently, Congress is considering such comprehensive legislation. The Uniform Federal Research and Development Utilization Act of 1977 was introduced on April 6, 1977 by Representatives Thornton

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[69] *Hearings on Federal Council for Science and Technology Interagency Coordination of Federal Scientific Research and Development Before the Subcomm. on Domestic and International Scientific Planning and Analysis of the House Comm. on Science and Technology,* 94th Cong., 2d Sess. 181 (1976). The hearings indicate that the FCST's Patent Policy Committee spent part of 1973-1975 discussing the "Cramton Memorandum which stated the opinion that current patent policies may be unconstitutional." *See also* Finnegan & Pogue, *supra* note 5, at 252.

[70] 409 F. Supp. 190, 189 U.S.P.Q. 501 (N.D. Ill. 1976).

[71] Kaplan v. Corcoran, 545 F.2d 1073, 192 U.S.P.Q. 129 (7th Cir. 1976).

and Teague. This bill, H.R. 6249, has been referred jointly to the Committee on the Judiciary and to the Committee on Science and Technology. No hearings have been scheduled as yet.

The bill would repeal all existing statutes that deal with departmental patent policies and create a uniform policy. This policy would grant contractors a defensible title in inventions for which the contractor files a patent application "and declares its intent to achieve practical application of the subject invention."[72] The government would retain an array of march-in rights, including compulsory licensing, that can be exercised at various stages during the life of the patent. If the government holds title to the patent, it will be able to grant exclusive licenses. Additionally, government employees are given greater rights to hold patents than they presently have under the Executive Order.

This bill has gained support among executive officials who deal with federal R&D, and has also gained some favorable comment from the patent bar, which heretofore has generally ignored government patent policy issues.[73] The Antitrust Divison, on the other hand, has recently reiterated its opposition to any license policy.[74]

In February 1978, GSA issued regulations to permit Institutional Patent Agreements (IPA's) to be negotiated between agencies and non-profit contractors.[75] These regulations were modeled on the IPA regulations previously promulgated by HEW[76] and NSF.[77]

The idea behind the IPA is to allow universities that have aggressive patent licensing programs to automatically take title to patents resulting from government sponsored research, subject to extensive government controls. These controls seem too restrictive. They encourage universities to license patents, but restrict their ability to spin off companies to exploit the patent.[78]

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[72] H.R. 6249, 95th Cong., 1st Sess. § 314 (1977).

[73] 1977 A.P.L.A. BULL. 747.

[74] 360 BNA-P.T.C.J. D-1 (1978).

[75] 43 Fed. Reg. 4424 (1978).

[76] 45 C.F.R. § 8.1, § 8.8(c)(1) (1977).

[77] 45 C.F.R. § 650.8 (1977).

[78] Most universities with agressive licensing programs establish non-profit foundations to handle the patents, such as the Wisconsin Alumni Research Foundation or the Stanford Research Institute. The National Science Foundation has been working on starting innovation centers at colleges and universities. The Foundation has established centers at Carnegie-Mellon University, the Massachusetts Institute of Technology and the University of Oregon. *See* NATIONAL SCIENCE FOUNDATION,

Despite the limited scope of the IPA concept, the GSA regulations were attacked as "a giveaway program" by Senator Gaylord Nelson.[79] Senator Nelson requested OMB to delay implementation of the regulations for 120 days so that further study could be undertaken. OMB complied.[80] Hence, the regulations, which were to have been in effect March 20, are in limbo once again.

Conclusion

The argument between the title and license advocates over government patent policy has led to a polarized environment for policy making. Their argument really centers around the value of the patent system; and the government provides a most convenient forum for conducting this debate.

Currently, determinations as to who will hold patent rights are made at the agency level. If a coherent policy is desired, decisions regarding the allocation of patent rights must be made by one group within the government, so that universal standards evolve.

The title advocates are concerned with effect on competition of transferring exclusive rights in patents, arising from government sponsored R&D, to private corporations; the title advocates seek to prevent any anti-competitive effects by having title vest in the government. The logic of these advocates is defective to the extent that the exercise of patent rights, under some circumstances, does aid competition.

In contrast to the position of the title advocates, the license advocates take a remedial approach giving each agency the power to terminate exclusivity if anticompetitive practices emerge. The weakness of this approach is that agencies have little experience judging the anticompetitive effects of patent exclusivity.

The determination of the potential anticompetitive effects of granting patent exclusivity to a government contractor ought to be made by an agency with expertise in anticompetitive practices; such determinations might be made by the Federal Trade Commission (FTC) or by the Antitrust Division of the Justice Department. A negative clearance procedure could be established — one akin to the premerger clearance procedure or the business review procedure used by the Antitrust Division; or a process similar to the negative clearance procedure used in the European Common Market might be developed. In

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RANN UTILIZATION EXPERIENCE: CASE STUDY NO. 33, INNOVATION CENTERS (1977).

[79] *See* New York Times, Apr. 15, 1978, at 11, col. 2.

[80] 372 BNA-P.T.C.J. A-2 (1978).

lieu of legislation, such procedures could be established by Executive Order.

The selected procedure would be triggered whenever a corporation subject to the antitrust laws wished to acquire exclusive rights in a patent, or patent application, which was a result of government sponsored research. A nonprofit organization could acquire the exclusive rights at the time of contracting, but it would have to enter the negative clearance procedure if it decided to grant the exclusive rights to a corporation subject to the antitrust laws. The agency which sponsored the research resulting in the patent would also be party to the determination proceedings and could express its opinion as to whether exclusive rights should be granted.

Under this procedure, proper distinctions could be made between situations where the grant of exclusive rights would benefit competition, and situations where it would not. This procedure would also give the Antitrust Division and the FTC — which have heretofore experienced only the anticompetitive aspects of patent use — exposure to the competitive values of the patent system.

Wood Stove Emissions: Major Stationary Sources and the Ambient Air Quality Mandated by the Clean Air Act of 1970

JOSEPH SHORTILL*

As the prices of coal, oil and gas continue to rise, an increasing number of Americans are turning to wood stoves as a practical alternative to the high cost of energy. Although wood stove usage in New Hampshire and other states has grown dramatically in recent years, the effect of wood stove emissions on air quality has been largely ignored. The Clean Air Act of 1970[1], as amended, establishes levels of ambient air quality which the states are required to achieve and maintain. Widespread operation of wood stoves in New Hampshire and elsewhere may have a significant impact on federally-mandated air quality standards.

The Wood Burning Process

To understand the possible effects of wood burning on air quality a review of the burn process will be instructive. Cellulose, lignin and

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[1] 42 U.S.C. § 1857 *et. seq.* (1970).

water are the major components of wood. As wood is heated to about 540° many gases escape from the wood and tiny droplets of fluid form momentarily on the wood surface. If the temperature of the fire exceeds the spontaneous ignition temperature of these components (800-1200° F), and free oxygen is available, they will ignite.

Since the gases and tar droplets burn at a temperature of approximately 2000° F, they further heat the wood from which they escape. This causes more gases and tar to be generated and to flow to the surface of the wood.

As this flow of gaseous products from the interior of the wood continues, the exterior surface is charing and turning to charcoal. Since the outward flow of flammable products is consuming most of the free oxygen in the burn area, the charcoal does not immediately burn. When the flow of gases from the interior of the wood has subsided, free oxygen is available for use by the charcoal which, when it reaches about 900° F, begins to glow. Charcoal usually burns with very little flame. In a wood stove, some flame may result from small quantities of gaseous products still migrating to the surface and from small amounts of other gases from within the charcoal itself.

Wood Stove Pollutants

The pollutants emitted from woodstoves are different in quantity and quality from those produced by appliances using fossil fuels. *Table A* contains a listing of some of the compounds present in hardwood smoke.

Table A[2]

ACIDS
- Formic
- Acetic
- Propionic
- Butyric
- Aconitic?
- Tricarballylic?
- Ketoglutaric?

ALCOHOLS
- Methanol
- Ethanol

CARBONYLS
- Formaldehyde
- Acetaldehyde
- Acetone
- Diacetyl
- Furfural
- Methyl Furfural

HYDROCARBONS
- 3,4-Benzpyrene
- 1,2,5,6-Dibenzanthracene
- 20-Methylcholanthrene

PHENOLS
- Cresols
- Creosol
- Guaiacol
- Guaiacol derivatives
  - 4-Ethyl
  - 4-Propyl
  - 6-Methyl
  - 6-Ethyl
  - 6-Propyl
- Pyrogallol ethers
  - 1-0-Methyl
  - 1,3-Dimethyl

PHENOLS (Continued)
- 1,3 Dimethyl Pyrogallol derivatives
  - 5-Methyl
  - 5-Ethyl
  - 5-Propyl
  - 1-0-Methyl-F-Meth
- Pyrogallol
- Veratrole
- Xylenois

OTHERS
- Ammonia
- Carbon dioxide
- Resins
- Water
- Waxes

The sulfur content of wood is a low .01 to .05%.[3] The quantity of nitrogen oxide produced by a wood fire is also minimal.[4] When wood combusts under ideal conditions, a maximum temperature of about 2500° F may be attained for short periods of time. The formation of nitrogen oxide fails to appear at temperatures below 2800° F, which is substantially above the normal maximum temperature in wood burning.[5] Carbon monoxide is a product of fuelwood combustion, but usually is converted to CO_2 in the atmosphere.

The level of photo-chemical oxidants released from wood stoves is uncertain, and the effect of adding woodfuel emissions to automotive exhaust products and other ambient air components is not yet known. It is possible, however, that wood stove emissions may cause some photo-chemical degradation.

The emission of particulates, unburned gases and coal tars may be quite high from a wood fire. A great deal of research has been done on particulate generation from large high volume industrial-type furnaces, but very little has been performed on particulate generation from home-type wood stoves. One recent study by Butcher and Buckley[6] indicates that the quantity of particulates depends on the type of wood used, the draft settings of the stove, and the moisture content of the wood. Generally, the more dense and the dryer the wood, the fewer the particulates; the more open the draft setting and the hotter the fire, the fewer the particulates. The Butcher and Buckley study obtained figures ranging from 10 grams of particulates per kilogram (36.0 pounds/cord) of wood using Eastern White Pine (*Pinus strobus*) burned in the slow burn mode (that is, with a closed draft setting) to 1.02 grams of particulates per kilogram (3.74 pounds/cord) of wood using very dry Red Oak (*Quercus rubra*) burned in a Franklin Stove. Other investigators have derived figures as high as 15 grams of particulates per kilogram of wood for wood burned in fireplaces.[7]

White Pine is the most abundant wood type in New Hampshire,

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[2] J. SHELTON & A.B. SHAPIRO, THE WOODBURNER'S ENCYCLOPEDIA 100 (1977).

[3] *Id.* at 9.

[4] *Id.*

[5] R.D. THULMAN, INTRODUCTION TO WOODBURNING 5 (1976).

[6] Butcher & Buckley, *A Preliminary Study of Particulate Emissions from Small Wood Stoves*, 27 J. AIR POLLUTION CONTROL ASS'N 346 (1977). Conversion data on particulate emission from g/Kg to lbs./cord were provided by Bradford Smithers, Wood Energy Coordinator for the Society for the Protection of New Hampshire Forests.

[7] FELDSTEIN, COMBUSTION GENERATED AIR POLLUTION 291 (S. Starkman ed. 1971).

followed by Red Maple, Red Oak and Hemlock.[8] Because soft woods are the most readily available wood types in New Hampshire, and because many people operate their woodstoves in a slow burn mode with at least a partially closed air draft, the likelihood of particulate emission in New Hampshire is increased.

The widespread use of woodstoves may also contribute to visual air pollution. When the woodfire emissions combine with the water vapor which is released in the burning process, the substance created is commonly called wood smoke. Wood smoke may be trapped by an inversion or may become mixed with air and create a haze. In an area where many woodstoves are in use, wood smoke may cause noticeable visual air pollution.

According to a report by the New Hampshire Agricultural Experiment Station, 52% of all households in New Hampshire burn wood for heat.[9] The study found that on a yearly basis fireplace users consumed approximately two cords of wood, wood stove operators used approximately four cords of wood, and furnace users consumed approximately eight cords of wood. The report estimated that 300,000 cords of fuelwood per year are used presently in New Hampshire. That figure may increase significantly in the future.

A recent newspaper survey of New Hampshire stove manufacturers indicated that in the fall of 1977 they sold approximately 5,600 wood stoves, the majority of which were purchased for use in New Hampshire households. The survey reported that most manufacturers could not meet consumer demand for wood stoves and estimated that some 500,000 wood stoves would be sold in the United States that year.

However much fuelwood consumption in New Hampshire may increase in the coming years, current estimates of consumption at 300,000 cords per year provide a meaningful basis from which to calculate the levels of sulfur and particulate matter which may be released annually into New Hampshire air. Pollutant estimates for sulfur and particulate matter will be given in ranges for both softwoods and hardwoods. Weights of wood may vary by approximately 10% depending on the moisture content of the wood.

A cord of wood is four feet high, four feet wide and eight feet long, or 128 cubic feet. Since there are spaces between the logs, not all of

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[8] UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE RESEARCH REPORT NO. NE 197 ODC (742) 905.2, at 2 (1974) [hereinafter cited as FOREST SERVICE REPORT].

[9] M.M. DALTON, J.H. HERRINGTON, O.B. DURGIN & R.A. ANDREWS, HOUSEHOLD FUEL WOOD USE AND PROCUREMENT IN NEW HAMPSHIRE 5 (University of New Hampshire, Agricultural Experiment Station Research Report No. 59, October 1977).

the cord volume is solid wood. New Hampshire Revised Statutes Annotated 359A:35 mandates that all firewood sold in New Hampshire be sold by the cord or fraction thereof, unless the parties to the sale agree otherwise. The law stipulates that wood which is shorter than 16 inches may be sold by the load providing the load contains not less than 80 cubic feet. Thus, the statute seems to equate the 80 cubic feet with the solid wood volume of one cord. The volume of 80 cubic feet of solid wood per cord seems to be the generally accepted figure,[10] and the calculations herein will assume that 80 cubic feet of solid wood comprise a standard cord.

Eastern White Pine, the most abundant wood type in New Hampshire, weighs 21.805 pounds per cubic foot. Thus, a cord of White Pine (that is, 80 cubic feet) would total 1,744.4 pounds. (80 ft^3 x 21.805 lbs/ft^3 = 1,744.4 pounds.)

Since wood is .01 to .05% sulfur, the possible sulfur content of a cord of Eastern White Pine could range from .1744 pounds per cord to .8722 pounds per cord. (.01% x 1,744.4 lbs./cord = .1744 lbs. S/cord; .05% x 1,744.4 lbs./cord= .8722 lbs. S/cord)

If all 300,000 cords of wood burned in New Hampshire annually were Eastern White Pine, then the amount of sulfur added to New Hampshire air would fall somewhere between 26.6 tons and 130.8 tons per year. (.01% S: .1744 lbs. S/cord x 300,000 cords = 52,320 lbs. S or 26.6 tons of S; .05% S: .8722 lbs. S/cord x 300,000 cords = 261,660 lbs. S or 130.8 tons of S.)

Similarly, a cord of Red Oak which weighs 39.241 pounds per cubic foot and 3,139.9 pounds per cord (80 cu. ft. x 39.241 lbs./cu. ft.) would yield a low value of .3139 pounds of sulfur per cord and a high value of 1.569 pounds of sulfur per cord. (.01% x 3,139.9 lbs./cord = .3139 lbs. S/cord; .05% x 3,139.9 lbs./cord = 1.569 lbs. S/cord)

Burning 300,000 cords of Red Oak annually would release from 47 to 235.4 tons of sulfur into the air of New Hampshire. (.01%: .3139 lbs. S/cord x 300,000 cords = 94,170 lbs. S or 47.0 tons S; .05%: 1.569 lbs. S/cord x 300,000 cords = 470,985 lbs. S or 235.4 tons S.)

Using the figures given in the Butcher and Buckley study and considering the total number of cords burned per year in New Hampshire, the following would be the particulate emissions added to New Hampshire air.

For Eastern White Pine:

Low Value: 16.2 lbs. particulates/cord x 300,000 cords = 4,860,000 lbs. particulates or 2,430 tons.

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[10] FOREST SERVICE REPORT, *supra* note 8, at 4.

High Value: 36 lbs. particulates/cord x 300,000 cords = 10,800,000 lbs. particulates or 5,400 tons.

For Red Oak:

Low Value: 4.21 lbs. particulates/cord x 300,000 cords = 1,263,000 lbs. particulates or 631.5 tons.

High Value: 6.12 lbs. particulates/cord x 300,000 cords = 1,836,000 lbs. particulates or 918 tons.

It should be understood, of course, that it would be unusual for all wood burned in a state to be of one species. Hence, the totals calculated above are estimates only.

The Clean Air Act

The Clean Air Act of 1970 is one of a continuing series of attempts by the federal government to improve the nation's air quality.[11] Under the act, the Administrator of the Environmental Protection Agency (EPA) is to promulgate primary[12] and secondary[13] air quality standards establishing national minimum pollutant levels for the ambient air.

The primary standards were designed to be at a level to protect public health. The secondary standards specified a level of air quality necessary to protect the public welfare from anticipated adverse effects of air pollution.

Under the act, each state[14] is required to adopt and submit to the EPA Administrator a plan which provides for implementation, maintenance and enforcement of the ambient standard.[15]

If the state plan meets the requirements set forth in the act[16] then the Administrator can approve it. After consultation with appropriate state and local authorities, the Administrator is authorized to designate inter- or intrastate air quality control regions necessary for the attainment and maintenance of ambient air quality standards.[17]

The act gives the states the power to adopt standards that are

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[11] The earlier acts were: The Air Pollution Control Act of 1955, Act of July 14, 1955, Pub. L. No. 84-159, 69 Stat. 322; The Clean Air Act of 1963, Act of December 17, 1963, Pub. L. No. 88-206, 77 Stat. 392; and The Air Quality Act of 1967, Act of November 21, 1967, Pub. L. No. 90-148, 81 Stat. 485.

[12] 42 U.S.C. § 1857c-4(a)(1) (1970).

[13] *Id.*

[14] 42 U.S.C. § 1857c-2 (1970).

[15] 42 U.S.C. § 1857c-5(a)(1) (1970).

[16] 42 U.S.C. § 1857c-5(a)(2) (1970).

[17] 42 U.S.C. § 1857c-2(c) (1970).

stricter than the national ambient air quality standards,[18] but requires that they not be less stringent. The act is clearly intended to require states whose air quality falls below the national standard to develop a means of improving their air quality to meet the national ambient air quality minimums.

In cases where a state's air quality already exceeded the national ambient air quality standard, however, a serious problem arose. The question posed was whether or not states could enact legislation which would permit their air quality to degrade to the national ambient standards. Before the EPA Administrator could make a ruling on the issue, he was sued by the Sierra Club in the United States District Court for the District of Columbia to prevent him from ruling in the affirmative. *Sierra Club v. Ruckelshaus,*[19] far from settling the question and ending the controversy, seems to have caused more problems than it solved.

The position of the Administrator in *Sierra Club* was that his authority was limited to requiring states to raise the quality of their air to meet the ambient standards.[20] The Sierra Club, on the other hand, contended that the Administrator was mandated by the act to prevent air quality degradation.[21] The court found that based on the legislative history of the act and its predecessors, a policy of nondegradation of existing clean air was mandated.[22] The court of appeals ruled against the Administrator on his appeal[23] and an evenly divided Supreme Court in *Fri v. Sierra Club*[24] affirmed the appellate court.

In response to this decision, the EPA promulgated the 1974 Prevention of Significant Air Quality Deterioration Regulations.[25] The regulations established three classes of areas with different degrees of air quality degradation permitted in each class. Only two pollutants are covered, sulfur dioxide (*SOx*) and particulate matter (*PM*). The allowable pollutant increase was set as shown in *Table B* below.

The amendments of 1974 helped to clarify the problem of the degree to which air quality degradation would be permitted, but the

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[18] 42 U.S.C. § 1857d-1 (1970).

[19] 344 F. Supp. 253 (D.D.C. 1972).

[20] *Id.* at 254.

[21] *Id.*

[22] *Id.* at 256.

[23] 41 U.S.L.W. 2255 (Nov. 1, 1973).

[24] 412 U.S. 541 (1973).

[25] 40 C.F.R. § 52 (1974).

issue had not been fully resolved. In 1977 the Clean Air Act was further amended[26] to include changes in the allowable concentration of pollutants in each class. The 1977 levels are indicated in *Table B* in parentheses.[27]

Table B

Air Quality Zones

Pollutant (ug/m^3 — millionth of a gram per cubic meter)	Class I[28] ug/m^3	Class II[29] ug/m^3	Class III[30] ug/m^3
Particulate matter:			
Annual geom. mean	5	10(19)	60(37)
24-hour maximum	10	30(37)	150(75)
Sulfur dioxide:			
Annual arith. mean	2	15(20)	60(40)
24-hour maximum	5	100(91)	260(182)
3-hour maximum	25	700(512)	1300(700)

In Class I areas the permissible increments are so small that any degradation could be considered significant. In Class II areas the allowable increments are larger and permit some degradation, particularly if the decrease in air quality coincides with some degree of economic development. In Class III areas, the air quality would be allowed to degrade to the level of the national ambient air quality standards.[31] Such increases in the pollutant levels would not be considered "significant" in these areas.

Initially, all clean air areas were classified as Class II.[32] If a state followed the procedures specified in the act, it could reclassify the clean air areas to a lower or high classification.

The basic scheme to prevent significant deterioration of air quality was to arrive at what was called a "baseline air quality concentration" for each major air quality area. Baseline air quality was defined as "the sum of ambient concentration levels existing during 1974 and those additional concentrations estimated to result from sources

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[26] Act of August 7, 1977, Pub. L. No. 95-95, 91 Stat. 685.

[27] 40 C.F.R. § 52.21(c)(2)(i) (1977).

[28] 40 C.F.R. § 52.21(c)(2)(i) (1974).

[29] 40 C.F.R. §§ 50.5, 50.7 (1973).

[30] 40 C.F.R. § 52.21(c)(2)(i) (1977).

[31] 39 Fed. Reg. 42515 (1974).

[32] 40 C.F.R. § 52.21(c)(3)(i) (1974); 39 Fed. Reg. 42515 (1974).

granted approval . . .for construction or modification but not yet operating prior to January 1, 1975."[33] The baseline involved measurement of sulfur dioxide and particulate matter only. Once the baseline for an area was determined, and depending on the area's class, a certain increment of degradation toward the national ambient air standards would be allowed and that degradation would not be considered significant.

It was felt by the drafters of the 1974 act that air quality could be degraded significantly only if a major new source of pollutants moved into the area. The validity of this assumption is questionable. As will be discussed later, the introduction and intensive use of large numbers of home wood stoves in an area will raise particulate and sulfur levels. Although each home wood stove may contribute a small amount, the aggregate pollutant increment may be very large.

The act set up nineteen new categories of sources which, it was felt, could significantly degrade an area's air quality. The categories of sources are:[34]

> (1) Fossil-Fuel Steam Electric Plants of more than 1000 million B.T.U. per hour heat input; (2) Coal Cleaning Plants; (3) Kraft Pulp Mills; (4) Portland Cement Plants; (5) Primary Zinc Smelters; (6) Iron and Steel Mills; (7) Primary Aluminim Ore Reduction Plants; (8) Primary Copper Smelters; (9) Municipal Incinerators capable of charging more than 250 tons of refuse per 24 hour day; (10) Sulfuric Acid Plants; (11) Petroleum Refineries; (12) Lime Plants; (13) Phosphate Rock Processing Plants; (14) By-Product Coke Oven Plants; (15) Sulfur Recovery Plants; (16) Carbon Black Plants (furnace process); (17) Primary Lead Smelters; (18) Fuel Conversion; and (19) Ferroalloy Production Facilities.

The Administrator would review each application for construction or major modification of a new listed source and approve it only if its projected output of pollutants would not exceed the air quality increment allowed for that area or any other area[35] and it would utilize the best available control technology (BACT) for limiting emissions of particulates and sulfur dioxide.[36]

To determine if a reviewable major stationary source may enter an area, an assessment is made of the impact on air quality of major stationary sources already in the area. Next, the contribution from all non-reviewable sources in the area is subtracted from the allowable

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[33] 40 C.F.R. § 52.21(c)(2)(iii) (1974); defined in the 1977 Amendments at 40 C.F.R. § 52(b)(14) (1977).

[34] 40 C.F.R. § 52.21(d)(1) (1974).

[35] 40 C.F.R. § 52.21(d)(2)(i) (1974); 39 Fed. Reg. 42516 (1974).

[36] 40 C.F.R. § 52.21(d)(2)(ii) (1974).

increment. Thus, the portion of the permissible increment used up by other sources, both reviewable and non-reviewable, must be considered before it is determined that another major stationary source may enter an area.

Using the EPA theory, the contribution from non-reviewable sources is considered negligible and the formula might look like this:

$$A \,\&\, B = Q$$

where both A and B represent the contribution of pollutants to the ambient air from reviewable major stationary sources and Q is the maximum level of ambient air pollution for that area, including any increment.

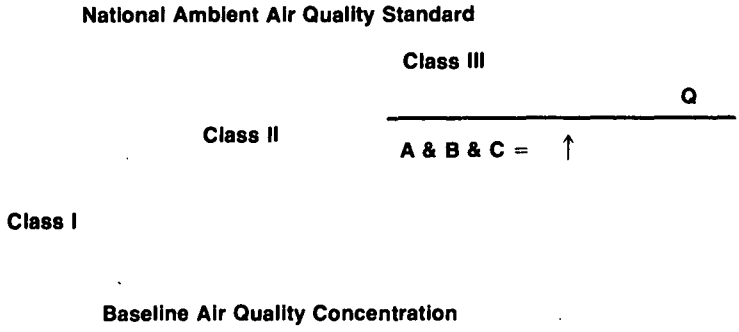
Accordingly, if a new major stationary source (C) should enter the area, then the equation would be:

$$A \,\&\, B \,\&\, C \neq Q$$

For C to enter the area, A and/or B would have to decrease their outputs and the air quality equation would read:

$$A\downarrow \,\&\, B\downarrow \,\&\, C = Q$$

Using the above example, a chart of the process might look something like this for an area where the quality of the air exceeds national air quality minimums:



The weak point in EPA reasoning is the failure to consider as significant sources other than those categorized as major stationary sources. The growth of wood stove use throughout the United States and particularly in New Hampshire represents a potential source of pollutants which has been overlooked by the regulators.

The first part of this paper discussed the contribution of wood stoves to the particulate and sulfur dioxide load in New Hampshire's ambient air. The estimates indicated that the range for sulfur could be 26.6 to 130.8 tons per year for Eastern White Pine and 47 to 235.4 tons per year for Red Oak. The values for particulates for Eastern White Pine are 2,430 to 5,400 tons of particulate matter per year, and for Red Oak 631.5 tons to 918 tons of particulate matter per year.

Taken in the aggregate, the sulfur and particulate contributions from wood stoves are far from insignificant, especially in New Hampshire.

Realistically, the air quality equation should look like this:

$$A \,\&\, B \,\&\, \begin{bmatrix} \text{all other background sources,} \\ \text{including wood stoves} \end{bmatrix} = Q$$

With the addition of the particulate matter and sulfur dioxide contributed by wood stoves, the equation leaves no room for *C*, our hypothetical new major stationary source, even if *A* and *B* decrease their output, because the wood stove component would have increased so dramatically as to claim all of the available increment. That is:

$$A\downarrow \,\&\, B\downarrow \,\&\, \begin{bmatrix} \text{all other background sources,}\uparrow \\ \text{including wood stoves} \end{bmatrix} = Q$$

Thus, if fuel wood consumption continues at the present rate, many areas will have their allowable increment used up by non-reviewable sources, *i.e.*, wood stoves. Should the trend continue, the rush of events could outstrip the regulators. The major thrust of the three-class system is to maintain air quality levels by controlling the emissions of major stationary sources. If a large number of home wood stoves are introduced to an area, the major stationary source theory of regulation may well go up in smoke.

The pollutant component from wood stoves may cause a deterioration in air quality which far exceeds the increments permitted by the clean air class system. In such a case, this would be the result:

$$A\downarrow \,\&\, B\downarrow \,\&\, \begin{bmatrix} \text{all other background sources} \\ \text{to include wood stoves}\uparrow\uparrow \end{bmatrix} \neq Q$$

Any effort by *A* and *B* to reduce their pollutant levels would be inadequate to maintain the mandated air quality. The allowable increments for that area's class would be exceeded, and the quality of the region's air would be reduced to the next lower class before the regulators could identify wood stoves as the source of the problem and implement regulations to control the emissions.

Under the regulations the burden is on *C*, the party wishing to construct a new stationary source, to furnish EPA with data on the growth of non-reviewable sources in the area as well as projected emissions from his new source.[37] *C's* application might show that although *A* and *B* have done nothing to increase air pollution, the class increment had been exceeded, and *C* would be precluded from constructing his source. The implications are that industrial or other types of development, which depend on the availability of an air pollution increment before proceeding, would be precluded from moving into an area.

As the price of oil continues to rise, the use of wood stoves will become more economically justified. Widespread use of wood stoves could cause an area whose air quality level had been somewhere between Class I and Class II to fall to national secondary ambient air quality standards. Should the use of wood stoves continue to grow in non-attainment areas, those areas will experience greater difficulty in achieving the mandated levels of air quality and may even backslide.

In response to criticism that major pollution could come from sources other than the nineteen specified major sources, the 1977 amendments to the Clear Air Act increased the number of major stationary sources. The added major sources are: hydrofluoric and nitric acid plants; sintering plants; secondary metal production facilities; chemical process plants; fossil fuel boilers of more than 250,000,000 BTU per hour heat input; petroleum storage and transfer facilities with a capacity exceeding 300,000 barrels; taconite ore processing facilities; glass fiber processing plants; charcoal production facilities; and any source capable of emitting 250 tons per year of a regulated pollutant.[38] Wood stoves do not fall under any of these categories.

The amendments also modified the baseline concentration figure by redefining it as "that ambient concentration level (of particulates and sulfur dioxide) reflecting air quality as of January 6, 1975." This results in a baseline that is much higher than that mandated by the 1974 regulations. Annual average concentrations are based on measured or estimated concentrations for calendar year 1974.[39]

Criticism of the 1974 amendments also centered on the fact that only two pollutants were covered: particulate matter and sulfur diox-

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[37] 40 C.F.R. § 52.21(d)(3) (1974).

[38] 40 C.F.R. § 52.21(b)(1) (1977).

[39] 40 C.F.R. § 52.21(b)(14) (1977).

ide. The 1977 amendments rectified this in part by requiring use of best available control technology (BACT) for all pollutants regulated under the Clean Air Act of 1970. Thus, for the specified major stationary sources or for any source capable of emitting 250 tons per year of the pollutants regulated by the act, BACT will be required and the limits of the 1977 amendments imposed. EPA is proposing a deminimus level of 100 tons per year of potential emissions to be applied to each pollutant. BACT would be mandated only for those pollutants whose potential emissions exceed 100 tons per year.

Again, the EPA theory of regulation of major stationary sources as a foundation for the prevention of significant air quality deterioration shows some major gaps. For example, if a non-regulated source emits 50 tons of pollutants per year, it is below the deminimus cut-off and will not be required to apply BACT.

Possible Solutions

In a state like New Hampshire, where pollution problems may increase dramatically due to a large number of small sources such as home wood stoves, the solution to the dilemma may lie in either of two alternatives.

First, New Hampshire may reclassify to the next lower air quality class (a short term solution at best since the problem is not going to go away); or second, New Hampshire may regulate wood stove installation through the permit system established under its state implementation plan.

The 1977 amendments[40] add to the factors to be considered in redesignating an area the effect on health and energy of such redesignation. Efforts to protect health and conserve energy may conflict.

If the price of oil increases, conversion to wood will result in a net saving of oil, but the wood smoke resulting from that conversion will increase air pollution. Alternatively, lack of heat in the winter time could seriously effect the health of many area residents.

Ultimately, it is the state which must decide what level of air quality it will maintain (above the national standards) based on the needs of its citizens.

New Hampshire is not a wealthy state. If oil continues to rise in price, many of those on marginal incomes may be forced to reduce their oil consumption and rely on the only fuel at hand, wood.

New Hampshire Revised Statutes Annotated 125:78 *et. seq.* and the

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[40] 40 C.F.R. § 52.27(c)(3)(ii) (1977).

regulations of the New Hampshire Air Pollution Control Commission provide the basic scheme under which air pollution is regulated in New Hampshire.

As stated in N.H. R.S.A. 125A:78, the purpose of the N.H. Air Pollution Control Law is to " . . .maintain a reasonable degree of purity of the air resources of the state so as to promote the public health, welfare . . .safety [and] prevent injury or detriment to human, plant and animal life . . .." Massive amounts of wood smoke could be seen as a threat to public health and this statute might be used to control that threat.

Through the statutes and regulations, the state has established a program of permit regulation of new and existing sources of air pollution,[41] specific standards for sulfur dioxide,[42] particulates,[43] and a program of required record keeping.[44] Based on the calculations cited earlier, it would appear that a single wood stove would not exceed the emission limitation for particulates or sulfur dioxide in the New Hampshire state implementation plan.

Under the New Hampshire permit system, devices[45] which may contribute to air pollution are divided into three classes:[46]

Class A Device: Any residential or commercial heating plant which:

1. has a heat input of less than 1 x 10^6 BTU per hour utilizing No. 1 or No. 2 fuel oils or gas; or
2. uses electricity to generate heat; or
3. uses wood, charcoal, coal or coke for heating or recreational purposes in a one- or two-family dwelling.

Class B Device: Any industrial or commercial heating plant or process which generates and discharges air contaminants.

Class C Device: Any device designed for the incineration of waste or refuse, except residential incinerators.

Operators and owners of *Class B* and *C* devices must apply for permits to operate their devices. *Class A* devices, which include wood

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[41] N.H. Air Pollution Control Comm. Reg. No. 16 (Feb. 18, 1972).

[42] N.H. Air Pollution Control Comm. Reg. No. 5, revision III (March 22, 1975).

[43] N.H. Air Pollution Control Comm. Reg. No. 4, revision II (April 20, 1974).

[44] N.H. Air Pollution Control Comm. Reg. No. 18 (Jan. 1, 1973).

[45] N.H. Air Pollution Control Comm. Reg. No. 16 II F (1972). A "device" is defined as any burner, furnace, machine, equipment or article which in the opinion of the Air Pollution Control Commission contributes or may contribute to pollution of the air.

[46] N.H. Air Pollution Control Comm. Reg. No. 16 II C, D & E (1972).

stoves, are granted permits automatically without application. Should the state desire to assess the number of wood stoves being installed, the present *Class A* permit procedure could be stiffened so that permits would not be granted automatically. This would allow the state to determine the magnitude of wood stove usage and provide a means of regulating wood stove installation. Ultimately, some form of regulation will be necessary. The state is mandated by law to maintain air quality. Widespread use of wood stoves will degrade air quality, and a clash is inevitable.

The N.H. Air Pollution Control Commission's record keeping regulations[47] specify two exemptions. The first applies to facilities which utilize No. 1 or No. 2 fuel oils, gas or electrical energy.[48] The second is for those sources which by virtue of their size and operation are not expected to contribute markedly to the discharge of contaminants into the atmosphere.[49] This regulation undoubtedly is intended to exempt operators of residential devices from the reporting requirements.

Should the state desire to obtain information on wood stove utilization it could, under this regulation, require record keeping of wood stove usage and types of wood consumed. Such a requirement need not be burdensome. A simple post card to be filled out and mailed could provide the required information.

Conclusion

The best regulations governing technological problems are based on solid information. By utilizing the *Class A* permit system and the reporting requirements, the state could amass a substantial data base on wood stove usage. Utilizing this data base, effective regulations could be adopted which would impose the minimum amount of wood stove regulation necessary to maintain New Hampshire air quality in conformity with the Clean Air Act of 1970 and the Clean Air Amendments of 1977.

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[47] N.H. Air Pollution Control Comm. Reg. No. 18 (1973).

[48] *Id.*, III A.

[49] *Id.*, IV.

The Inventor Profile

One of a series of monographs based on the PTC — Academy of Applied Science Inventor Profile Research Project. See 18 IDEA (2) 45-54, and James F. O'Bryon thesis referred therein.

Inventor Investment

Some 70% of all inventors responding to the project interviews indicated that their patents had been assigned to their employer by prior agreement, and therefore, almost the same percentage responded that they had no personal expenses in any phase of the invention/patent process. Of the responding inventors who did incure some personal expense, fifty rated development expenses as their largest outlay; twenty-six rated application costs as most expensive; and twenty said the largest expense was in personally producing and marketing the invention or in trying to interest others in producing and marketing it.

Although development and marketing costs are difficult to estimate in dollar terms, Dent stated that in 1972 approximately $28 million in fees were collected by the patent office.[1] Based on approximately 75,000 patents issued (including plant, design and reissue patents) this averages out to nearly $375 per patent, exclusive of attorney fees. Associated legal fees can be estimated from the recent survey of the American Patent Law Association's Committee on Economics. The national median charges for various patent-related services were as follows: patent novelty search and opinion, $173; original patent ap-

[1] F.B. DENT, TECHNOLOGY ASSESSMENT AND FORECAST: EARLY WARNING REPORT 271 (Office of Technology Assessment and Forecast, 1973).

plication, $728; amendment in response to rejection on prior art, $202; appeal to the Board, briefed and argued, $747.[2]

Inventor Reward

The inventors surveyed were asked for the total income they received from all their patents. Overall, 55% responded that they had received no income at all; 10% reported income of less than $100; 15% received income of between $100 and $1,000; 12% had incomes between $1,000 and $10,000; approximately 5% had received between $10,000 and $100,000; while less than 3% reported incomes in excess of $100,000.

These percentages varied depending on whether or not the inventions were assigned and to whom they were assigned. This data is summarized in *Table 1*.

Income

Nature of Assignment	0	$1-$100	$100-$1,000	$1,000-$10,000	$10,000-$100,000	$100,000
Unassigned	59%	6%	9%	6%	12%	8%
Assigned to Business	55%	15%	12%	13%	4%	1%
Assigned to Government or Educational Institution	35%	10%	28%	18%	9%	0%
All	55%	10%	15%	12%	5%	3%

Table 1
Distribution of Inventor Income

By dividing the total income by the number of patents held by each inventor, the average income per patent was computed. The results show that 49% of the inventions produced no income, while 9% produced one dollar; 20% produced income of between $2 and $100; 13% yielded between $100 and $1,000; and only 9% generated more than $1,000 for the inventor.

Because these figures are based on all patents in the survey, assigned and unassigned, they do not reflect the total income generated by the patent, but only show the reward received by the inventor. But

[2] AMERICAN PATENT LAW ASSOCIATION STANDING COMMITTEE ON ECONOMICS, REPORT OF ECONOMIC SURVEY (1977).

even comparing the total income from *Table 1* for all unassigned patents which would reflect full return for the inventor, less than 25% of the inventors ever recover the cost of even one patent.

Even though some patents take years to bear commercial and monetary results and incomes might therefore show increases if the survey were repeated in the future, this effect should not be significant. Taylor's research indicates that returns, if they are to come, begin within approximately three years of the date the patent is issued; if no returns are realized by the end of the sixth year, it is unlikely that they will be produced.[3]

It is often suggested that inventors invent for motives other than financial reward and that financial rewards are of secondary importance. *Table 2,* while not helpful in determining whether or not an inventor would produce without financial incentives, does indicate that those seeking financial rewards are the ones receiving those rewards.

Average Income Received Per Patent

Incentive	0	$1-$50	$51-$200	$201-$5000	$5000
Royalties	35%	7%	7%	28%	24%
Bonus	25%	17%	42%	14%	0%
Promotion	57%	19%	11%	9%	3%
Prestige	37%	34%	26%	4%	0%
Other	74%	16%	6%	3%	0%
None	60%	24%	10%	4%	2%

Table 2

The results from this portion of the survey may be significantly influenced by the reward policy of industry. A survey conducted by the Industrial Research Institute and reported by Blohm, revealed that 60% of the companies surveyed did not give rewards to inventors for specific inventions; 16% gave rewards of one dollar. For the remaining 24% of the companies surveyed, the rewards ranged from $2 to $20. Finally, 13% of the companies surveyed made special awards of up to $5,000.[4]

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[3] Taylor, Frindell and Jacobs, *The Problem: The Patent System,* TECH. ENG. NEWS 30 (1976).

[4] Blohm, *Patent Policies and Practices of Industrial Research Institute Companies,* 1 RESEARCH MANAGEMENT 174 (1958).

Bierman suggests that the reward made to the employed inventor should be tailored to the individual situation. Royalty payments would be appropriate where the employer can expect a reasonable degree of exclusivity. This additional cost can be included in the selling price without being priced out of the market or lowering normal returns. If this is not the situation, then a lump sum payment is a more appropriate reward.[5]

[5] Bierman, *Taking Down the 'Inventor Keep Out' Sign*, 13 INNOVATION 56 (1970).

Announcement from the World Intellectual Property Organization

The World Intellectual Property Organization (WIPO), Geneva, announces that international applications under the Patent Cooperation Treaty (PCT) may be filed as of June 1, 1978 by the nationals and residents of the eighteen contracting states of the PCT.

The decision on the date as of which the filing of international applications will be possible is one of the important decisions taken by the Assembly of the International Patent Cooperation (PCT) Union at its first session held in Geneva from April 10 to 14, 1978.

June 1, 1978 has also been chosen by the European Patent Organization as the date from which patent applications may be filed under the European Patent Convention.

Under the PCT, nationals and residents of a contracting state may file an international patent application and the effect of the international application is the same as if national applications had been concurrently filed with the national patent offices (including the European Patent Office) of those countries party to the PCT which the applicant designates. The international application is then subjected to a search of the prior art, and the applicant is placed in a position in which he can decide, on the basis of the international search report, whether it is worth while to pursue his application in the various countries he has designated. National procedures in such countries are delayed until 20 months after the priority date unless the applicant asks for an earlier start.

An international application may be a first application or it may be a subsequent application invoking the priority of an application previ-

ously filed with the national office of a country party to the Paris Convention or with the European Patent Office.

Where protection is sought through an international application in the countries party to both the PCT and the European Patent Convention, the applicant may seek protection under the national law of those countries or under the European Patent Convention, except in the case of France, where protection through an international application is possible only under the European Patent Convention.

The eighteen contracting states of the PCT are the following: Brazil, Cameroon, Central African Empire, Chad, Congo, France, Gabon, Germany (Federal Republic of), Luxembourg, Madagascar, Malawi, Senegal, Soviet Union, Sweden, Switzerland, Togo, United Kingdom, United States of America.

The ratification of Japan is imminent and it is expected that the Treaty will enter into force for Japan on October 1, 1978. It is also expected that other highly industrialized countries such as Austria, Belgium, Denmark, Italy and the Netherlands and several developing countries will ratify the Treaty in the summer or autumn of 1978 and that by the end of this year the PCT will have roughly twenty-five contracting states.

Another important decision taken by the Assembly of the PCT Union relates to the appointment of International Searching and Preliminary Examining Authorities performing the search and examination work under the Treaty. The Assembly appointed as International Searching and Preliminary Examining Authorities the State Committee for Inventions and Discoveries of the USSR Council of Ministers, the Royal Patent and Registration Office of Sweden and the European Patent Office (for international preliminary examination only as of June 1, 1979, and only for those technical fields which are open for the examination of European patent applications); furthermore, it appointed the United States Patent and Trademark Office as an International Searching Authority and the United Kingdom Patent Office as an International Preliminary Examining Authority.

The appointment of the Austrian and Japanese Patent Offices as International Searching and Preliminary Examining Authorities will take effect once Austria and Japan have, respectively, become bound by the PCT.

The fees were fixed as follows:

	Basic International Fee	Designation Fee	Handling Fee
Brazil			
Cruzeiros	2,900	720	900
France			
French francs	735	180	225
Germany (Federal Republic of)			
Deutsche Mark	325	80	100
Luxembourg			
Luxembourg francs	5,060	1,250	1,560
Soviet Union			
Roubles	110	30	35
Sweden			
Swedish kronor	740	185	230
Switzerland			
Swiss francs	300	80	96
United Kingdom			
Pounds sterling	83	21	25
United States of America			
US dollars	165	40	50

Brochures containing the text of the PCT and the PCT Regulations and the text of the PCT Administrative Instructions are on sale at WIPO, 34 chemin des Colombettes, 1211 Geneva, Switzerland (telex 22 376 CH). A detailed information brochure entitled "PCT Applicant's Guide" is available free of charge for a single copy and against payment if further copies are required.

Law Center Report

The Law Center conducts its research activities through the Patent, Trademark and Copyright Research Foundation, the Academy of Applied Science and its Entrepreneurial Workshop and Innovation Clinic programs.

Research guidance and assistance are provided to our researchers by the PTC staff and board members, faculty and outside advisors and counsel from the industrial, university and government sectors. Exchange visits between Law Center personnel and researchers from the Max Planck Institute for Patent, Copyright and Competition Law at Munich and the University of Strasbourg Law School have aided in the further development of our research activities.

Programs currently underway are summarized below:

Presumption of Patent Validity: A study of the weight afforded the expertise of the United States Patent Office by the courts on matters of technical fact-finding.

Obviousness: A Basis for Patent Invalidation: Research into recent decisions invalidating patents on grounds of obviousness over patents not cited by the Patent Office, including evaluation by a group of technical experts of the pertinence of such patents as compared with the patents and prior art specifically cited by the Patent Office.

"Fraud": A Basis for Patent Invalidation: A study of patent invalidation on grounds of "fraud" on the Patent Office or "lack of candor" in not calling an examiner's attention to prior art or usage of which the applicant or his attorney was aware.

Science Indicators: An update of an earlier study sponsored by the National Science Foundation regarding the influence of scientific publications and the publication of earlier patents on breakthrough inventors in eleven technical fields.

Reassessing the Inventor Profile: An analysis of the United States patent system and who is using it. Comparison of the NSF-sponsored study materials concerned with highly successful break-through inventions and the Inventor Profile materials of earlier studies dealing with a general cross-section of inventions.

Writers/Publishers Contract Study: An analysis of standard publisher's contracts in light of the philosophy of the new Copyright Act and current antitrust and public policy trends within other branches of the law.

Performing Artists Contract Study: A study parallel to the Writers/Publishers study examining standard industry contracts in the performing arts in light of the new Copyright Act and current trends in antitrust and public policy in other branches of the law.

Copyright Handbook: Preparation of a Guide to the 1976 Copyright Law (effective January, 1978) with emphasis upon the tax implications of selling Works of Art.

FCC and PUC Problems: A study of legal communications issues arising out of use of innovative equipment by a computer-operated taxi system. (The study is being completed in collaboration with the Center for Entrepreneurial Development at Carnegie-Mellon University.)

Food Preservation through Irradiation Technology: Exploration in association with the United States Army's Natick Laboratories of current legal avenues to achieve commercial viability and social utilization of this government-developed technology.

Government Data and Patent Policy Effects Upon Industrial Development of Government-Owned Technology: A study aimed at determining how best to package policies so as to provide industrial incentive for the commercialization of government-owned inventions. (The researchers are also studying parallel work underway at the Max Planck Institute for Patent, Copyright and Competition Law in Munich.)

Trade Secret Study: A consideration of the Freedom of Information Act ramifications of Food and Drug Administration (FDA) files containing drug industry secrets.

Patent Assistance to University and Similar Research Programs: Advise regarding the filing of patent applications by certain inventors at Carnegie-Mellon University, Dartmouth College, the

University of Massachusetts and the Massachusetts Institute of Technology. This program provides internship opportunities for Law Center students interested in patent law. The students are supervised by faculty and advisory counsel.

Patent Protection for Computer "Software": A survey of the developments of the last decade and an assessment of the impact of legal treatment upon potential incentives for technical innovation.

Comparative Study of Specialized v. General Court Systems: The study examines:

a. Similarities of industrial and intellectual property and competition laws in West Germany, the European Economic Community (EEC) and the United States.

b. Court echelons, procedures, trial evidentiary techniques and roles of counsel, litigants, witnesses and judges in the United States and West Germany.

c. Comparison of training and backgrounds of respective bench and bar practicing in the industrial and intellectual property area.

d. Comparison of court administrative performances.

e. Comparison of statistics upholding and denying patentees petitions; similar statistics regarding other intellectual property owners and unfair competition complainants.

f. Survey of the views of bench, bar and recent litigants regarding the relative merits of the differing systems and the adequacy of service of the law to the dispute resolution needs of the industrial and intellectual property community.

Readers of *IDEA* and other supporters of the PTC who would like to contribute research assistance and advice to any of these programs or to suggest other areas of study, are cordially invited to contact the Director of PTC.

Robert H. Rines
President