PATENT POLICY

JOINT HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

AND THE

COMMITTEE ON THE JUDICIARY UNITED STATES SENATE

NINETY-SIXTH CONGRESS

SECOND SESSION

ON

GOVERNMENT PATENT POLICY

JANUARY 25, 1980

Serial No. 96–60

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PATENT POLICY

FRIDAY, JANUARY 25, 1980

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION AND COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The Committee on Commerce, Science, and Transportation, and the Committee on the Judiciary met jointly at 10:05 a.m. in room 235, Russell Senate Office Building, Hon. Adlai E. Stevenson presiding.

OPENING STATEMENT BY SENATOR STEVENSON

Senator STEVENSON. The committees will come to order. This morning we continue—and I hope complete—hearings on Government patent policy.

In the last session, the Commerce Committee and the Senate Judiciary Committee held extensive hearings on legislation to set a uniform policy for allocating rights to exploit the results of Federal research development. Today, these committees examine the proposal of President Carter in his message to the Congress on industrial innovation.

We received the administration's bill only yesterday. It is a draft bill. But the bill conforms to the principles which were outlined by the President 3 months ago, and so we urge our witnesses to focus on this proposal.

If, after they have had more time to examine it, they find the details in the bill on which they wish to comment, we can receive those comments later.

With only one exception and minor qualifications, the testimony has supported the legislation before our committees. As a result, in part, of Dr. Baruch's efforts, the remaining objections within the executive branch have been removed. There is a growing recognition that we must encourage commercial use of publicly financed R. & D. in the face of the Nation's lagging productivity and competitiveness in world markets.

This subject has been on the agenda since the 1940's. We need to move on to the agenda of the eighties. It is time we acted, and I'm optimistic that we will do so soon.

I have a statement by Senator Cannon which will be entered into the record without objection.

Senator STEVENSON. Senator Bayh?

STATEMENT OF HON. BIRCH BAYH, U.S. SENATOR FROM INDIANA

Senator BAYH. Mr. Chairman, I appreciate the opportunity to join with you this morning. I regret that I can only stay for a few moments because of a commitment to appear before the Budget Committee.

I would like to ask unanimous consent to put into the record a statement by Senator Gaylord Nelson, who is chairman of the Small Business Committee.

Senator STEVENSON. That will be entered in the record.

Senator BAYH. One of the greatest threats to our economic—and ultimately political—well-being is the recent alarming slump in American innovation and productivity. Certainly my colleagues who are here today and the representatives of the administration do not need to be reminded of the statistics that confirm what many of us have been privately fearing—American industry is simply not keeping up with its international competition in too many fields. While Government patent policy is by no means the only cause of the problem; it is certainly a contributing factor.

As the author along with Senator Bob Dole of S. 414, the University and Small Business Patent Procedures Act, I have become acutely aware of the heavy burden that the present patent policies have placed on the most innovative segment of our economy—the small businesses. Universities and nonprofit organizations which are now conducting by far the biggest percentage of basic research in this country are also not able to fully explore patentable inventions because of the restrictions and uncertainties arising from current Federal patent policies. The harrassment and discouragement of these proven innovators has hurt all of us through lost jobs, delayed or aborted new products, and a worsened inflation rate.

Government patent policy has also become a barrier to increased competition. While small businesses have made over one-half of the most important inventions since World War II and are the leading source of new jobs in this country, they receive less than 4 percent of our Federal research and development contracts. This is not because small companies cannot perform this work, but the denial of patent rights to important inventions resulting from Government-supported work can be a devastating threat to a struggling small company. The result is that these companies simply cannot afford to take the risk of getting involved with the Government. The recent White House Conference on Small Business adopted as its sixth recommendation out of 60 the enactment of new patent policies as contained in S. 419. We simply cannot afford to wait to address this critical problem.

With university and nonprofit organizations the present patent policies have had a detrimental effect in many areas, but none more serious than the denial or delay in delivering potentially important medical discoveries to suffering patients. Senator Dole documented many cases where important medical discoveries were delayed for months and even years before any decision could be made by the funding agencies on who should own the patent rights. The real losers in this situation are the American taxpayers who are investing billions of dollars in research, but are being denied

the fruits of this labor. Because universities presently conduct 68 percent of all of the basic research in this country, they must be allowed to fully explore promising new ideas.

Government patent policies have had a detrimental effect on other contractors such as large and medium sized businesses. While the loss of patent rights are usually not as serious to these companies as they are to a small business, they are being prevented from making full use of patentable discoveries that they make while working for the Government.

I agree with President Carter that the solution to this problem lies in a two-tier approach: One patent policy for small businesses, nonprofit organizations, and universities that will both encourage innovation and promote competition, and another policy for the other contractors to insure their ability to bring new products to the public which is supporting our research and development efforts. The draft legislation that we are considering today is a commendable effort in this direction, but I must say in all candor that I think it is a serious mistake to try and to lump both of these policies under one piece of legislation. Because the formulation of a patent policy covering large businesses is such a complex undertaking and because there is now wide agreement on the needs for changing the present policies regarding small companies and universities, it is simply unfair to force those whose problems are so clearly in need of immediate redress to wait until agreement is reached on what to do about the larger contractors. My own experience with the Judiciary Committee, which reported S. 414 out favorably to the Senate by a voice vote, reinforces this view. I am certain that it would have been impossible to have had the same success with a more encompassing bill.

I was quite heartened to see the President state on October 31, 1979, that he supports the thrust of S. 414 and I am looking forward toward working with the administration to insure its quick enactment.

The efforts of Senators Stevenson, Schmitt, and Cannon to redress the problems of the medium and larger contractors also deserve to be commended. I am certainly willing to join with them in this effort and I feel confident that we will be successful in addressing this more difficult question. We do not need to fear, however, that if all of the problems are not solved in one bill they will never be resolved. The problems of innovation and productivity are so serious that the Congress will be forced to address them for years to come. It is worthwhile to proceed with well thought-out legislation to remedy the problem.

We are all heading in the same direction, and I feel strongly that by working together and supportig each other's efforts this problem can be solved to everyone's satisfaction.

Senator STEVENSON. Thank you, Senator Bayh. I'm sure I speak for all of my colleagues when I say we do want to cooperate with you. You have been working a long time in this effort and are ahead of us.

As you mentioned S. 414 has already been reported, and I, for one, would welcome an opportunity to work together, using that as a vehicle. I hope that you would consider changes that might go

even further to promote the objectives which you eloquently described.

I think we are all interested in an approach that is conceptually sound and also easily administered, creating as little litigation, regulation, and bureaucracy as possible in order to carry out those objectives effectively.

So, if there is any difference, I think it is only because of some concerns about implementation. We ought to go even further. Just to mention one issue, I understand, notwithstanding your rightful interest in small business, that under S. 414 small businesses and universities would have to pay the government for their rights in successful inventions, whereas the large businesses that contracted with the same Federal agency or agencies would not. For example, the large defense contractors under your approach would continue to receive title but not be required to pay.

So there are, I believe, some grounds here for cooperation. Our objectives are basically the same. I will do all I can do to promote these objectives through cooperation.

Senator Schmitt?

OPENING STATEMENT BY SENATOR SCHMITT

Senator SCHMITT. Thank you, Mr. Chairman, Senator Bayh.

I am pleased to have another opportunity to participate in a hearing on this extremely important subject and even the broader subject of intellectual property in this country. This is the fourth in a series of Commerce Committee hearings on Government patent policy.

I note our colleagues on the Judiciary Committee have joined us—Senator Bayh, in particular—in sponsoring today's hearing, and I'm hopeful in the coming weeks our two committees will work closely for what I am confident is the common objective of maximizing the return to the public from our past and current investment in science and technology research and development.

For nearly two centuries, the U.S. patent system has served this country well in fulfilling its constitutional mandate to "promote the progress of science and the useful arts." Business, both large and small, universities, manufacturers, and individual innovators alike have all profited from our patent system, which has provided the necessary incentive for the investment of research, development, and marketing funds so essential to the identification and the diffusion of new products and processes into the marketplace.

Senator BAYH. Will the Senator yield?

Senator SCHMITT. Yes.

Senator BAYH. Prior to this, I mentioned I have another mission before the Budget Committee. I don't want to be rude, but I didn't want to leave without asking him to look at the nice things I said about him before he got here.

Senator SCHMITT. I will certainly do that.

Why I would be the last one to assume that you were being rude.

Senator BAYH. Excuse me for interrupting.

Senator SCHMITT. No, that's fine. Thank you again for joining with us in today's hearing.

More recently, however, many problems in the patent system have surfaced. Attention at hearings of this committee has focused

largely on the Federal Government's policy for managing the fruits of the billions of dollars of expenditures on the development of new technologies. However, there are other problems, and they have been discussed by some of our witnesses, and they are problems that are going to have to be addressed.

I know the administration recognizes the problems. Whether we agree on the ways in which they should be addressed is another issue. Without exception, the witnesses before our committee with respect to the Federal patent policy have stressed the need to reform the existing maze of costly, cumbersome regulations, statutes, and executive orders.

None of these have effectively dealt with the need to mobilize the incentives built into the concept of patents—a very worthy and fundamental concept. Ultimately it is the American consumer who has suffered and will suffer in the future from these misguided policies unless we change them.

Various legislative proposals have been suggested to remedy this untenable situation and establish a truly uniform patent policy across the breadth of the Federal Government which stimulates the transfer of Government-sponsored technology.

Together with Senators Stevenson and Cannon, I have sponsored a bill that will uniformly allocate title to the individual most likely to see that new ideas reach the marketplace—that is, the inventor and not the Federal Government. Under the able leadership of Senator Bayh, the Judiciary Committee has reported out a bill similar in objectives but more limited in scope. A similar bill is under active consideration on the House side, and we expect action there also.

Today we will hear the administration's somewhat novel approach to portions of this long-standing controversy. While I must confess some skepticism as to the feasibility of the President's proposal, I nevertheless look forward to a more detailed explanation of its provisions by Dr. Baruch and what promises to be an interesting exchange with our other witnesses.

Thank you, Mr. Chairman. I want to welcome our panel.

Senator STEVENSON. Senator Warner?

Senator WARNER. Mr. Chairman, may I interject? I have to leave for another hearing.

This is a subject that has been of great interest to me for over 5½ years. I was chief executive officer for the Navy Department and they have a good policy that has worked well in DOD, and I am certain it will work well across the Government.

Senator Schmitt, I would like to be a cosponsor of your legislation. Forgive me for having to absent myself.

Senator SCHMITT. Thank you, sir. We are happy to have had you.

Senator STEVENSON. We will also receive a statement from Senator Long, which will be entered into the record.

[The statements referred to follow:]

STATEMENT OF HON. HOWARD W. CANNON, U.S. SENATOR FROM NEVADA

Last October, the Commerce, Science, and Transportation Committee completed hearings on S. 1215, a bill to establish a uniform policy for allocating rights to inventions made under Federal research grants and contracts. In December, the Judiciary Committee reported S. 414, allowing universities and small business contractors to acquire rights to their inventions. Two committees of the house have

begun to consider similar legislation. President Carter's decision to recommend legislation represents a resolution of internal executive branch differences that no previous administration has been able to achieve.

Together, these developments create a unique opportunity to resolve the controversy over government patent policy in a way that will encourage commercial applications of publicly sponsored research and development and thus benefit the economy. The purpose of this hearing is to examine the novel features of the administration's new proposal. The Senate will then be in a position to choose the best approach or combination of approaches. I look forward to working with the judiciary committee toward that end, and I appreciate the cooperation of Chairman Kennedy and Senator Bayh in arranging this hearing.

STATEMENT OF HON. GAYLORD NELSON, U.S. SENATOR FROM WISCONSIN

Mr. Chairman, I am pleased to have this opportunity to discuss U.S. patent policy and the patent problems facing small business.

There is no doubt of the pressing need for a uniform patent policy. Numerous attempts have been made to achieve that goal but they have been relatively unsuccessful and as a result, policy has developed over the years on an agency-by-agency basis. There are wide variances in the way agencies have interpreted policy and as a result, 24 different patent arrangements are employed by the various Executive agencies.

When Senator Bayh and I introduced a series of patent law reform bills last year, we did so in specific recognition of the problems being created by the current maze of patchwork patent arrangements and in particular, of the problems these arrangements are creating for small business. The bills we introduced, S. 414, the University and Small Business Patent Procedures Act; S. 1679, the Patent Law Amendments Act; and S. 2079, the Independent Patent and Trademark Office Act, would go a long way to overcoming the confusion with patent policy. The University and Small Business Patent Procedures Act allows small business to retain exclusive patent rights on inventions made under federally-supported research. The Patent Law Amendments Act enables the Patent and Trademark Office to arbitrate patent disputes and thereby reduce the cost of patent re-examinations from an average of $250,000 per case to $1,000. And, the Independent Patent and Trademark Office Act, creating an independent Patent and Trademark Office would help make that office more responsive to patent needs in the modern era. According to one former Patent Commissioner, "dry rot" has set in the PTO. Making it an independent office would help correct that problem. Both S. 414, and S. 1679 have been incorporated as a key part of S. 1860, the Small Business Innovation Act which I introduced last year and which is cosponsored by 20 of my colleagues.

The Senate Select Committee on Small Business has held numerous hearings on the problems facing innovative small businesses. Based on our hearings, we concluded that because of the impressive record of small companies as sources of bold, new innovations, it is in the public interest to secure greater small business participation in the Federal research and development effort.

Yet, in our hearings, witnesses have repeatedly pointed out that one of the greatest discouragements to such companies interested in participating in this research effort are the current Federal patent policies. These policies require small businesses seeking Federal contracts to give up patent rights to discoveries made while doing federally sponsored research. In addition, these policies can require small businesses to relinquish their "background rights", which consist of privately financed patents or other materials relating to the invention made under Federal contract, to competitors who later work under Federal research of development programs. This constant threat is a very serious one to the innovative small business which is trying to compete in the marketplace against large corporations. Technological edges are the one advantage that small companies have, and when they are forced to license this out to competitiors, their ability to successfully compete can be jeopardized or ruined.

The University and Small Business Patent Procedures Act (S. 414) has been reported out of the Judiciary Committee and is ready for full Senate action. I hope the Senate can take speedy action on this bill. The loss of small business participation under present policies is a serious loss to the general public. A National Science Foundation study shows conclusively that although smaller firms were responsible for half of all major industrial inventions and innovations since World War II, these firms received only 3.4 percent of Federal research and development money. This, in spite of the fact that small firms produced 24 times as many major innovations per research dollar as did large firms.

The present 24 patent policies in effect in the Federal agencies are of a much greater burden for the small business that for the large corporation which can afford to retain large legal staffs. Moreover, when small businesses are afraid to involve themselves in Government research and development programs because of fears of losing rights to important patents, it can be very difficult to find alternative means of financing their research and development efforts.

All too often, the only alternative open to small business is to license out their promising technologies to larger companies who can afford to conduct expensive research and development programs. The ultimate effect of present patent policies has been de facto contribution toward greater economic concentration by discouraging the growth of innovative, small and independent businesses and cutting them off from the use of Government research and development money.

Again, I want to commend the Administration for its patent policy reform efforts. However, the patent problems faced by small business are serious and acute. The University and Small Business Patent Procedures Act is a significant step toward solving the problems and creating a more effective uniform patent policy. The bill has been reported out of Committee to the full Senate. I hope we can pass it without delay.

STATEMENT OF HON. RUSSELL B. LONG, U.S. SENATOR FROM LOUISIANA

Mr. Chairman, the sponsors of S. 1215 state that "Current Federal policy with respect to the allocation of rights to the results of federally sponsored research and development deters contractor participation in Government contracts, delays technological progress, and stifles the innovative process."

During the many years I have studied this subject there has not been even a shred of evidence to support these claims.

DISPOSITION OF GOVERNMENT RIGHTS

The disposition of rights resulting from Government research and development can increase monopoly and the concentration of economic power or, alternatively, can spread the resulting benefits throughout society with consequent benefit to the maintenance of a competitive free enterprise system and more rapid economic growth. The Congress has always recognized these principles and whenever it has spoken has always provided that the United States Government should acquire title and full right of use and disposition of scientific and technical information obtained and inventions made at its direction and its expenses, and in some cases subject to waiver of Government title when the equities of the situation so require. The basic premise is that inventions should belong to those who pay to have them created, and Congress has asserted on numerous occasions that title should be held by the United States for the benefit of all the people of the United States if made in the performance of a government contract. Despite the vigorous opposition from industry groups and from the organized patent bar, Congress has applied this principle to the following agencies of Government:

The Atomic Energy Commission, the Department of Agriculture, the Tennessee Valley Authority, the National Aeronautics and Space Administration, the Office of Coal Research and Development, the Department of Health, Education, and Welfare, the Veterans Administration. In addition, what came to be known as the Long Amendment is an integral part of a host of laws, such as the Federal Coal Mine Health and Safety Act of 1969, the National Traffic and Motor Vehicle Safety Act, the Helium Act Amendment of 1960; the Solid Waste Disposal Act; the Disarmament Act; the Saline Water Act; the Solar Energy Act, and others. The purpose was to insure that no research would be contracted for, sponsored, cosponsored, or authorized under authority of a particular piece of legislation unless all information, uses, products, processes, patents, and other developments resulting from such research will be available to the general public. Only a few years ago, the late Senator Hart, Senator Nelson and I convinced the Senate that such a provision should be included in the Energy Research and Development Act.

PROPOSED LEGISLATION

It is dismaying, therefore to find that S. 1215 provides for contractors to receive gifts of ownership of taxpayer-financed research, and could well constitute one of the greatest giveaways in our history. It gives everything away; it doesn't leave even a sliver of meat on the bone. It applies not only to those areas uncovered by legislation but it also repeals every law on the books which reserves for the public the results of the research it pays for.

It proposes the repeal of the provisions of the Atomic Energy Act.

It proposes the repeal of the provisions of the National Aeronautics and Space Act.

It proposes the repeal of the provisions of the Department of Agriculture, of TVA, of Department of Interior, in the National Science Foundation, Disarmament Agency, Energy Research and Development Agency, Consumer Product Safety Agency and every other piece of legislation enacted by the Congress to protect the public.

In addition—and this is especially startling—once the monopoly is given to the contractor, the public will be unable to find out what has happened to the results of the research it paid for. Such information as how it is being used, how much money is being made on it is removed from the scrutiny of the public. The bill provides:

"That any such information shall be treated by the Federal agency as commercial or financial information obtained from a person and privileged or confidential and not subject to disclosure under the Freedom of Information Act." (Section 305(a)(1) p. 17)

So what it amounts to is this: not only will the contractor get the seventeen year monopoly of the patent but the public can't even find out whether and to what extent it is being exploited by unjustifiedly high prices or other restrictive measures.

IMPLICATIONS OF PROPOSED LEGISLATION

In the United States, patents have traditionally been held out as an incentive "to promote the progress of science and the useful arts"—an incentive to private persons, willing to assume the necessary risks to earn the stipulated reward. They were never intended to reward persons who perform research at someone else's expense as part of a riskless venture. Therefore, as Professor Wassily Leontief, a Nobel laureate, points out, to allow contractors to retain patents on research financed by and performed for the Government" is no more reasonable or economically sound than to bestow on contractors who build a road financed by public funds, the right to collect tolls from cars that will eventually use it" or the right to close down the road altogether.[1]

Extensive hearings held by the Senate Small Business Committee's Monopoly Subcommittee while I was its chairman and then under Senator Nelson's chairmanship, inevitably lead to the conclusion that the provisions of S. 1215 and similar bills (S. 414 for example) are deleterious to the public interest. Witnesses at these hearings, which started as far back as December, 1959, included distinguished economists, a Deputy Attorney General of the United States, an Assistant Attorney General in charge of the Antitrust Division of the Justice Department, two Chairmen of the Federal Trade Commission and former staff members of the Council of Economic Advisors.

Without any exception these witnesses testified that when a private company finances its own research and development, it takes a risk and deserve exclusive right to the fruits of that risk. Government research and development contracts, however, are generally cost-plus with an assured market—the U.S. Government. There is, thus, absolutely no reason why the taxpayer should be forced to subsidize a private monoply and have to pay twice: first for the research and development and then through monopoly prices. When a contractor hires an employee or an agent to do research for him, the standard common law rule is that the contractor gets the invention. Surely the Government should have no less a right!

In addition to the problem of equity, economic growth and increased productivity require the most rapid dissemination of scientific and technical knowledge. Allowing private firms to file private patents would do just the opposite. Filing for a patent application is a secret matter, and technical information connected with the patent is not disclosed until the patent is granted, which takes an average of 3½ years. In other words, instead of rapid disclosure, information is really bottled up for that length of time.

If a policy making technological advances available to all without charge were adopted and maintained for a considerable period, other things being equal, it would make a positive contribution to the efficiency of the economic system and the rate of growth, according to Dr. Lee Preston.[2]

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[1] Hearings before Monopoly Subcommittee of the Senate Small Business Committee 1963, pp. 250 ff.

[2] Economic Aspects of Government Patent Policy: Hearings of Monopoly Subcommittee of U.S. Senate Small Business Committee (1963), p. 249. Testimony of Dr. Lee Preston, then prof. of Bus. Admin., U. of Calif., Berkeley and former staff economist of Council of Economic Advisers.

Nobel prize winner Dr. Wassily Leontief, the developer of the input-output techniques and analysis, testified in 1963 that a government-wide policy whereby the results of research financed by the public would be freely available to all would increase the productivity of labor and capital, and estimated that the difference between restrictive (allowing the contractor to retain title) and open patent policies should account for one half of one percent in a 4-5 [3] percent growth rate of the average productivity of labor, "I have no doubt," he stated, "that an open door policy in respect to inventions resulting from work done under governmental contract would speed our technological progress considerably."[4]

John H. Shenefield, Assistant Attorney General, Antitrust Division, Department of Justice and Michael Pertschuk, Chairman of the Federal Trade Commission, categorically stated in December, 1977 that there is no factual basis for the claims that giving away title to private contractors promotes commercialization of government-financed inventions and that the available evidence shows just the opposite. They also stated that even if an exceptional circumstance arises—and no specific example could be found—that would justify a waiver of the government's rights, it should never be done unless the invention has been identified and a study made of the impact of the waiver on the public interest. In addition, such proposals as "march-in rights" would be ineffective and valueless to protect the public against patent misuse.[5]

At the same hearing in December, 1977, Stanley M. Clark, Chief Patent Counsel of the Firestone Tire and Rubber Company, said that:

"I believe in free enterprise and in a competitive system. But the proposal that the Government spend large sums of money for research and development and then hand the patents stemming from such research over to the private contractors is not consistent with free enterprise."

"* * * Some have told you and will tell you that unless the research contractors are given title to patents which are produced at Government expense, the contractors will not accept Government research and development contracts. Don't you believe it. They want those Government funds and the rewards and advantages that come with such contracts and they won't turn them down. What they get, in many instances, can be very rewarding even without the patents; and in any event there are no risks involved; the Government assumes all of those." [6]

This bill (S. 1215) does not deal with patent problems at all; it is not concerned with the mechanics of securing a patent or the administration of the Patent Office. It involves simply the disposition of public property rights arising out of the huge expenditures of public funds—about thirty billion dollars at present—and it is dismaying to find that the same old claims—discredited years ago—to justify the giveaway of the public's rights are still being made today.

S. 1215 would wipe out every law on the books which reserves for the public the results of the research it pays for.

It would hamper the rapid dissemination of scientific and technological information and hence will retard economic growth and increased productivity.

Since the largest corporations do most of the government research, it would promote monopoly and concentration of economic and political power.

This proposed legislation is one of the most radical, far-reaching giveaways that I have seen in the many years that I have been a Member of the United States Senate.

As a Member of the Commerce Subcommittee on Science, Technology and space, I vigorously oppose the bill.

Senator STEVENSON. Our first witness is Dr. Jordan Baruch, the Assistant Secretary of Commerce for Science and Technology.

STATEMENT OF DR. JORDAN J. BARUCH, ASSISTANT SECRETARY FOR SCIENCE AND TECHNOLOGY, DEPARTMENT OF COMMERCE; ACCOMPANIED BY CHARLES HERZ, GENERAL COUNSEL, NATIONAL SCIENCE FOUNDATION; AND DAVID A. GUBERMAN, STAFF

Dr. BARUCH. Mr. Chairman, with your permission, I would like to submit for the record my written testimony. I would also like to

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[3] The growth rate has declined since then.

[4] Op Cit: Testimony of Dr. Wassily Leontief, p. 251.

[5] Government Patent Policies: Harings before U.S. Senate Small Business Committee, Dec. 1977, Testimony of John H. Shenefield, p. 189 and 192, and Michael Pertschuk, p. 245 and 246.

[6] Op Cit: Testimony of Stanley M. Clark pp. 215–223.

submit for the record the administration's proposed Patent Policy bill along with a statement of purpose and need in support thereof and a section-by-section analysis. The proposed bill may be cited as the Government Patent Policy Act of 1980.

Senator STEVENSON. They will be in the record.

Dr. BARUCH. Thank you. Before discussing the substance of the bill I would like to say that, after approximately 3 years with the Government, to appear before these committees and still be able to say with real sincerity that it is a pleasure to appear before you, is not something I expected when I first became Assistant Secretary.

Mr. Chairman, Senator Schmitt, we share a common goal—a goal that is obviously shared by Senator Warner and by Senator Bayh.

The bill that the administration is presenting to you is based upon two facts. They are facts that are often railed against by those who wish the world were different, but I believe they must be considered facts because they cannot be contradicted with evidence.

Fact No. 1, the benefits to the public from an invention stem from its use. Reduced costs and improved productivity, industrial growth, and the introduction of new goods represent true advances in our life style. These are the kinds of benefits that the public receives.

Fact No. 2. Investments in developing and commercializing new inventions generally are or even 1,000 times as great as the cost of invention itself. The willingness of industry to develop those inventions and to commercialize them depends on industry's ability to earn a satisfactory return on those investments, recognizing their often highly risky nature, before others can copy cheaply what they have produced at such risk and expense.

Any bill, therefore, must provide for extensive use and for the incentives to enter into the development and commercialization phase. I mention extensive use, because we wish to insure through this bill wide utilization across many sectors of the civilian economy. We want to assure that inventions made in one industry are used to their maximum extent in others as well.

I won't belabor the old argument that has been going on for more than 30 years between those who believe in title in the contractor and those who believe in title in the Government, except to state that the proposed legislation that has been presented to you this morning is not simply a compromise between to those two politically difficult positions. It is, instead, legislation which we believe will maximize the utilization of federally funded inventions.

Let me begin with the small business provisions of the bill. Senator Dole, Senator Bayh and others, have expressed eloquently their record of dynamism and the fact that small businesses as they grow need to, and effectively do, expand the fields in which they work.

When I participated in starting a firm—Bolt, Beranek, and Newman—one of the "Route 128" firms in Massachusetts, we started in the field of acoustics. Some 29 years later, when I severed my ties with BBN in 1977 to join the administration, the firm was in acoustics, computers, electronic instruments, communication, and a range of other fields. Its employment had grown 160 times from its

size when we first started it—a growth which is approximately 20 percent per year compounded.

I would like to point out that much of that growth, especially in the early years, was financed by royalties from the patents that the firm held. So we share Senator Bayh's view that it is imperative for small businesses to retain title to its patents and not to be constricted in the fields of use in which they can exercise that title.

In addition, universities, other 501(c)(3) organizations like the Salk Foundation, Sloan-Kettering, Childrens Hospital, and others should also be treated specially because of the special characteristics they have in our society.

But while we believe in title in small businesses and universities, they are special cases. Small business has testified—and Senator Bayh has just mentioned—that at best small business does only a minute fraction of Government R. & D. Despite the other efforts of the administration and the Congress to increase the share of Government R. & D. in which small business engages, their share will continue to be small.

So if we are to do other than deal only with the very tip of an iceberg, it's imperative that we deal with the larger businesses as well.

In the businesses in which they engage, larger contractors often are the most effective commercializers of patents that they develop. Production efficiencies, economies of scale, and so forth accrue to large businesses and enable them to pursue effectively the fruits of the patents that they develop with Government support.

If we cared only that these patents be utilized in the commerical fields of interest to those contractors, we would not argue about the question of title in the contractor. We want and need, however, to achieve the widest possible use of patents developed under Federal sponsorship of support across a wide range of industries. We particularly want and need to increase the availability of those patents to small businesses to explore new areas of commercialization, often too small, too risky, or requiring too much additional technical input to catch the interest of the large firm.

If one were to design an ideal bill to meet these goals, one would like the larger contractor to have the same degree of exclusivity in its areas of commerical interest that it would have from title and yet have the Government hold title in other areas, so that the Government could pursue an active course in marketing those patents to small businesses and others willing to explore other commerically interesting areas.

Many of the inventions coming out of Government R. & D. represent radical invention. They have extensive potential for use far afield from the commerical interests of the contractor which develops them. The present bill provides for the Government to encourage utilization in those other fields.

It is often said that the Government can't do this job. Evidence is posted by those who say we never have done it. I came down here with a skeptical view of Government's capabilities. My skepticism stemed from contact as an outsider. I got here, I had my nose rubbed in those prejudices.

I find that Government agencies, when challenged by a stimulating task and given the resources to pursue that task, can attract

the kind of people who make it possible for them to do an outstanding job.

We have not yet gotten to the point where we trust the national defense to the private sector. There are other jobs that the Government can do well. Mr. Chairman, Senator Schmitt, I think that the President's bill embodies the best of S. 414, embodies the best of S. 1215, and provides the additional extension for utilization in areas that neither of those bills attempt. I would hope that we can join together in supporting the President's proposal.

Thank you, Mr. Chairman.

[The statement and materials referred to follow:]

STATEMENT OF JORDAN J. BARUCH, ASSISTANT SECRETARY FOR SCIENCE AND TECHOLOGY, U.S. DEPARTMENT OF COMMERCE

Mr. Chairman, members of the Committees, I appreciate this opportunity to appear before you today to discuss government patent policy—the allocation of rights in patentable inventions made in the course of federally sponsored or supported research and development. Government patent policy bears a major responsibility for the pace of industrial innovation in America and for the ability of the Federal agencies to attract the most qualified contractors to participate in their research and development work. In addition, government patent policy provides us with an opportunity to further the special role in our society played by small businesses and nonprofit organizations.

THE INDUSTRIAL INNOVATION PROCESS

President Carter, in his Industrial Innovation Message to the Congress of October 31, 1979, emphasized that:

"Industrial innovation—the development and commericalization of new products and processes—is an essential element of a strong and growing American economy. It helps ensure economic vitality, improved productivity, international competitiveness, job creation, and an improved quality of life for every American. Further, industrial innovation is necessary if we are to solve some of the Nation's most pressing problems—reducing inflation, providing new energy supplies and better conserving existing supplies, ensuring adequate food for the world's population, protecting the environment and our natural resources, and improving health care."

Industrial innovation is primarily the responsibility of the private sector. In our economic system, the management of every firm must decide whether to innovate. Innovation is possible either by developing and marketing new products or by finding and employing new ways of making existing products. Since new products offer opportunities for increased sales, and since new processes can offer cost savings, the profit motive provides a powerful stimulus to innovative activity by the private sector.

While it is the private decision-maker who determines whether innovation takes place, the Federal government can establish a climate which either encourages or discourages innovative activity. Federal actions affect innovation within the firm to the degree that they affect the ability of the firm to innovate or the decision calculus of its executives.

The importance of patent rights

The progress of an invention from idea to commercial product or process ordinarily is long and expensive. The temporary patent monopoly provided for by the Constitution encourages an enterpreneur to invest risk capital to develop an invention secure in the knowledge that, if his efforts are successful, he will have an opportunity to obtain a return on his investment before his competitors are free to copy cheaply what he produced with such difficulty.

Patent rights affect positively the entrepreneur's ability to raise risk capital. Patent rights offer the successful inventor-entrepreneur a respite from competition in which to enjoy the fruits of success.

Patent rights are particularly important to small firms. Firms which do not already possess competitive advantages such as a popular trade name, manufacturing experience, established channels of distribution, or size, are more likely to need exclusive commercial rights to attract risk capital and recover commercialization costs than firms which do enjoy such advantages. Given our present concerns, this is an important point.

The record of small innovative firms

While the record of large innovative firms is substantial, the record of small businesses based on technological innovation—especially those in high technology areas—is even more impressive. A 1975 study commissioned by the National Science Foundation reported that in the period from 1953 to 1973 about one-half of the major innovations produced by United States industry were made by firms with fewer than one thousand employees and about one-quarter were made by firms with fewer than 100 employees.

Many of you are familiar with the study of the Department of Commerce Technical Advisory Board which showed that in the years from 1969 to 1974, a group of large innovative firms experienced sales growth of 13.2 percent while a similar group of mature firms had 11.4 percent sales growth. Despite the similarity of their growth in sales, employment in the mature firms grew by only 0.6 percent while employment in the innovative firms grew by 4.3 percent—over seven times as much.

In this same period, a group of young, high technology businesses enjoyed a sales growth of 42.5 percent—roughly three times as great as their larger counterparts. Their employment in that period grew by 40.7 percent—almost ten times the rate of the large innovative firms, and some 65 times as much as the large mature firms.

Turning to the actual numbers for the period studied, six large mature firms having combined sales of 36 billion dollars created twenty-five thousand new jobs. At the same time, five young high technology firms with one-fortieth their sales—875 million dollars—created thirty-five thousand new jobs. Five large innovative firms with sales of 21 billion dollars created 106 thousand new jobs.

This evidence runs contrary to the conventional wisdom which holds that innovation, especially when applied to the production process, throws people out of work. In fact, over time innovations that improve the productivity of an industry commonly increase the number of workers employed within the industry.

GOVERNMENT PATENT POLICY

The Federal government provides about one-half of all the money spent each year in this country on research and development. The allocation of rights in patentable inventions made during the course of that work affects the pace of industrial innovation in the Nation through its effect on firms' incentives and ability to innovate. This allocation affects the willingness of firms to undertake government research and development work because they must weigh the benefits of the government dollar against the impact on their commercial business of diverting resources to do government work.

As President Carter observed in his Industrial Innovation Message:

"For over thirty years the Federal agencies supporting research and development in industry and universities have had conflicting policies governing the disposition of [patent] rights resulting from that work. This confusion has seriously inhibited the use of those patents in industry."

There has been much debate on what Administration policy should be. There has been wide support, however, for nine propositions about a desirable government patent policy. Government patent policy should strive to:

(1) Obtain the best contractor effort for the government;

(2) Maximize technological innovation;

(3) Promote competition within the private sector;

(4) Recognize the public's equity in the products of federally sponsored or supported research and development;

(5) Strengthen the research programs of universities; and

(6) Provide special incentives for small businesses; and should:

(7) Be uniform, in the sense that like cases should be treated alike no matter which government agency provides the support and in the sense that there should be only a single set of patent regulations with which potential government contractors must deal;

(8) Be flexible, in the sense that differing cases should be treated appropriately, that is, not necessarily identically; and

(9) Be as clear and as simple as possible.

The source of the confusion noted by the President has been the inability, until now, of any Administration to resolve the diverse considerations involved into a single policy. The historical development of existing government patent policies is described briefly in the statement of purpose and need for the Administration's draft Government Patent Policy Act of 1980. At this point, I request that the official draft of the bill, with its accompanying statement of purpose and need and section-by-section analysis, be included in the record. The bill formally will be transmitted to the Congress next week.

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This bill implements the President's announcement in his Industrial Innovation Message of support for uniform government patent policy legislation. Participants in the policy debate which preceded the drafting of the Adminstration bill have argued that the government should implement some form of either a "contractor title" or a "government title" policy. Under a contractor title policy, the contractor would receive title in any invention resulting from federally sponsored or supported research and development, and the government would receive a nonexclusive license to practice the invention. Under the government title policy, the government would receive title in any invention, and the contractor would receive a nonexclusive license to practice the invention.

Proponents of each policy have presented several distinct reasons in favor of their viewpoints. Those in favor of a government title policy argue that the primary purpose of the patent laws is to create an incentive for businesses to engage in research and development activities. A patent provides its owner with the right to foreclose competition for a limited period in the marketing of the covered invention; consequently, if the patent holder is able to commercialize the patented invention, it may be able to recover not only its original research and development costs but also to achieve an advantage over its competitors who are unable to use the invention.

Government sponsorship of research and development, however, generally eliminates some of the risk associated with such activities. The contractor's incentive to perform the work is provided by the payment it receives under the government contract, not by the mere possibility that it may be able to exploit a patented invention at some future time. To provide the contractor with title in the invention, it is claimed, would unjustly enrich the contractor at the expense of the public, which has paid for the research and development from which the invention was made.

Government title supporters further argue that government ownership of inventions will ensure the widest possible availability to the public of the technological knowledge embodied therein. Moreover, contractors do not necessarily need to receive title in federally-financed inventions to induce them to commercialize the resulting inventions. They receive other competitive benefits through their participation in government contracts, such as the opportunity to train key personnel, expand their research facilities, develop know-how, and obtain access to government technology. These benefits could provide any necessary competitive advantage to induce the contractor to commercialize the invention. Even if some form of exclusive rights in the invention is necessary to induce its commercialization, the government contractor is not necessarily the firm most capable of achieving the desired result. Rather, any need for exclusivity could be satisfied by issuing exclusive licenses after the invention has been identified.

Finally, it has been argued that contractor ownership of inventions may tend to enhance the recipient's market power and therefore may contribute to the concentration of economic power in a limited number of corporations.[1]

Advocates of contractor title point out that government ownership with the offer of unrestricted public use has resulted in an exceptionally low rate of commercial application of federal-owned inventions. The costs and risks of commercializing an invention, developing it and its market, often are so substantial that commercialization will not take place or even be attempted in the absence of exclusive commercial rights. Ironically, the free public right to use a federally-owned patent thus results, in practical terms, in a denial of the opportunity to use the invention.

Contractor title proponents also assert that a government title policy discourages the most qualified firms from participating in government research and development projects. These firms often have invested heavily in research and development related to the government project; consequently, their experience and technological advancement would enable them to perform the government contract more inexpen-

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[1] There is little evidence, however, that patent policy has had any impact on market structure. A 1968 study by Harbridge House, Inc., probably the most extensive study of government patent policy ever done, indicates that most contractors have been willing to license patents obtained from government research, thereby enabling new or small firms to establish a position in the market. Further, a 1977 study by Utterback and Murray, of the M.I.T. Center for Policy Alternatives, revealed that government procurement of innovative products from small firms was a much more important influence on industry development than government patent policy.

Even if there were evidence indicating that research under a contractor-rights policy increases the market power of large firms, this more effectively could be considered in the selection of contractors. By adopting this strategy, competition would be improved not just through the allocation of patent rights but also through the allocation of contract funds, where most of the competitive impact appears to occur. Moreover, explicit "march-in" rights to address instances where demonstrable anticompetitive effects result from the granting of exclusive commercial rights are a final assurance that a properly designed policy of giving contractors exclusive commercial rights need have no significant anticompetitive potential.

sively and more effectively than could other potential contractors. These firms refuse to bid on the government work, however, because the cost to them of publicly disclosing their independently acquired information in conjunction with the disclosure of an invention made under the government contract would be much greater than the profits they could expect to receive under the contract.[2]

Another problem with the policy of government ownership is that it provides little incentive for contractors to disclose their inventions to the government. Rather, the contractor either may maintain the invention's secrecy or make an incomplete disclosure and subsequently attempt to seek its own patent of the federally-financed technology. The incentive for nondisclosure is especially great for those contractors that would be required to divulge independently-acquired information when they revealed a federally-financed invention to the government. A contractor title policy would ameliorate the disclosure disincentive by eliminating the financial penalty associated with disclosure. Further, a contractor title policy would create an incentive to disclose by providing contractors with property rights in federally-financed inventions on the condition that such inventions are reported to the government.

The conflicting arguments of the government title and contractor title proponents lead to one conclusion: neither policy, alone, provides the most beneficial means for allocating rights to federally sponsored or supported inventions. Although a contractor title policy may induce both an increased participation in government research and development projects and a higher commercialization rate of federally-financed inventions, such a policy would be unnecessary to induce participation or commercialization in many instances. Under a government title policy, many qualified contractors nevertheless would participate in the government contracting process and some federally-financed inventions would be commercialized. In such situations, implementation of a contractor title policy could be necessary and possibly might conflict with the public interest. Strict adherence to a government title policy, on the other hand, would prevent not only the most qualified contractors from participating in certain government research and development projects but also the commercialization of certain inventions.

One possible resolution would be a general government title policy under which the agencies possessed liberal authority to induce the participation of the most competent contractors by waiving government rights in the invention at the time of

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[2] To some, the degree to which Government patent policy encourages or discourages contractor participation in Government research and development programs is the single most important consideration. Advocates of one and another policy have disagreed over the extent to which the ancillary benefits from government sponsorship and support assure adequate participation. These benefits include the Government dollar itself, the know-how developed by the firm, and the attendant advantage over other firms in competition for follow-up development and procurement by the Government. There is very little empirical evidence on the effect of government patent policy on firm participation in the contracting process. The Harbridge House study contains case studies in which firms refused to undertake Government contracts under a Government title, no rights to the contractor, policy. However, the study gives no indication of the significance of the problem beyond stating that the policy choice is most important where the prospective contractors is engaged in similar research for a commerical business in which patent protection is important.

This seems a reasonable conclusion. Presumably, the Government only sponsors or supports research that is not being pursued adequately by the private sector on its own. This research represents projects for which the expected return without Government support is less than the research and development cost required for invention. If many firms are capable of performing the research, they compete by announcing the lowest payment for which they will undertake a particular project. Firms will have similar perceptions of expected benefits because any rights to inventions can be sold. Moreover, if firms value their inventive inputs at opportunity costs reflecting their productivity in related research, then estimates of cost will be very similar. That is, firms with skilled research staffs will require less of their more valuable time to complete a project than those with inferior personnel. Consequently, the breakeven payment for all firms will be approximately the same, and competition for the award will drive down the required Government funding to that level.

The only difference between policies which do or do not assure the contractor exclusive commerical rights is that the firm includes the value of the patent in its calculation of expected return when it operates under the more favorable policy. Without the prospect of exclusive commerical rights, firms will require a larger payment from the Government to breakeven. Under either policy, however, the Government should be able to offer most qualified firms adequate economic incentives to participate in the contracting process.

Contractor rights advocates argues, however, that a firm which has invested its own resources in the field of research will not participate under an unfavorable policy because proprietary information used in completing the contract must also be turned over to the Government. The value of that information includes monopoly profits from other inventions that the firm could market in the private sector. Therefore, the opportunity cost and breakeven payment for the contract will be higher for the advanced firms then for other firms. As a result, the advanced firm will choose in some cases not to particpate in the contracting process.

contracting. In addition, the government could induce the commercialization of any invention in which it holds title by deciding to grant any necessary exclusive license after the invention had been identified. The administrative burdens created by this policy, however, make it impractical and undesirable. An agency would be required to allocate much of its resources to the negotiation with the contractor of the appropriate allocation of invention rights, a subject of only secondary importance to the agency when compared to the primary purpose of the contract. Moreover, each agency would be required to allocate vast resources to the evaulation and promotion of federally-owned inventions. If an agency failed to grant any necessary exclusive license, the penalty paid by the public would be the noncommercialization of the invention.

The President's patent policy would reduce the administrative burden and the uncertainty that accompany present policies. The proposal, which includes elements of both the government title policy and the contractor title policy, allocates patent rights in federally sponsored or supported inventions according to unambiguous, generally applicable rules. Contractors that are small businesses and nonprofit organizations will receive title in federally-financed inventions, but the government will retain title in inventions made by all other contractors. Ordinarily, the other contractors automatically will receive exclusive licenses in whatever particular fields of use in which they agree to commercialize the invention.

The receipt of title by small businesses and nonprofit organizations is intended to provide these contractors with an advantage over their larger competitors. The advantage is justified by the special place of these organizations in our society. It also is justified by the fact that, unlike larger contractors whose commercial interest in an invention is apt to be limited by the fields in which it already is, or is planning to become, engaged, small businesses and nonprofit organizations share a strong incentive to attempt to commercialize an invention to the widest possible extent.

The President's decision to provide contractors other than small businesses and nonprofit organizations with automatic exclusive licenses in particular fields of use recognizes that a complete transfer of title to the contractor usually is unnecessary to induce its participation in government research and development work and its commercialization of the invention. The government retains the right to license the invention or otherwise make it available to the public in all fields of use not selected by the contractor.

Although the contractor will know at the time of contracting that it automatically will be able to receive exclusive licenses under any forthcoming invention in particular fields of use, it will not actually receive those licenses until the invention has been identified, its intention to commercialize has been announced, and its selection of fields of use have been submitted to the contracting agency. After the contractor has submitted complete information regarding the invention, its intention to commercialize, and its selection of fields of use, the agency has ninety days in which it may determine whether the contractor's acquisition of an exclusive license in any selected field of use would be contrary to the requirements of the agency's mission, national security, or the antitrust laws. To reduce administrative burdens and to increase the security of the contractor's expectations of receiving exclusive commercial rights in the invention, the scope of the agency's possible inquiry underlying this determination is limited. An agency review will focus only on those unforseen circumstances of which it has become aware since the time of contracting that now require it to deny the contractor exclusive commercial rights with respect to a particular field of use. The contractor will not be denied an exclusive license solely on the basis of facts that were known or reasonably foreseeable by the agency at the time of contracting. If such facts do exist at the time of contracting, an agency normally will deviate from the standard patent rights clause so that the contractor will know at that time that it will not receive an exclusive license to practice a forthcoming invention in a particular field of use.

The agency's ability to deviate from the standard patent rights clause and to terminate a contractor's title or exclusive rights in an invention provide it with additional flexibility to fulfill its mission and protect the public interest. Although these powers are intended to be exercised only in unusual circumstances, they are available to assist the agency in fulfilling its mission, protecting the public interest, and promoting the commercialization of contract inventions.

CONCLUSIONS

Enactment of this bill would stimulate the industrial innovation process by contributing to the more effective utilization of inventions made in the course of federally sponsored or supported research and development work. Further, the bill

would resolve longstanding policy issues, answers to which the Congress, the Executive Branch, industry, and the public actively have sought for a generation. The bill is designed to reduce the administrative burden now imposed upon contractors and Government agencies alike.

Further, the bill responds to the 1972 recommendations to the Congress of the bipartisan Commission on Government Procurement, that legislation be enacted which would make uniform the Federal practices in the area of allocating the rights to contract inventions and make clear the government's authority to grant exclusive licenses under federally-owned inventions. The bill also would codify the basic policy concepts of Executive Order 10096, the provisions of which uniformly would be applicable to all Federal employees.

It is anticipated that, following enactment and implementation of this bill, greater commercial use will be made of the technology resulting from the Federal government's research and development effort, in turn creating additional employment, a higher standard of living, and an overall economic benefit to the United States as a whole, while protecting the public against any possible wrongful contractor conduct.

PROPOSAL

A BILL

To establish a uniform Federal system for management, protection, and use of inventions that result from federally sponsored or supported research or development, and for related purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Government Patent Policy Act of 1980".

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TITLE I—POLICY

FINDINGS

Sec. 101. The Congress, recognizing the profound impact of science, engineering, and technology policy on the well-being, health, and safety of the Nation, finds that:
(1) Inventions that result from federally sponsored or supported research and development constitute a valuable national resource;
(2) Federal policy on allocation of patent rights in such inventions should stimulate innovation, should meet the needs of the Government, should foster competition, should recognize the equities of Government contractors and Federal employee-inventors, and should provide small businesses and educational institutions with special incentives to participate in Federal research and development programs and to commercialize resulting inventions; and
(3) The public interest would be advanced if greater efforts were made to promote commercial use of new technology that results from federally sponsored or supported research and development.

PURPOSE

Sec. 102. The purposes of this Act are—
(1) To establish an effective Federal system for management and use of inventions that result from federally sponsored or supported research and development;
(2) To allocate patent rights in inventions that result from federally sponsored or supported research and development in ways that—
(A) Stimulate innovation,
(B) Encourage participation of all qualified contractors,
(C) Foster competition,
(D) Reduce administrative burdens on Federal agencies and their contractors,
(E) Promote widespread public use of inventions made with public support, and
(F) Provide special incentives to small businesses and educational institutions;
(3) To allocate equitably patent rights in Federal employee inventions;
(4) To provide for domestic and foreign patenting of federally owned inventions and licensing of federally-owned patent rights, with the objective of strengthing the Nation's economy and expanding its domestic and foreign markets; and
(5) To amend or repeal inconsistent laws.

TITLE II—CONTRACT INVENTIONS

CONTRACT INVENTIONS—REPORTING

Sec. 201. (a) This Title applies to "contract inventions", which in this Act are inventions made in the course of or under Federal contracts.
(b) Every contractor will provide the responsible agency with timely written reports on each contract invention containing:
(1) Complete technical information on the invention,
(2) A list of each country, if any, in which the contractor elects to file a patent application on the invention, and
(3) Unless the contractor is a small business or nonprofit organization, a list of each field of use in which the contractor intends to commercialize the invention or otherwise achieve public use of the invention. Each field will be described with sufficient particularity to allow the Government to identify those fields of use not encompassed by the described field.
The Government neither will publish nor release these reports until the contractor or the Government has had a reasonable time to file patent applications or one year has passed since receipt of all the information required by subsection (b)(1) of this section, whichever is earlier, and may so withhold such information in other reports or records.
(c) If the responsible agency determines that the contractor has unreasonably failed to file reports as required by subsection (b) of this section, the contractor may be deprived of any or all of the rights it otherwise would have under this Title.

ALLOCATION OF RIGHTS—SMALL BUSINESSES AND NONPROFIT ORGANIZATIONS

Sec. 202. (a) A contractor that is a small business or a nonprofit organization will acquire title to its contract invention in each country it lists under section 201(b)(2)

in which it files a patent application within a reasonable time. However, title will be subject to the Government's minimum rights under section 205 and march-in rights under section 206.

(b) The Government will have the right to acquire title to any patent on a contract invention in each country in which the contractor elects not to file a patent application or fails to file within a reasonable time.

ALLOCATION OF RIGHTS—OTHER CONTRACTORS

Sec. 203. (a) The Government will acquire title to all patents on any contract invention whenever the contractor is not a small business or nonprofit organization.

(b) If such a contractor files within a reasonable time a patent application on a reported contract invention in any country it lists under section 201(b)(2), it will receive an exclusive license under the patent in each described field of use, with the exclusive right to grant sublicenses. However, its license will be subject to the Government's minimum rights under section 205 and march-in rights under section 206.

(c) The contractor automatically will acquire by operation of law the right to receive an exclusive license, pursuant to subsection (b) of this section, ninety days after it provides the responsible agency with all of the information required to be disclosed by section 201(b), except that it will not acquire the right to receive an exclusive license in any field of use as to which the agency notifies the contractor within the ninety-day period that it has made a determination under subsection (d) of this section.

(d) The contractor will not acquire an exclusive license in any field of use if the responsible agency determines that the contractor's possession of such a license—

(1) Would be contrary to the requirements of the agency's mission;

(2) Would impair national security; or

(3) Would violate the antitrust laws if the receipt by the contractor of such a license were deemed an acquisition of another corporation.

(e) An agency determination under subsection (d) of this section will include written reasons for the determination. The contractor may appeal the determination to the United States Court of Claims within sixty days after the contractor has been notified of the determination. That Court will have exclusive jurisdiction to determine the matter de novo and to affirm, reverse, or modify the agency determination, specifically including authority to require that the contractor receive any exclusive license provided for by this section.

(f) If the responsible agency determines that the national interest would not be affected adversely, the agency may grant the contractor title to any contract invention in any foreign country in which the contractor agrees to file a patent application.

CONTRACTOR LICENSE

Sec. 204. Any contractor that complies with section 201(b) automatically will receive by operation of law nonexclusive, royalty-free licenses to practice the contract invention in all countries where it does not receive title under section 202 and in all fields of use and in all countries in which it does not receive an exclusive license under section 203. These nonexclusive licenses may be revoked only to the extent necessary to allow the Government to grant exclusive licenses under Title IV.

MINIMUM GOVERNMENT RIGHTS

Sec. 205. (a) The Government will have the following minimum rights in any contract invention:

(1) The right to require from the contractor written reports on the use of the invention,

(2) A royalty-free worldwide right or license to practice the invention or have it practiced for the Government, and

(3) The right to license or sublicense State, local, or foreign governments to practice the invention or have it practiced for them, if the agency determines at the time of contracting that acquisition of this right would serve the national interest.

(b) Whenever the Government has rights in any invention under this Title, each patent application and patent on the invention will include a statement that the invention was made with Government sponsorship or support and that the Government has rights in the patents.

MARCH-IN RIGHTS

Sec. 206. (a) In any field of use, the Government may wholly or partly terminate the contractor's title or exclusive rights in any patent on a contract invention; may require the contractor to grant appropriate licenses or sublicenses to responsible applicants; or, if necessary, may grant such licenses or sublicenses itself. The Government may take such actions only—

(1) If the contractor has not taken and is not expected to take timely and effective action to achieve practical application of the invention in one or more of the selected fields of use;

(2) If necessary to protect the national security;

(3) If necessary to meet requirements for public use specified by Federal regulation;

(4) If the contractor's rights in the invention violate the antitrust laws if the contractor's original receipt of those rights were deemed an acquisition of assets of another corporation; or

(5) If the contractor has failed to comply with the reporting requirements of this Act.

(b) These march-in rights may be exercised by the responsible agency on its own initiative or on a petition from an interested person justifying such action.

(c) Whenever under this section an agency requires a contractor to grant a license or sublicense, it may specify reasonable terms, including the royalties to be charged, if any; the duration of the license or sublicense; the scope of exclusivity; and the fields of use to be covered.

DEVIATION AND WAIVER

Sec. 207. (a) An agency may deviate from the allocation of patent rights in contract inventions provided for in any standard patent rights clause established under section 209 acquiring more or fewer rights in the inventions, to further the agency's mission and the public interest. It may so deviate on a class basis only in accordance with regulations issued either under section 209 or, unless prohibited by those regulations, by the agency. Case-by-case deviations may be authorized by the head of the agency or his designee, and described in the Federal Register.

(b) The national security and antitrust march-in rights reserved by sections 206(a)(2), 206(a)(4), and 206(c) may not be waived under any circumstances.

(c) Rights reserved by sections 203 and 206(a)(1) may be waived only:

(1) In contracts involving cosponsored, cost-sharing, or joint-venture research or development to which the contractor makes a substantial contribution of funds, facilities, technology, or equipment; or

(2) In contracts with a contractor whose participation is necessary for the successful accomplishment of the agency's mission but cannot be obtained under the standard patent rights clause.

TRANSFER OF RIGHTS TO CONTRACTOR EMPLOYEES

Sec. 208. The contractor's employee-inventor may receive some or all of the contractor's rights under this Title with the permission of the contractor and the approval of the responsible agency. The corresponding obligations of the contractor under this title then will become obligations of the employee-inventor.

REGULATIONS AND STANDARD PATENT RIGHTS CLAUSE

Sec. 209. The Office of Federal Procurement Policy will direct the issuance of regulations to implement this Title. The regulations will establish a standard patent rights clause or clauses, to be included in each Federal contract except as provided in section 207.

TITLE III—INVENTIONS OF FEDERAL EMPLOYEES

EMPLOYEE INVENTIONS

Sec. 301. This Title applies to "employee inventions", which in this Act are inventions made by Federal employees.

REPORTING OF INVENTIONS

Sec. 302. (a) Federal employees will file timely written reports on any inventions they make. Such reports will be made to the employee's agency and will contain complete technical information concerning the invention. The Government neither will publish nor release a report until there has been a reasonable time to file

patent applications or until one year has passed since the final disposition of rights under this Title, whichever is earlier.

(b) If the responsible agency determines that the employee-inventor unreasonably has failed to file a report as required by subsection (a) of this section, the employee may be deprived of any or all of the rights he otherwise would have under the Title.

CRITERIA FOR ALLOCATION OF RIGHTS

Sec. 303. The responsible agency will determine the rights of the Government and of Federal employee-inventors in any inventions made by employee-inventors through the use of the following criteria:

(1) If the invention bears a direct relation to the duties of the employee-inventor or was made in consequence of his employment, the Government will acquire all rights in the invention.

(2) If the invention neither bears a direct relation to the duties of the employee-inventor or was made in consequence of his employment, but was made with a contribution from Federal funds, facilities, equipment, materials, or information not generally available to the public, or from services of other Federal employees on official duty, the employee-inventor will receive all rights in the invention, except as provided in paragraph (4) of this section. However, these rights will be subject to a nonexclusive, royalty-free, worldwide license to the Government to practice the invention or have it practiced for the Government.

(3) If the agency finds insufficient interest in an invention to justify exercising its rights under paragraph (1) of this section, it may permit the employee-inventor to receive any or all of those rights, subject to the Government's rights as described in paragraph (2) of this section. However, nothing in this paragraph will prevent the agency from publishing the invention or otherwise dedicating it to the public.

(4) If the agency determines that national security might be impaired if the employee-inventor were to receive rights in an invention under paragraph (2) or (3) of this section, the Government will acquire all rights in the invention.

(5) The Government will claim no rights under this Act in any employee-invention not covered by paragraphs (1) or (2) of this section.

(6) Notwithstanding paragraph (1) of this section, an agency may enter into agreements providing for appropriate allocation of rights in inventions that result from research or development to which other parties have substantially contributed.

PRESCRIPTIONS

Sec. 304. (a) There will be a rebuttable presumption that an employee invention falls within the criteria of section 303(1) if it was made by a Federal employee who is employed or assigned to—

(1) Invent, improve, or perfect any art, machine, manufacture, or composition of matter;

(2) Conduct or perform research or development work;

(3) Supervise, direct, coordinate, or review federally sponsored or supported research or development work; or

(4) Act as liaison among agencies or individuals engaged in the work specified in paragraphs (1), (2), or (3) of this subsection.

(b) There will be a rebuttable presumption that an invention falls within the criteria of section 303(2) if it was made by any other Federal employee.

REVIEW OF AGENCY DETERMINATIONS

Sec. 305. Agency determinations under sections 302 and 303 will be reviewed whenever—

(1) The agency determines not to acquire all rights in an invention, or

(2) An aggrieved employee-inventor requests a review. Standards and procedures for this review will be prescribed in the regulations issued under section 309.

REASSIGNMENT OF RIGHTS

Sec. 306. If an agency finds on the basis of new evidence that it has acquired rights in an invention greater than those to which the Government was entitled under the criteria of section 303, it will grant the employee-inventor such rights as may be necessary to correct the error.

INCENTIVE AWARDS PROGRAM

Sec. 307. (a) Agencies may monetarily reward and otherwise recognize employee-inventors as an incentive to promote employee inventions and the production and disclosure of employee inventions. For this purpose agencies may make awards under the Federal incentive awards system (5 U.S.C. Ch. 45, 10 U.S.C. Ch. 57, and implementing regulations), as modified by this section.

(b) The amount of an award for an invention will be based on—

(1) The extent to which the invention advances the state of the art;

(2) The scope of application of the invention;

(3) The value of the invention to the Government or the public; and

(4) The extent to which the invention has come into public use.

(c) Awards for an invention of up to $10,000 may be made by the head of an agency.

(d) Awards of over $10,000 but less than $35,000 may be made by the head of an agency to—

(1) Civilian employees, with the approval of the Office of Personnel Management;

(2) Members of the Armed Forces, with the approval of the Secretary of Defense;

(3) Members of the United States Coast Guard when not operating as a service in the Navy, with the approval of the Secretary of Transportation;

(4) Members of the Commissioned Corps of the United States Public Health Service, with the approval of the Secretary of Health and Human Services; and

(5) Members of the Commissioned Corps of the National Oceanic and Atmospheric Administration, with the approval of the Secretary of Commerce.

(e) Awards of more than $35,000 may be made to employee-inventors by the President upon recommendation of the head of an agency.

(f) Acceptance of a cash award under this section constitutes an agreement that any Government use of an invention for which the award is made forms no basis for further claims against the Governmetn by the recipient, his heirs, or his assigns.

(g) Any cash award or expense for honorary recognition of an employee-inventor will be paid from the fund or appropriation of the agency receiving the invention's primary benefit.

INCOME SHARING FROM PATENT LICENSES

Sec. 308. In addition to awards as provided in section 307, an agency may share income received from any patent license with the employee-inventor.

REGULATIONS

Sec. 309. (a) The Secretary of Commerce shall issue regulations to implement this Title.

(b) Any determination of an appointing official under subsection 208(b) of title 18, United States Code, that relates to promotion of an employee invention by the employee-inventor will be subject to regulations prescribed by the Secretary of Commerce with concurrence of the Office of Government Ethics and the Attorney General.

TITLE IV—LICENSING OF FEDERALLY-OWNED INVENTIONS

COVERED INVENTIONS

Sec. 401. This Title applies to the licensing of all federally-owned patent rights, including licenses or sublicenses granted or required to be granted by the Government under section 206. However, it does not apply to licenses established by the other sections of Title II of this Act.

EXCLUSIVE OR PARTIALLY EXCLUSIVE LICENSES

Sec. 402. (a) An agency may grant exclusive or partially exclusive domestic licenses under federally-owned patent rights not automatically licensed under section 203 only if, after public notice and opportunity for filing written objections, it determines that—

(1) The desired practical application is not likely to be achieved under a nonexclusive license; and

(2) The scope of proposed exclusivity is not greater than reasonably necessary.

(b) An agency may grant exclusive or partially exclusive foreign licenses under federally-owned patent rights after public notice and opportunity for filing written objections and after determining whether the interests of the Government or of United States industry in foreign commerce will be enhanced.

(c) An agency will not grant any license under this section if it determines that such a grant would violate the antitrust laws if the licensee's receipt of such a license were deemed an acquisition of assets of another corporation.

(d) Agencies will maintain periodically updated records of determinations to grant exclusive or partially exclusive licenses. These records will be publicly available.

MINIMUM GOVERNMENT RIGHTS

Sec. 403. Each license granted under section 402 will contain such terms and conditions as the agency finds appropriate to protect the interests of the Government and the public, including provisions reserving to the Government:

(1) The right to require from the licensee written reports on the use of the invention,

(2) A royalty-free, worldwide right to practice the invention or have it practiced for the Government, and

(3) The right to license State, local, or foreign governments to practice the invention or have it practiced for them if the agency determines that reservation of this right would serve the national interest.

MARCH-IN RIGHTS

Sec. 404. (a) The Government will have the right to terminate any license granted under section 402 in whole or in part, but only—

(1) If the licensee has not taken and is not expected to take timely and effective action to achieve practical application of the invention in each of the fields of use affected;

(2) If necessary to protect national security;

(3) If necessary to meet requirements for public use specified by Federal regulation;

(4) If the licensee's rights in the invention violate the antitrust laws if the licensee's original receipt of those rights were deemed an acquisition of assets of another corporation; or

(5) If the licensee has failed to comply with the terms of the license.

(b) These march-in rights may be exercised by the responsible agency on its own initiative or on a petition from an interested person justifying such action.

REGULATIONS

Sec. 405. The Office of Federal Procurement Policy will direct the issuance of regulations specifying the terms and conditions upon which federally-owned patent rights may be licensed. An agency may deviate from such regulations on a class basis unless prohibited by the Office of Federal Procurement Policy.

TITLE V—MISCELLANEOUS

PATENT ENFORCEMENT SUITS AND RIGHT OF INTERVENTION

Sec. 501. Any exclusive licensee under this Act may enforce rights under the license by bringing suit without joining the United States as a party. However, the licensee will give prompt notice of the suit to the Attorney General and to the agency that granted the license, and all parties will serve copies of papers on the Attorney General and the responsible agency as though they were parties to the suit.

BACKGROUND RIGHTS

Sec. 502. Nothing contained in this Act will be construed to deprive the owner of any background patent of rights under such a patent.

NOTICE, HEARING, AND JUDICIAL REVIEW

Sec. 503. (a) Agency determinations under sections 201, 206(a), and 206(c), and 404 will be made after public notice and opportunity for a hearing in which the United States, any agency, or any interested person may participate, and will include written reasons for the determination.

(b) The United States or any participant that may be adversely affected by an agency determination covered by subsection (a) of this section may appeal the determination to the United States Court of Claims within sixty days after the determination is issued. That Court will have exclusive jurisdiction to determine the matter de novo and to affirm, reverse of modify the agency determination.

RELATIONSHIP TO OTHER LAWS

Sec. 504. Nothing in this Act creates any immunities or defenses to actions under the antitrust laws.

AUTHORITY OF FEDERAL AGENCIES

Sec. 505. (a) Agencies may apply for, obtain, maintain, and protect patent rights in the United States and in foreign countries on any invention in which the Government has an interest in order to promote the use of inventions having significant commercial potential or otherwise advance the national interest;

(b) Agencies may license federally-owned patent rights on terms and conditions consistent with Title V;

(c) Agencies may transfer patent rights to other agencies and accept them from other agencies, in whole or in part, without regard to the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471);

(d) Agencies may withhold publication or release of information disclosing any invention long enough for patent applications to be filed;

(e) Agencies may promote licensing of federally-owned patent rights by making market surveys, acquiring technical information, or otherwise enhancing the marketability of the inventions; and

(f) Agencies may enter into contracts necessary and appropriate to accomplish the purposes of this section.

RESPONSIBILITIES OF THE SECRETARY OF COMMERCE

Sec. 506. (a) The Secretary of Commerce will—

(1) Consult with other agencies about areas of science and technology with potential for commercial development.

(2) Coordinate a program to help agencies in exercising the authority given by section 505;

(3) Evaluate intentions referred by agencies to identify those with the greatest commercial potential and to promote their agencies.

(4) Help agencies seek and maintain patents in the United States and in foreign countries by paying fees and costs and by other means;

(5) Develop and manage a Government-wide program, with appropriate private sector participation, to stimulate transfer to the private sector of potentially valuable federally-owned technology through dissemination of information about the technology; and

(6) Publish notice of all federally-owned patent rights that are available for licensing;

(b) There is authorized to be appropriated to the Secretary of Commerce such sums as may be necessary to enable the Secretary to carry out responsiblities under this section.

DEFINITIONS

Sec. 507. As used in this Act—

(1) Agency" means an "executive agency" of the Federal Government, as defined by section 105 of title 5, United States Code, and the military departments defined by section 102 of title 5, United States Code. "Responsible agency" means the agency which is party to a contract for the performance of research or development, has received patent rights from another agency, or has administrative jurisdiction over an employee-inventor.

(2) "Antitrust laws" means the laws included within the definition of the term "Antitrust laws" in section 1 of the Clayton Act (15 U.S.C. 12), as amended, and the Federal Trade Commission Act (15 U.S.C. 41 et seq.), as amended.

(3) "Contract" means any Federal contract, cooperative agreement, or grant that provides for performance of research or development substantially funded by the Government. It covers any assignment, substitution of parties, or subcontract of the same type under such a contract. It does not cover Federal price or purchase supports, or Federal loans or loan guarantees.

(4) "Contractor" means any person other than an agency that is a party to a contract.

(5) "Federal employee" means any civil service employee as defined in section 2105 of title 5, United States Code, and any member of the uniformed services.

(6) "Invention" means any invention that is or may be patentable under the laws of the United States. "Contract invention" is defined by section 201. "Employee invention" is defined by section 301.

(7) "Made" when used in relation to any invention means conceived or first actually reduced to practice.

(8) "Nonprofit organization" means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)).

(9) "Patent rights" means patents and patent licenses and sublicenses.

(10) "Practical application" means manufacture of a machine, composition, or product, or practice of a process or system, under conditions which establish that the invention is being worked and its benefits are available to the public on reasonable terms.

(11) "Small business" means a small business concern, as defined in section 2 of Public Law 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

(13) "State" means a State or territory of the United States, the District of Columbia, or the Commonwealth of Puerto Rico. "Local" refers to any domestic county, municipality, or other governmental entity.

(14) "Will", except as the context otherwise requires, has the same meaning as "shall".

AMENDMENTS TO OTHER ACTS

Sec. 508. (a) Section 10(a) of the Act of June 29, 1935, as added by title 1 of the Act of August 14, 1946 (7 U.S.C. 427i(a); 60 Stat. 1085) is amended by striking out the following: "Any contracts made pursuant to this authority shall contain requirements making the results of research and investigations available to the public through dedication, assignment to the Government, or such other means as the Secretry shall determine.".

(b) Section 205(a) of the Act of August 14, 1946 (7 U.S.C. 1624(a); 60 Stat. 1090) is amended by striking out the following: "Any contract made pursuant to this section shall contain requirements making the result of such research and investigations available to the public by such means as the Secretary of Agriculture shall determine.".

(c) Section 501(c) of the Federal Coal Mine Health and Safety Act of 1969 (30 U.S.C. 951(c); 83 Stat. 742) is amended by striking out the following: "No research, demonstrations, or experiments shall be carried out, contracted for, sponsored, cosponsored, or authorized under authority of this Act, unless all information, uses, products, processes, patents, and other developments resulting from such research, demonstration, or experiments will (with such exception and limitation, if any, as the Secretary or the Secretary of health, Education, and Welfare may find to be necessary in the public interest) be available to the general public.".

(d) Section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1395(c); 80 Stat. 721) is repealed.

(e) Section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871; 64 Stat. 149, 154) is repealed.

(f) Section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943) is repealed.

(g) The National Aeronautics and Space Act of 1958 (72 Stat. 426) is amended—

(1) By repealing section 305 (42 U.S.C. 2457). However, subsections (c), (d), and (e) of section 305 shall continue to be effective with respect to any application for patents in which the written statement referred to in subsection (c) of such section has been filed or requested to be filed by the Commissioner of Patents and Trademarks before the effective date of this Act;

(2) By striking out, in section 306(a) (42 U.S.C. 2458(a), "(as defined by section 305)"; and by striking out "the Inventions and Contributions Board, established under section 305 of this Act" and inserting instead: "an Inventions and Contributions Board which shall be established by the Administrator within the Administration";

(3) By inserting at the end of section 203(c) (42 U.S.C. 2478(c)) the following new paragraph:

"(14) To provide effective contractual provisions for reporting the results of the activities of the Administration, including full and complete technical reporting of any innovation made in the course of or under any contract of the Administration.";

(4) By inserting at the end of section 203 (42 U.S.C. 2478) the following new subsection,"

"(d) For the purposes of chapter 17 of title 35 of the United States Code the Administration shall be considered a defense agency of the United States." and

(5) By striking out the following in such section:

"(Including patents and rights thereunder)".

(h) Section 6 of the Coal Research and Development Act of 1960 (30 U.S.C. 666; 74 Stat. 337) is repealed.

(i) Section 4 of the Helium Act Amendments of 1960 (50 U.S.C. 167b; 74 Stat. 920) is amended by striking out the following: "Provided, however, That all research contracted for, sponsored, cosponsored, or authorized under authority of this Act shall be provided for in such a manner that all information, uses, products, processes, patents, and other developments resulting from such research developed by Government expenditure will (with such exceptions and limitations, if any, as the Secretary may find to be necessary in the interest of national defense) be available to the general public: And provided further, That nothing contained herein shall be construed as to deprive the owner of any background patent relating thereto to such rights as he may have thereunder." and by inserting instead a period.

(j) Section 32 of the Arms Control and Disarmament Act of 1961 (22 U.S.C. 2572; 75 Stat. 634) is repealed.

(k) Subsection (e) of Section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5) is repealed.

(l) Except for paragraph (1), section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901; 88 Stat. 1878) is repealed.

(m) Section 5(i) of the Tennessee Valley Authority Act of 1933 (16 U.S.C. 831d(i); 48 Stat. 61), is amended by striking both proviso clause at the end.

(o) Section 5(d) of the Consumer Product Safety Act (15 U.S.C. 2054(d); 88 Stat. 1211), is repealed.

(p) Section 3 of the Act of April 5, 1944 (30 U.S.C. 323; 58 Stat. 191), is repealed.

(q) The Resources Conservation and Recovery Act of 1976 (90 Stat. 2795) is amended—

(1) By repealing section 8001(c)(3) (42 U.S.C. 6981(c)(3); 90 Stat. 2831); and

(2) By striking out, in section 8004(c)(2) (42 U.S.C. 6984(c)(2)) the second sentence, "notwithstanding section 6881(c)(3) of this titel,."

(r) Section 12 of the Electric and Hybrid Vehicle Research, Development, and Demonstration Act of 1976 (15 U.S.C. 2511;— Stat. —) is repealed.

(s) Paragraph (r) of Section 19 of the Federal Nonnuclear Energy Research and Development Act of 1974, Public Law 93-577, as amended, Public Law 95-238, is repealed; subparagraph (g)4 of said Section 19 is amended by striking "under section 9 of this Act" in the first sentence.

(t) Section 112(d)(2) of Public Law 95-39 enacted on June 3, 1977, is amended by striking "shall be governed by the provisions of Section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 and".

(u) Section 408 of the Water Research and Development Act of 1978 (42 U.S.C. 7879; 92 Stat. 1316) is repealed.

EFFECTIVE DATE

Sec. 509. This Act will take effect on the first day of the seventh month beginning after its enactment. Implementing regulations may be issued earlier.

Section-By-Section Analysis

Title I—Policy

Sec. 101. Findings.

Section 101 states the finds of the Congress; namely, that:

"(1) Inventions that result from federally sponsored or supported research and development constitute a valuable national resource;

"(2) Federal policy on allocation of patent rights in such inventions should stimulate innovation, should meet the needs of the Government, should foster competition, should recognize the equities of Government contractors and Federal employee-inventors, and should provide small businesses and educational institutions with special incentives to participate in Federal research and development programs and to commercialize resulting inventions; and

"(3) The public interest would be advanced if greater efforts were made to promote commercial use of new technology that results from federally sponsored or supported research and development."

Sec. 102. Purpose.

Section 102 states the purposes of this Act which are responsive to the directive of Title I, Section 101(c) of P.L. 94-282, The National Science and Technology Policy, Organization and Priorities Act of 1976 that:

"Federal patent policies should be developed based on uniform principles, which have as their objective the preservation of incentives for technological innovation and the application or procedures which will continue to assure the full use of beneficial technology to serve the public."

The purposes of the Act are:

"(1) To establish an effective Federal system for management and use of inventions that result from federally sponsored or supported research and development;

"(2) To allocate patent rights in inventions that result from federally sponsored or supported research and development in ways that—

(A) Stimulate innovation,

(B) Encourage participation of all qualified contractors,

(C) Foster competition,

(D) Reduce administrative burdens on Federal agencies and their contractors,

(E) Promote widespread public use of inventions made with public support, and

(F) Provide special incentives to small businesses and nonprofit organizations;

"(3) To allocate equitably patent rights in Federal employee inventions;

"(4) To provide for domestic and foreign patenting of federally-owned inventions and licensing of federally-owned patent rights, with the objective of strengthening the Nation's economy and expanding its domestic and foreign markets; and

"(5) To amend or repeal inconsistent laws."

TITLE II—CONTRACT INVENTIONS

Sec. 201. "Contract Inventions"; Reporting.

Section 201 defines "contract inventions" and sets forth a contractor's responsibility with regard to a contract invention.

Subsection (a) defines "contract inventions" as "inventions made in the course of or under Federal contracts."

Subsection (b) requires that all contractors provide the responsible Federal agency with timely reports on each contract invention containing complete technical information about the information and a list of each country, if any, in which the contractor elects to file a patent application. In addition, unless the contractor is a small business or nonprofit organization, contractors must list each field of use in which the contractor intends to commercialize the invention or otherwise achieve public use of the invention, e.g., by actively licensing it. Each selected field of use is to be described "with sufficient particularity to" distinguish those fields of use selected by the contractor from those fields of use left to the Government. The Government is prohibited from publishing or releasing these reports until the earlier of one year from receipt of all of the required information or the contractor has had a reasonable time to file a patent application; the Government may so withhold such information contained in other records or reports.

The field of use selection process intended to be undertaken unilaterally by the contractor without the need for negotiation with any Federal agency and only after an invention is made and reported to the Government. The standard of precision expected is that associated with normal business practice. The aim is for the contractor to indicate those fields of use in which it is interested commerically so that the Govenment can promote the commercialization of any unselected fields determined to be potentially valuable.

The temporary prohibition on publishing or releasing contractor reports is necessary in order to avoid the possible forfeiture of patent protection in some countries.

Subsection (c) provides for the responsible agency's depriving a contractor who fails to file the reports required by subsection (b) of any or all the rights it otherwise would have under Title II.

Sec. 202. Allocation of Rights—Small Business and Nonprofit Organizations.

Subsection (a) provides for the acquisition of title to contract inventions by contractors which are either a small business or a nonprofit organization. They would acquire title in each country listed under section (b)(2) of section 201 in which they filed a patent application within a reasonable time; their title would be subject to the Government's minimum rights under section 204 and to march-in rights under section 206.

Subsection (b) provides for acquisition of title to contract inventions by the Government in each country in which a small business or nonprofit organization elects not to file a patent application or fails to file within a reasonable time.

Sec. 203. Allocation of Rights—Other Contractors.

Subsection (a) provides for the acquisition of title by the Government to all contract inventions not made by a small business or nonprofit organization.

Subsection (b) provides for the contractor to receive an exclusive license in each field of use described under subsection (b) of section 201 in each country listed under that subsection in which it files a patent application within a reasonable time. The contractor's license is subject to the Government's minimum rights under section 205 and march-in rights under section 206.

Subsection (c) provides that the contractor will acquire its exclusive license by operation of law ninety days after providing the responsible agency with all the information required by subsection (b) of section 301 unless the agency earlier notifies the contractor of a determination under subsection (d) of this section with respect to any field of use. In that case, the contractor would acquire an exclusive license by operation of law in all other selected fields of use, if any.

Subsection (d) sets forth the basis for an agency determination that a contractor will not receive an exclusive license in a selected field of use.

The contractor will not acquire an exclusive license in any field of use if the responsible agency determines that the contractor's possession of such a license—

(1) Would be contrary to the requirements of the agency's mission;

(2) Would impair national security; or

(3) Would violate the Federal antitrust laws if the receipt by the contractor of such a license were deemed an acquisition of assets of another corporation.

Subsection (d) is intended to be permissive. An agency is not required to undertake any determination, perhaps preferring to await actual experience under the exclusive license to see whether circumstances then justify exercise of a march-in right reserved by section 206. Further to reduce administrative burdens and to increase the security of the contractor in its knowledge that it will receive exclusive rights in the invention, the scope of the agency's inquiry underlying this determination is limited. The agency's review should focus on those unforseen circumstances of which it has become aware since the time of contracting that now require it to deny the contractor an exclusive license in a particular field of use. The contractor should not be denied an exclusive license solely on the basis of facts that were known or reasonably foreseeable by the agency at the time of contracting. If such facts do exist at the time of contracting, the agency normally will deviate from the standard patent rights clause so that the contractor will know at that time that it will not receive an exclusive license to practice a forthcoming invention in a particular field of use.

Subsection (e) provides that, whenever an agency determines that a contractor will not receive an exclusive license in any field of use, it must include in its determination written reasons, and that the contractor has the right of appeal de novo to the United States Court of Claims within sixty days after the determination is issued. The Court of Claims is given exclusive jurisdiction to affirm, reverse, or modify the agency determination. Specifically included is the authority to order the responsible agency to issue an exclusive license to the contractor.

Subsection (f) permits the responsible agency to grant the contractor title to any contract invention in any foreign country in which the contractor agrees to file a patent application, provided the agency determines that the national interest would not be affected adversely.

Sec. 204. Contractor License.

Subsection 204 automatically grants a nonexclusive, royalty free license to each contractor complying with subsection (b) of section 201 to practice the contract invention in all countries in which it neither receives title under subsection (a) of section 202 nor receives an exclusive license under subsection (b) of section 203. This nonexclusive contractor license may be revoked by the Government only to the extent necessary to grant an exclusive license under Title IV. It is expected that, so long as the contractor is working the invention under its nonexclusive license, there would be no occasion to grant an exclusive license, and, therefore, no need to revoke the contractor's exclusive license.

Sec. 205. Minimum Government Rights.

Subsection (a) sets forth the minimum rights the Government has in every contract invention, unless waived under the authority of section 207. These minimum rights include:

"(1) The right to require from the contractor written reports on the use of the invention,

"(2) A royalty-free worldwide license to practice the invention or have it practiced for the Government, and

"(3) The right to license or sublicense State, local, or foreign governments to practice the invention or have it practiced for them, if the agency detemines at the time of contracting that acquisition of this right would serve the national interest."

Subsection (b) requires that, whenever the Government has rights in a contract invention, notice of those rights are to be included in each patent application and patent on the invention.

Sec. 206. March-in Rights.

Section 206 sets forth the basis on which the responsible agency may terminate the contractor's title or exclusive rights with respect to one or more fields of use in

any patent on a contract invention; may require the contractor to grant appropriate license or sublicenses; or, if necessary, may grant such licenses or sublicenses itself.

Subsection (a) sets the grounds for exercise of the Government's march-in rights:

(1) If the contractor has not taken and is not expected to take timely and effective action to achieve practical application of the invention in one or more of the fields of use selected;

(2) If necessary to protect the national security;

(3) If necessary to meet requirements for public use specified by Federal regulation;

(4) If the contractor's rights in the invention would violate the Federal antitrust laws if the receipt by the contractor of those rights were deemed an acquisition of assets by another corporation; or

(5) If the contractor has failed to comply with the reporting requirements of this Act.

The Government may march-in only in a field of use which gives rise to one or more of the situations described in the above five paragraphs. The fact that a contractor's behavior does not give rise to such a situation with respect to some field of use will not prevent the Government from marching-in in another field of use.

Subsection (b) permits the responsible agency to exercise its march-in rights either on its own initiative or in response to a petition from an interested person justifying such action. Agency failure to initiate a march-in proceeding in response to a petition is not a determination appealable to the United States Court of Claims under section 503.

Subsection (c) enables an agency to specify reasonable licensing terms whenever, in exercise of its march-in rights, it requires a contractor to grant, or itself grants, a license or sublicense.

Sec. 207. Deviation and Waiver.

Section 207 permits Federal agencies, to further an agency's mission or the public interest, to deviate from any standard patent rights clause issued under section 209, acquiring more or fewer rights to a contract invention.

Subsection (a) authorizes deviations either on a class basis in accordance with regulations to be issued under section 209, or, unless prohibited by those regulations, under regulations issued by an agency itself. Case-by-case deviations are permitted when authorized by the head of an agency or a designee, and described in the Federal Register.

Subsection (b) forbids waiver under any circumstances of the national security and antitrust march-in rights reserved by sections 206(a)(2), 206(a)(4), and 206(c) [which provides for agency-set licensing terms in the event the Government requires licensing as a march-in remedy].

Subsection (c) forbids waiver of sections 203(a) [Government acquisition of title to contract inventions not made by small businesses or nonprofit organizations] and 206(a)(1) [Government march-in right for noncommercialization], except (1) in contracts involving a substantial contribution of resources by the contractor or (2) where a contractor whose participation is necessary to the successful accomplishment of an agency mission will not participate under the standard patent rights clause.

Sec. 208. Transfer of Rights to Contractor Employees.

Section 208 authorizes a contractor's employee-inventor to receive some or all of the contractor's rights to a contract invention if the responsible agency and the contractor approve. The corresponding obligations of the contractor under Title II then become the obligations of the employee.

Sec. 209. Regulations and Standard Patent Rights Clause.

Section 209 requires the Office of Federal Procurement Policy to direct the issuance of regulations implementing Title III, including the establishment of a standard patent rights clause or clauses.

Title III—Inventions of Federal Employees

Sec. 301. Employee Inventions.

Section 301 defines "employee inventions" as inventions made by Federal employees.

Sec. 302. Reporting of Inventions.

Section 302(a) requires that a Federal employee report to the employee's agency all inventions made while an employee of that agency. The Government is prohibited from publishing or releasing these reports until the earlier of one year after their receipt of the final disposition of rights under this Title.

Sec. 303. Criteria for the Allocation of Rights.

Section 303 establishes the criteria for allocation of invention rights between the Government and its employee-inventor. Basically, the allocation depends upon the relationship of the invention to the employee's work and the use of Government resources.

Paragraph (1) provides for Government acquisition of all invention rights if the invention bears a direct relation to the duties of the employee-inventor or was made in consequence of the employee's employment.

Paragraph (2) provides that, where the invention neither bears a direct relation to the employee's duties nor was made in consequence of the employee's employment, but was made with a contribution of Federal resources, the employee may receive all rights in the invention subject to a nonexclusive royalty-free worldwide license to the Government to practice the invention or have it practiced for the Government as well as to sublicense State, local, or foreign governments if acquisition of this right would serve the national interest.

Paragraph (3) permits the Government to waive to the employee its rights under paragraph (1) of this section, subject to the Government license described in paragraph (2) of this section.

Paragraph (4) requires the Government to acquire all rights in any invention if the national security might be impaired should the employee-inventor receive rights to it, notwithstanding the provisions of paragraphs (2) or (3) of this section.

Paragraph (5) entitles an employee-inventor to all rights in an invention made by the employee not covered by paragraphs (1), (2), or (3) of this section.

Paragraph (6) permits the Government to enter into agreements allocating rights in inventions resulting from research and development to which other parties have contributed substantially, notwithstanding paragraph (1) of this section.

Sec. 304. Presumptions.

Section 304 establishes rebuttable presumptions for the application of the criteria set forth in section 303.

Subsection (a) sets out employee duties which establish a rebuttable presumption that an invention falls within the criteria of paragraph (1) of section 303. Thus, for example, if an employee is assigned to conduct research and development work, it is presumed that the Government will have the right to title in any invention made.

Subsection (b) establishes a rebuttable presumption that an invention made by an employee whose duties fall outside those listed in paragraph (a) of this section falls within the criteria of paragraph (2) of section 303, reserving to the employee title to an employee-invention subject to certain license rights in the Government.

Sec. 305. Review of Agency Determinations.

Section 305 provides for the review of Federal agency determinations regarding the respective rights of the Government and a Federal employee-inventor in situations in which the agency determines not to acquire all rights in an invention or where an agrieved employee-inventor requests review. The review is to be conducted according to regulations issued under section 309.

Sec. 306. Reassignment of Rights.

Section 306 establishes a right in the Government to adjust the rights acquired from a Federal employee-inventor on the basis of evidence that the granting of greater rights to the employee-inventor is necessary to correct an inequitable allocation of rights.

Sec. 307. Incentive Awards Program.

Subsection (a) provides Federal agencies the right to establish an incentive awards program which is intended to monetarily recognize Federal employee-inventors, stimulate innovative creativeness, and encourage disclosures of inventions which in turn will enhance the possibility of utilization through the Federal licensing program established under Title IV.

Subsection (b) sets forth the criteria for making an award.

Subsections (c), (d), and (e) establish the procedures for making awards of different amounts.

Subsection (f) provides that acceptance of a cash reward constitutes an agreement by the employee-inventor that any use by the Government of an invention for which an award is made does not form the basis of a further claim of any nature against the Government by the recipient, his heirs, or assigns.

Subsection (g) requires that an award should be paid from the fund or appropriation of the agency primarily benefitting.

Sec. 308. Income Sharing from Patent Licenses.

Section 308 authorizes Federal agencies to share income from licensing the Government's patent rights with the employee-inventor.

Sec. 309. Regulations.

Subsection (a) makes the Secretary of Commerce responsible for issuing regulations to implement Title III.

Subsection (b) provides that determinations concerning a Federal employee's promotion of the employee's invention is subject to regulations to be prescribed by the Secretary of Commerce with the concurrence of the Office of Government Ethics and the Attorney General. The intention is to ensure that a Federal employee will not be prohibited from promoting his own invention if consistent with conflict of interests regulations.

TITLE IV—LICENSING OF FEDERALLY-OWNED INVENTIONS

Sec. 401. Covered Inventions.

Section 401 provides that Title IV applies to all federally-owned patent rights, including licenses or sublicenses granted or required to be granted by the Government under section 206. However it does not apply to licenses established by the other sections of Title II.

Sec. 402. Exclusive or Partially Exclusive Licenses.

Section 402 sets out terms and conditions under which a Federal agency may grant an exclusive or partially exclusive license.

Subsection (a) provides that an exclusive or partially exclusive domestic license may be granted only after public notice and opportunity for filing written objections and only if the responsible agency determines that such licensing is necessary to achieve practical application of the invention and that the scope of proposed exclusivity is not greater than reasonably necessary.

Subsection (b) provides that an exclusive or partially exclusive foreign license may be granted only after public notice and opportunity for filing written objections and after a determination whether the interests of the Government or of United States industry in foreign commerce will be enhanced.

Subsection (c) prohibits the granting of a license under this section if the responsible agency determines that the grant would violate the Federal antitrust laws if the receipt by the contractor of such a license were deemed an acquisition of assets of another corporation.

Subsection (d) requires Federal agencies to maintain publicly available, periodically updated records of their determinations to grant exclusive or partially exclusive licenses.

Sec. 403. Minimum Government Rights.

Section 403 sets forth the minimum rights the Government is to have in every exclusive or partially exclusive license. These minimum rights include:

"(1) The right to require from the licensee written reports on the use of the invention

"(2) A royalty-free, worldwide right to practice the invention or have it practiced for the Government, and

"(3) The right to license State, local, or foreign governments to practice the invention or have it practiced for them if the agency determines that reservation of this right would serve the national interest."

Sec. 404. March-in Rights.

Section 404 sets forth the basis on which the responsible agency may terminate an exclusive or partially exclusive license.

Subsection (a) sets forth the grounds for such termination:

"(1) If the licensee has not taken and is not expected to take timely and effective action to achieve practical application of the invention in the fields of use affected;

"(2) If necessary to protect national security;

"(3) If necessary to meet requirements for public use specified by Federal regulation;

"(4) If the licensee's rights in the invention would violate the Federal antitrust laws if the receipt by the contractor of those rights were deemed an acquisition of assets by another corporation; or

"(5) If the licensee has failed to comply with the terms of the license."

Subsection (b) permits the responsible agency to exercise its march-in rights either on its own initiative or in response to a petition from an interested person.

Sec. 405. Regulations.

Section 405 makes the Office of Federal Procurement Policy responsible for directing the issuance of regulations specifying the terms and conditions upon which federally-owned patent rights may be licensed. Agencies are permitted to deviate from such regulations on a class basis unless prohibited by the Office of Federal Procurement Policy.

TITLE V—MISCELLANEOUS

Sec. 501. Patent Enforcement Suits and Right of Intervention.

Section 501 provides for enforcement of an exclusive license under the Act by an exclusive licensee without the necessity of joining the United States as a party. The intention is to make the exclusive license the functional equivalent of title within the specified fields of use. However, the Attorney General and the agency that granted the license must be given prompt notice of the suit and served copies of papers as though they were parties to the suit.

Sec. 502. Background Rights.

Section 502 provides that nothing in the Act shall be construed to deprive the owner of any background patent or of rights under such a patent.

Sec. 503. Notice, Hearing, and Jucicial Review.

Subsection (a) requires that agency determinations under sections 201 [failure to submit the reports required by subsection (b) of section 201], 206(a) and 206(c) [Government march-in rights], and 404 [Government march-in rights] must have written reasons and be preceded by public notice and an opportunity for a hearing in which the United States, any agency, and any interested person may participate.

Subsection (b) permits the United States or an adversely affected participant to appeal a subsection (a) determination to the United States Court of Claims within sixty days after it is issued. The Court of Claims is given exclusive jurisdiction to determine the matter *de novo,* affirming, reversing, or modifying the agency determination.

Sec. 504. Relationship to Other Laws.

Section 504 is intended to remove any implication that the Act provides immunity from the antitrust laws.

Sec. 505 Authority of Federal Agencies.

Subsections (a), (b), (c), (d), (e), and (f) set forth the authority of Federal agencies to protect patent rights at home and abroad in,

"Any invention in which the Government has an interest in order to promote the ue of inventions having significant commercial potential or otherwise advance the national interest;"

To license federally-owned patent rights; to transfer patent rights to and accept transfers of patent rights from other agencies without regard to the property transfer procedures required by the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471); to withhold publication or release of information disclosing any invention long enough for patent applications to be filed; to promote the licensing of federally-owned patent rights; and to enter into contracts to accomplish the purpose of this section.

Sec. 506. Responsibilities of the Secretary of Commerce.

Section 506 provides the authorities necessary for the Department of Commerce effectively to assist other Federal agencies administer the licensing of federally-owned inventions or to do so entirely by itself based on a transfer of patent rights to a federally-owned invention to the Department of Commerce pursuant to section 505(3).

Paragraph (a)(1) authorizes the Secretary of Commerce to coordinate a program to help agencies carry out their authorities under the Act.

Paragraph (a)(2) authorizies the Secretary to publish notices of all federally-owned patent rights available for licensing.

Paragraph (a)(3) authorizes the Secretary to evaluate inventions referred to it by Federal agencies in order to identify those inventions with the greatest commercial potential.

Paragraph (a)(4) authorizes the Secretary to develop and manage a government-wide program, with private sector participation, to stimulate transfer to the private sector of potentially valuable federally-owned technology.

Paragraph (a)(5) authorizes the Secretary to assist the Federal agencies in seeking and maintaining patent protection in any country, including the payment of fees and costs.

Paragraph (a)(6) authorizes the secretary to consult with the Federal aagencies about areas of science and technology with commercial potential.

Subsection (b) authorizes the appropriation to the Secretary of Commerce of such sums as thereafter may be necessary to enable the Secretary to carry out responsibilities under this section.

Sec. 507. Definitions.

Section 507 sets out the definitions, for purposes of the Act, for the terms "Agency", "Responsible agency", "antitrust laws", "contract", "contractor", "Federal employee", "invention", "made", "nonprofit organization", "patent rights", "practical application", "small business", "state", "local", and "will".

Sec. 508. Amendments to Other Acts.

Section 508 is intended to amend or repeal parts of other acts covering similar subject matter. Acts which have been identified as covering similar subject matter are:

"Title 7, U.S.C. 427(i)".
"Title 7, U.S.C. 1624(a)".
"The Federal Coal Mine Health and Safety Act of 1969".
"The National Traffic and Motor Vehicle Safety Act of 1966".
"The National Science Foundation Act of 1950".
"The Atomic Energy Act of 1954".
"The National Aeronautics and Space Act of 1958".
"The Coal Research and Development Act of 1960".
"The Helium Act Amendments of 1960".
"The Arms Control and Disarmament Act of 1961".
"The Appalachian Regional Development Act of 1965".
"The Federal Nonnuclear Energy Research and Development Act of 1974".
"The Tennessee Valley Authority Act of 1933".
"The Consumer Product Safety Act".
"Title 30, U.S.C. 323".
"The Resources Conservation and Recovery Act of 1976".
"The Electric and Hybrid Vehicle Research, Development, and Demonstration Act of 1976".
"Public Law 95-39".
"The Water Research and Development Act of 1978".

Sec. 607. Effective Date.

Section 607 provides that the Act shall take effect on the first day of the seventh month beginning after enactment. Implementing regulations may be issued earlier.

Statement of Purpose and Need

Government patent policy with respect to allocation of rights in patentable inventions resulting from federally sponsored or supported research and development bears a major responsibility for the pace of industrial innovation in the nation today as a result of the substantial amount of research and development work performed under contract with the government and by government employees.

Patents can serve several important functions in the innovation process. First, they provide the innovator with an incentive—a monopoly limited in time. Second, the exclusive rights provided by a patent can stimulate a firm to make the often risky investment that is required to bring an invention to market. Finally, a patent provides an important method for disclosure to the public of information about inventions and their uses.

In an October 31, 1979 Industrial Innovation Message to the Congress the President said:

"For over thirty years the Federal agencies supporting research and development in industry and universities have had conflicting policies governing the disposition of pertinent rights resulting from that work. This confusion has seriously inhibited the use of those patents in industry. To remove that confusion and encourage the use of those patents I will support uniform government patent legislation. That legislation will provide exclusive licenses to contractors in specific fields of use that they agree to commercialize and will permit the government to license firms in other fields. If the licensee fails to commercialize the invention, the government will retain the right to recapture those rights. I will also support the retention of patent ownership by small businesses and universities, the prime thrust of legislation now in Congress, in recognition of their special place in our society."

This bill contains the uniform government patent legislation the President announced. It is organized into three operative titles: Title II—Contract Inventions; Title III—Inventions of Federal Employees; and Title IV—Licensing of Federally-Owned Inventions.

Contractor Inventions—Title II

Background

Since World War II, the Federal government increasingly has supported the overall research and development effort of the United States. At least initially, the patent policies of the Federal government generally were fashioned without any central guidance or coordination.

As the size of the Federal government's research and development effort increased, individual government agencies reacted differently to the problem of allocating rights to contractor-made inventions. Some agencies, notably the Department

of Defense, acquired a royalty-free license to contractor inventions and permitted the contractor to retain title, or what otherwise might be described as exclusive commercial rights. Other agencies financing research of interest to the private sector, such as the Department of Health, Education, and Welfare, decided to acquire all of the patent rights to inventions made by their contractors. Some agencies did not explicitly address the issue, thereby permitting their contractors to obtain all patent rights to inventions.

As the Congress became more concerned with rights in inventions made with government support, it enacted differing legislative policies for new research and development programs. In some instances the Congress provided guidance for the entire research and development effort of an agency, in others only for a specified program. Most often, the Congress required the Federal government to take title to all contract inventions.

The 1963 Presidential statement

As the issue developed prior to 1963, most participants in discussions of government patent policy advocated either that all patent rights be given to the govenment or that they all be given to the contractor (except for a royal-free, nonexclusive license for the government's own use). In 1963, President Kennedy issued a Statement on Govenment Patent Policy in an effort to achieve greater congruence in agency practices.[1] The policy applied to the research and development programs of all Federal agencies except where specific statutory requirements intervened. The large number of differing statutes made it impossible for the policy to achieve uniformity.

The 1963 Statement took the approach of classifying contracting situations into two categories: one in which the public interest presumptively would be served best by government acquisition of title; another in which title best would be acquired by the contractor. Recognizing that the Statement was based on a limited amount of information, exceptions were provided to the general rules and safeguards were established to protect the public interest against possible undesirable results.

An unsuccessful attempt at legislatively-mandated uniformity was made in 1965.[2] Congressional hearings on the then proposed legislation resulted in a bill providing for a uniform policy substantially embodying the 1963 Statement. The bill was reported out of committee, but no further Congressional action was taken.

In late 1965, the Federal Council for Science and Technology (FCST) established the Committee on Government Patent Policy in order to assess how the 1963 Statement had worked in practice, to acquire and analyze additional information that would contribute to the reaffirmation or modification of the Statement, and to identify principles that should underline sound legislation in this area. The Committee, formed in response to Congressional pressure for an Administration position on uniform government patent policy legislation, provided a forum for senior policy level officials to develop such a position.

The Committee supported what is perhaps the most extensive study ever conducted of the government patent policy issue. The results of this study, conducted by Harbridge House, Inc., of Boston, Massachusetts, are reported in four volumes.[3]

Based upon its analysis of the Harbridge House study and operating experience under the 1963 Statement, the Committee concluded that, with minor revisons, the criteria specified in the Statement were satisfactory. Accordingly, in 1969 the Committee recommended that legislation, if proposed, should follow the basic criteria of the 1963 Statement. Alternatively, the Committee recommended modification of the 1963 Statement primarily directed toward increasing the flexibility of Federal agencies with regard to the allocation of patent rights and providing direction to the agencies with regard to the licensing of federally-owned inventions. In 1971 President Nixon issued a revised Statement on Government Patent Policy incorporating modifications recommended by the Committee.[4]

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[1] Memorandum and Statement of Govenment Patent Policy Issued by President John F. Kennedy on October 10, 1963. (Published F.R., Vol. 28, No. 200, October 1963.)

[2] S. 1809. On April 23, 1965, Senator McClellan introduced in the 89th Congress, 1st Session, a Bill "To Establish a Uniform National Policy Concerning Property Rights to Inventions Made Through the Expenditure of Public Funds, and For Other Purposes." The Bill was amended and accepted by the Senate Judiciary Committee as the "Federal Inventions Act of 1966." (No vote by full Senate.)

[3] Government Patent Policy by Harbridge House, Inc., Boston Mass., Volumes I-IV, May 17, 1968. Superintendent of Documents, U.S. Printing Office, Washington, D.C. 20402—Contract No. 7-35087.

[4] Memorandum and Statement on Government Patent Policy Issued by President Richard M. Nixon on August 23, 1971. (Published F.R., Vol. 66, No. 166, August 26, 1971.)

Commission on Government Procurement

In November of 1969, the Congress, by Public Law 91-129, established the Commission on Government Procurement to study and recommend methods "to promote the economy, efficiency and effectiveness" of procurement by the executive branch of the Federal government. Industry, trade and bar associations, individuals, members of the Executive Branch, and a full-time staff assigned to the Commission assisted it in the development of the Commission Report submitted to the Congress on December 31, 1972.[5] The bipartisan report contained 149 recommendations, sixteen of which related to patent, data, and copyright matters.

Recommendation No. 1 of Part I, Volume IV of the Report states:

"Implement the revised Presidential Statement of Government Patent Policy promptly and uniformly."

Recommendation No. 2 states:

"Enact legislation to make clear the authority of all agencies to issue exclusive licenses under patents held by them."

Recommendation No. 1 was implemented in part by the issuance of the FPMR (licensing regulation) and the FPR (standard patent rights clause).[6 7] However, achievement of uniformity would have required the repeal of all conflicting statutory provisions. As with Recommendation 2, this would require legislation.

In September 1975, the FCST Committee on Government Patent Policy decided to prepare drafts of an Administration bill to implement these recommendations of the Commission's report. Legislation substantially based upon the Committee's work was introduced into the ninety-fifth Congress by Representative Thornton; hearings were held, but no further action was taken.

Domestic Policy Review of Industrial Innovation

Early in the Carter Administration, the Committee on Intellectual Property and Information (CIPI), the Federal Coordinating Committee for Science, Engineering, and Technology's successor to the Committee on Government Patent Policy, began working to develop an Administration position on government patent policy. Following the initiation of the President's Domestic Policy Review of Industrial Innovation in May of 1978, this effort was coordinated with the Domestic Policy Review.

As part of President Carter's Domestic Policy Review of Industrial Innovation, an assessment was made of the effect on such things as contractor participation in government research and development work and the commercial development of inventions made with government support of existing government policies with respect to the disposition of rights in patentable inventions made in the course of federally-supported research and development work. CIPI concluded that government ownership of inventions with the offer of unrestricted public use has resulted in almost no commercial application of federally-owned inventions. Without exclusive commercial rights, investors are unwilling to take the risks of developing a federally-generated invention and of creating a market for it. Thus, ironically, free public right to use a patent results, in practical terms, in a denial of the opportunity to use the invention. Second, many contractors, particularly those with strong background patents and experience, are unwilling to undertake work leading to freely available patents because this policy would compromise their proprietary position. Thus, some of the most capable performers will not undertake the government work for which they are best suited.

As a result of the strength of these considerations, most agencies have the authority, in at least some circumstances, to provide exclusive commercial rights to contractors. This issue, however, has been unsettled for a generation because of the difficulty of balancing competing considerations, and because various agencies operate under different and contradictory statutory guidance. The uncertainty and lack of uniformity in policy itself has had its negative effect upon the commercialization of technologies developed with Federal support. Title II of the present bill reflects the President's decision with respect to these issues.

Inventions of Federal Employees—Title III

In 1950, President Truman, in an attempt to bring about consistency in the allocation of rights to inventions made by Federal employees, issued Executive

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[5] Volumes I-IV, Report of the Commission on Government Procurement, Superintendent of Documents, U.S. Printing Office, Washington, D.C. 20402. Stock Nos. 5255-00002; 5255-00003; 5255-00004; and 5255-00006.

[6] Amendment A-16 to Federal Property Management Regulations Issued January 29, 1973. (F.R., Vol. 38, No. 23, February 5, 1973.)

[7] Amendment 116 to Federal Procurement Regulations issued August 29, 1973. (F.R., Vol. 38, No. 170, September 4, 1973.)

Order 10096.[8] Generally based on common law principles for allocating invention rights to employees in situation not covered by contract, this Executive Order applied to most, but not all, Federal employees. The order was held to be an unconstitutional encroachment on Congress' power in *Kaplan* v. *Johnson,* 409 F. Supp. 190 (N.D. Ill. 1976). This decision was reversed, however, by the court of appeals on the ground that Congress had authorized the promulgation of the Executive Order through its enactment of Sections 301, 3301, and 7301 of Title 5 of the United States Code. *Kaplan* v. *Corcoran,* 545 F.2d 1073 (7th Cir. 1976). The present bill codifies longstanding Federal practice in this area.

Licensing of Federally-Owned Inventions—Title IV

Federal Property Management Regulations (FPMR)

Section 2 of the 1971 Statement directed the Administrator of General Services to issue regulations for the comprehensive licensing of federally-owned inventions. In January 1973, the Administrator issued an amendment to the FPMR concerned with the licensing of federally-owned inventions.[9]

The validity of this regulation was challenged by a complaint filed in the United States District Court for the District of Columbia by Public Citizen, Inc., and others.[10] The complaint alleged that the exclusive licensing of federally-owned patents constituted a disposal of property in violation of Article IV, Section 3, Clause 2 of the Constitution. The District Court found for the plaintiffs, directing the Administrator to take immediate steps to void the licensing regulations. This the Administrator did.[11]

On appeal by the government, the court of appeals held that the plaintiffs were without standing to sue, and reversed the judgment of district court.[12] The Administrator then reinstated the licensing regulations.[13] Since the court of appeals did not reach the merits of the plaintiffs' complaint, the legality of any exclusive license granted by a Federal agency under authority of this regulation remains untested.

Federal Procurement Regulations (FPR)

Following the issuance of the 1971 Statement, regulations providing for standard patent rights clauses for use by all Federal agencies were drafted and subsequently promulgated by the Administrator of General Services in August of 1973.[14] The validity of these regulations also was challenged by Public Citizen, Inc., in the United States District Court for the District of Columbia.[15] The complaint alleged that, whenever the government acquired less than title to an invention made under government contract, the government, in effect, was disposing of property in violation of Article IV, Section 3, Clause 2, of the Constitution. The Administrator cancelled the regulations pending the outcome of the lawsuit.

The district court dismissed the complaint, finding that the plaintiffs lacked standing to sue. The plaintiffs appealed, but the court of appeals affirmed the judgment of the district court.[16] In May, 1975, the regulations were reissued.[17] Again, however, no final judgment was had as to the merits of the complaint.

The present bill provides for a comprehensive scheme for the commercialization of federally-owned patent rights in the public interest.

Draft Bill

Following the President's Message to the Congress, a drafting committee of CIPI members from the Departments of Commerce, Energy, and Justice, the National Science Foundation, and the Office of Science and Technology Policy, met for a

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[8] Executive Order 10096: "Providing for a Uniform Policy for the Government with Respect to Inventions Made by Government Employees and for the Administration of Such Policy," President Harry S. Truman, January 23, 1950 (3 CFR, 1949-1953 Comp., p. 292); as amended by Executive Order No. 10930: "Providing for the Abolishment of the Government Patents Board and Providing for the Performance of its Functions," President John F. Kennedy, March 23, 1961 (26 F.R. 2583, March 28, 1961).

[9] See note 6, p. 33.

[10] *Public Citizen, Inc.* v. *Sampson* (C.A. No. 781-73 U.S.D.C.D.C.).

[11] FPMR Temp. Reg. A-10 to Federal Property Management Regulations Issued February 12, 1974 (F.R., Vol. 39, No. 34, February 19, 1974.).

[12] *Sampson* v. *Public Citizen, Inc.* (C.A. No. 74-1619 D.C. Cir.).

[13] Amendment A-10 to Federal Property Management Regulations Issued October 1, 1975 (F.R., Vol. 40, No. 199, October 14, 1975).

[14] See note 7 above.

[15] *Public Citizen, Inc.* v. *Sampson* (C.A. No. 74-303 U.S.D.C.D.C.).

[16] *Public Citizen, Inc.* v. *Sampson* (C.A. No. 74-1849 D.C. Cir.).

[17] Amendment 147 to Federal Procurement Regulations Issued May 1, 1975 (F.R., Vol. 40, No. 89, May 7, 1975).

period of several weeks to develop statutory language embodying the President's policy. Their draft twice was circulated for comment to other Federal agencies.

The present bill stems from the belief that inventions resulting from federally-supported research and development constitute a valuable national resource; that Federal policy with respect to the allocation of patent rights in such inventions should seek to stimulate innovation, promote contractor participation in government research and development work, foster competition, recognize the equities of government contractors and Federal employee-inventors, and provide small businesses and nonprofit organizations with special incentives.

This bill establishes a uniform policy regulating the allocation and use of invention rights that belong to the Government. It eliminates the piecemeal and often conflicting approach to this subject that has developed through a combined system of regulation by general Presidential guidance and specific program-by-program statutory direction. The bill amends or repeals all other Acts and supersedes all Presidential memoranda and Executive Orders concerning the allocation of invention rights resulting from federally sponsored or supported research and development and the licensing of federally-owned patent rights.

Title I states as the primary purpose of the bill the establishment of an effective Federal system for management and use of inventions that result from federally sponsored or supported research and development, based on the finding that such inventions constitute a valuable national resource which should be developed in a manner which stimulates innovation and recognizes the equities of Federal employees and contractors while safeguarding the public interest.

Title II of the bill allocates rights between contractors and the Government in inventions resulting from federal research and development contracts. When the contractor is a small business or a nonprofit organization, it may elect to acquire title in the invention in any country in which it files a patent application. Other contractors will receive exclusive licenses to practice contract inventions in whatever fields of use they choose to specify and agree to commercialize in whatever countries in which they file patent applications as long as their acquisition of such licenses would not conflict with the requirements of the agency's mission, the national security, or the Federal antitrust laws.

When the contractor receives title in or exclusive licenses to practice an invention, the Government will receive a nonexclusive, royalty-free, world-wide right or license to practice the invention or have it practiced for the Government. In addition, the Government will receive as to each invention the right to terminate the contractor's title or exclusive license, to require the contractor to grant appropriate licenses or sublicenses on reasonable terms to responsible applicants, or, if necessary, to grant such licenses itself. The Government may exercise this march-in right only if the contractor fails to commercialize the invention, if necessary to protect the national security, if necessary to meet requirements for public use specified by Federal regulations, if the contractor's rights in the invention would violate the antitrust laws were those rights deemed an acquisition of assets of another corporation, or if the contractor fails to comply with the reporting requirements imposed by the responsible agency.

The Office of Federal Procurement Policy is instructed to direct the issuance of regulations to implement Title II. The regulations will establish a standard patent rights clause allocating invention rights in according with the provisions of Title II. Generally, this clause will be included in Federal research and development contracts.

The contracting agency may deviate from the standard patent rights clause in furtherance of the agency's mission and the public interest. The agency may deviate on a class basis in accordance with the regulations issued under the direction of the Office of Federal Procurement Policy, and unless prohibited by those regulations, the agency also may deviate on a class basis pursuant to regulations that it issues itself. All other deviations must be authorized by the head of the agency or a designee on a case-by-case basis and must be described in the Federal Register.

Such a deviation may permit the Government to acquire lesser or greater rights in an invention than it normally would receive under Title II. The agency may not, however, waive the Government's right to terminate the contractor's title or exclusive license for antitrust or national security reasons.

Title III of the bill allocates rights between Federal employees and the Government in reported inventions made by Federal employees. If necessary to protect the national security, the Government will acquire all rights in an invention that was made with Federal support. In addition, the Government will acquire all rights in any invention that bears a direct relation to the duties of the employee-inventor or was made as a consequence of the employee's employment. The bill creates a

rebuttable presumption that the invention was made incidental to the employee's employment when the inventor was employed or assigned to invent, improve, or perfect any patentable material; conduct, supervise, or coordinate federally sponsored or supported research or development work; or act as a liaison among agencies or individuals engaged in such work. Although the Government may receive all rights in a particular invention, if the agency finds insufficient interest in the invention to justify exercising those rights, it may assign some or all of them to the employee-inventor. Such an assignment, however, will be subject to the Government's reserved nonexclusive, royalty-free, world-wide right to practice the invention or have it practiced for the Government.

In all other situations in which an invention was made with Federal support, the employee-inventor will receive all rights in the invention, subject to the Government's national security rights and the Government's nonexclusive, royalty-free, world-wide license to practice the invention or have it practiced for the Government.

The employee-inventor is entitled to all rights in any invention that was not made with Federal support.

Finally, although the Government may be entitled to receive all rights in an invention, an agency may enter into agreements providing for the appropriate allocation of rights in inventions that result from research or development to which other parties have contributed substantially.

Regulations issued by the Secretary of Commerce will provide for the review of agency determinations allocating rights in employee inventions whenever the agency determines not to acquire all rights in an invention or an aggrieved employee-inventor requests a review.

Title III also authorizes the establishment of a monetary incentive awards program for the purpose of stimulating the production and disclosure of employee inventions. An additional incentive provision in the bill authorizes agencies to share income received from any patent license with the employee-inventor.

Title IV provides the authorities and responsibilities in Federal agencies necessary to administer effectively a program or programs for the domestic and foreign licensing of federally-owned patent rights. Exclusive and partially exclusive licenses may be granted, but only after public notice and opportunity for filing written objections and only if the responsible agency determines such licensing is necessary to commercialize the invention. No license may be granted if the responsible agency determines that the granting of the license would create a situation violative of the antitrust laws.

Title V addresses a variety of housekeeping issues raised by other titles. It authorizes any exclusive licensee under the bill to enforce its rights by bringing suit without joining the United States as a party. The exclusive licensee, however, must notify the Attorney General and the agency that granted the license and serve the Government with copies of all papers as though it were a party to the suit.

Title V provides that the bill may not be construed so as to deprive an owner of its rights under any background patent.

Title V also provides that an agency may decide to terminate the title or exclusive license received by a person under Title II or IV only after public notice and an opportunity for a hearing in which the United States, any agency, or any interested person may participate. The agency will issue the rationale for any such decision in writing.

The United States or any participant adversely affected by any agency decision requiring public notice and opportunity for a hearing may appeal the decision to the United States Court of Claims. The Court of Claims will have exclusive jurisdiction to determine the matter de novo and to affirm, reverse, or modify the agency determination.

Title V states that nothing in the bill creates any immunities or defenses to actions under the antitrust laws.

Title V also sets forth the authority of Federal agencies to obtain, patent, license, transfer, and accept federally-owned patent rights. It also provides the Secretary of Commerce with authority to assist other Federal agencies and to otherwise engage in efforts to stimulate the transfer to the private sector of potentially-valuable federally-owned technology.

Finally, Title V defines the various terms used in the bill, includes a list of the statutes that the bill either will repeal or amend, and provides for the effective date of the bill.

CONCLUSIONS

Enactment of this bill would stimulate the industrial innovation process by contributing to the more effective utilization of inventions made in the course of

government-supported research and development work. Further, the bill would resolve longstanding policy issues, answers to which the Congress, the Executive Branch, industry, and the public generally actively have sought for a generation. The bill is designed to reduce the administrative burden now imposed upon contractors and government agencies alike. Further, the bill responds to the Commission on Government Procurement recommendations, set forth in the bipartisan report to the Congress, that legislation be enacted which would make uniform the Federal practices in the area of allocating the rights of contract inventions and make clear the government's authority to grant exclusive licenses under federally-owned inventions. The bill also would codify the basic policy concepts of Executive Order 10096, the provisions of which uniformily would be applicable to all Federal employees. In addition, passage of this Bill would overcome any remaining legal questions raised by past litigation.

It is anticipated that, following implementation of the Act, greater commercial use will be made of the technology resulting from the Federal government's research and development effort, in turn creating additional employment, a higher standard of living, and an overall economic benefit to the United States as a whole, while protecting the public against any possible wrongful contractor conduct.

Senator STEVENSON. Thank you, sir.

Well, I would like to try to understand this approach a little better. I started with a strong preference for a conceptually cleaner, more far-reaching bill. You make distinctions for small businesses. Are they defined in the same way as in the Judiciary Committee bill? How small is small?

Dr. BARUCH. The bill uses the SBA definition, Senator Stevenson, which I think is 500 people.

Senator STEVENSON. That's implemented by regulation, is it not? In effect, it will be delegated to SBA to determine who gets what rights to Government-financed research?

Dr. BARUCH. That's an interesting point. If that concerns you, we can certainly put a more specific definition in the bill.

Senator STEVENSON. I don't know how much it concerns me at the moment. It's something that I don't feel very comfortable with, and I shouldn't think it would make businesses very comfortable.

Mr. HERZ. Senator Stevenson, I have doublechecked here. I believe that is essentially the same definition that is in the Bayh-Dole bill. It may be, however, that it would be better to have a more precise definition.

Senator SCHMITT. Or less precise.

Mr. HERZ. Possibly.

Senator STEVENSON. Another aspect of this that puzzles me: As soon as you pass the threshold, wherever it is, you get punished; you get punished by success. If a small company, as a result of its industry and its initiative, its innovation, becomes profitable, it gets punished, doesn't it?

Now, why shouldn't we be rewarding it instead of penalizing it for its success? Take Itek Corp., starting from nothing. As soon as it becomes what it is today, it doesn't qualify for the benefits accorded small business under your approach. What is the rationale for discriminating against success?

Dr. BARUCH. When you put it that way, Senator, we can never find a rationale for punishing success unless it's success at thievery or some other illegal act.

No; that's not the purpose. The purpose is not to punish success. Nor do we think it would be perceived as punishment by many of the companies, most of the companies. As the company gets larger, the limit of the span of business in which it can engage starts to be

reached. Its executive officers, senior people, and CEO, really are constrained to pay attention to what is their business.

Smaller companies, as they're growing, have a very fluid boundary to their business description. Our effort here is merely to recognize that as businesses grow larger their attention gets more narrowly focused. If we want to utilize patents throughout the society, we need a mechanism to do that. This is not punishing success.

Senator STEVENSON. Well, I can agree with you up to a point. At least I am afraid there is a great deal of truth in what you say about the rigidities of big business. In some ways, it's like big government. But a moment ago you had a lot of nice things to say about big government, its capacity for innovation.

Dr. BARUCH. That's a very good point. I do have some nice things to say about big government. I have nice things to say about small parts of big government. I have nice things to say about small parts of big companies. I have nice things to say about many large companies.

When a company has a wide range of small parts or a wide range of businesses, it becomes perfectly possible for that company to define those fields of use when they seek an exclusive license under Government patent and be covered.

Senator STEVENSON. All right, let's talk about the fields of use, then. You said the company is going to define the fields of use.

Dr. BARUCH. Yes, sir.

Senator STEVENSON. Doesn't the field of use get defined in the process of negotiation with the Government?

Dr. BARUCH. No, sir. Under this bill, the fields of use described by the company are not a subject of negotiation. The company would specify the fields of use in which it wants exclusivity, agree to commercialize in those fields of use, and get an exclusive license in those fields of use which can only be withdrawn if, in fact, it fails to utilize it in those fields of use.

Senator STEVENSON. It's automatic, then?

Dr. BARUCH. Automatic for the fields of use.

Senator STEVENSON. And for the life of the patent, assuming it does make reasonable efforts to commercialize?

Dr. BARUCH. Yes.

Mr. HERZ. Or, I might add, to license.

Senator STEVENSON. It does not have to develop the invention itself? If it really wants to license, it may do so?

Dr. BARUCH. Absolutely. Licensing is a form of commercialization. We don't want to take anything away from companies. That's not the purpose of the bill. The purpose of the bill is to insure the fullest use of federally, financed inventions.

Senator STEVENSON. I do think this is an improvement, assuming that it doesn't produce a lot of lengthy negotiation and regulation and uncertainty and litigation and so on.

Now, there is going to be some oversight by somebody to determine whether there is commercialization. Is that a decision that the Commerce Department makes, and, when made, is it subject to appeal? How does that process work?

Mr. HERZ. It is subject to appeal to the Court of Claims, which, as I recall, reviews the matter de nova; that is, on its own from the start.

Dr. BARUCH. Right.

Mr. HERZ. It's not just an administrative review, unless I am mistaken about that. The last time I saw the bill, that's the way it was.

Senator STEVENSON. That creates one potential for litigation.

Mr. HERZ. I am sorry, sir?

Senator STEVENSON. It requires some subjectivity. Somebody has to determine what are reasonable efforts toward commercialization. That's going to be the Commerce Department, ultimately.

Dr. BARUCH. When you want to accomplish something like increased utilization, it's going to require judgment on the part of the people pursuing it, no matter how we do it.

Senator STEVENSON. What happens to the DOD title-in-the-contractor policy, under your approach?

Dr. BARUCH. DOD's title-in-the-contractor policy would be replaced by a DOD exclusive licence in the contractor policy.

Senator STEVENSON. You don't think that's been a successful policy for DOD?

Dr. BARUCH. I think that policy has been successful in attracting competent contractors. However I don't think the new policy will be any less successful. The new policy, however, will be more successful in insuring utilization of those things developed for the DOD in areas outside of the Defense Department.

For example, right now, the Department of Defense has a major program called ICAM, integrated computer manufacturing system. It will have under it, and has already had under it, a series of inventions. It would be to the public interest to see those technologies moved out of just those areas of airframe manufacture, aircraft engine manufacture, to a wide range of industries to new startups to industries that are in trouble and can use those technologies to improve their products and reduce their costs.

The incentives of the large contractor to do that is minimal when his plant is loaded with defense orders, when he's got his executives thoroughly occupied wondering about overruns, negotiating contracts, and all those things executives worry about, including getting the production.

It behooves us as a government to exercise our efforts to insure that the fruits of the ICAM project are moved elsewhere in industrial use. It happens to be one of the most exciting projects the Government has going.

Senator STEVENSON. Thank you.

Senator Schmitt?

Senator SCHMITT. Thank you, Mr. Chairman.

Dr. Baruch, is this bill as it now stands consistent with the findings and recommendations of the private sector advisory group on this subject?

Dr. BARUCH. Mr. Chairman, this bill is our attempt to get the best blend between the findings of that group and the needs of the Federal Government.

Senator SCHMITT. What was this group's recommendations on the issue of title versus exclusive license?

Dr. BARUCH. Almost always in the private sector, when asked the response will be of title in the contractor. It's very hard to get someone in the private sector to take the kind of broad, statesman-like view that Congress takes and that we're supposed to take and say what is best for the public as a whole.

Anything less than title is seen as something less for the private sector. So we would not expect anything other than title as a recommendation from the private sector.

Senator SCHMITT. So you ignored that recommendation because you don't expect it to be anything but a self-serving recommendation?

Dr. BARUCH. Quite the contrary, we didn't ignore it. We reached through it to see what was the motivation for it. We looked at essentially the legislative history of the recommendation, where were the discussions. The discussions were concerned with the need for exclusivity to promote investment. We agreed with that. We certainly did not ignore that.

Senator SCHMITT. Let's pursue that a little bit farther, then. What is the experience of the Government, for example, in licensing Government-owned patents, which is basically what you're suggesting except you're not going to license the whole patent, you're going to license a part of it in the field of use previously licensed? What is the experience?

Dr. BARUCH. It has been extremely poor.

Senator SCHMITT. Why do you expect it to improve?

Dr. BARUCH. I expect it to have the resources necessary to do the job and the kind of challenge that will attract the people that will do that job.

Senator SCHMITT. You say NASA does not apply resources in a very aggressive way to try to do this. What is their experience?

Dr. BARUCH. NASA has applied the resources. But NASA, because it's a mission agency with close ties to the aerospace industries and other high-technology industries, has had little opportunity to work closely with people in industries far afield from NASA's area of familiarity to apply those patents.

Senator SCHMITT. I think NASA might disagree with that. They have had an extensive technology utilization program, probably the best in the Government. They have been trying to market patents, and they have had a very low success rate.

Dr. BARUCH. If you take NASA as an individual agency rather than the whole Federal Government, their success rate has been no lower than commercial companies who also have patents.

Senator SCHMITT. Well, doesn't that give you pause?

Dr. BARUCH. No; that makes me think that a Government agency——

Senator SCHMITT. Everybody that's been trying to do this, has had a low success rate, doctor. Why do you think adding a major effort in the Department of Commerce is going to be any different?

Dr. BARUCH. Because NASA's success rate, Senator, has been about the success rate you get in companies that, because of their nature, have an active licensing program. I'm not knocking NASA's success. The Government as a whole has had a low success rate.

Senator SCHMITT. But when NASA waives title, which they presently can do, their success rate jumps markedly. Doesn't that bother you a little bit?

Dr. BARUCH. What do you mean, their success rate jumps?

Senator SCHMITT. They have something like a 15 to 20 percent commercialization rate when they waive title, versus about 2 percent when they try to push the exclusive license.

Dr. BARUCH. It's interesting to look and try to decide whether that correlation shows casuality, however. Do they get the commercialization because they waive title or does the contractor insist on waiver of title because he intends to commercialize?

Senator SCHMITT. I think you have to answer that question before you ask the Congress to approve something other than title in the contractor.

Mr. HERZ. Senator Schmitt, I think the point we were trying to make is that the policy the administration is now proposing is very similar to the policy of waiving title with regard to those fields of use in which the contractor wants to commercialize. In such fields we agree, it is likely to commercialize more succesfully than the Government or anyone else trying to license from the outside would do.

What this bill tries to do is to reserve to the Government those fields of use in which the contractor does not have an interest in commercializing the invention itself—and indeed does not have an interest in licensing the invention itself, because it has some advantage in licensing as well. As Dr. Baruch is saying, NASA's record in licensing in that sort of situation is probably about what we would expect. That success ratio is not very high but it is a lot higher than what we have been experiencing in other parts of the Government, particularly where the Government takes title to the whole patent—which is not at all what's being proposed here.

Senator SCHMITT. Are you saying, then, doctor, that the exclusive license in field of use is essentially the full equivalent of title?

Dr. BARUCH. Yes.

Senator SCHMITT. Now, do we have any experience in the Federal Government of success in a field of use licensing concept?

Dr. BARUCH. We haven't done this before in the Federal Government. We do have examples of success of licensing, the NTIS licensing program.

Senator SCHMITT. Tell me again, why do you feel that licensing a part of the field of use is going to be more successful than licensing the whole patent?

Dr. BARUCH. Let me answer that. This is not a zero sum game. We are not doing one thing or another. What we are trying to do in this game is to give the contractor who has the capability—we recognize that he has the capability—the right to exclusivity to this invention in any area where he wants to use it. If he got title, that's all he would be getting.

Now, what we are doing is reserving to the Government those things he does not choose to commercialize. If the Government has any impact at all through that program, we come out ahead of the title in the contractor program.

Senator SCHMITT. Unless we create a bureaucracy whose cost is far outweighed by the possibility that you're going to license the narrow fields of use.

Dr. BARUCH. Neither this administration nor the Congress would permit the creation of such a bureaucracy, Senator.

Senator SCHMITT. That's what you're proposing.

Dr. BARUCH. No, I'm proposing that we start this program, that we do push the utilization in other areas, and we treat that program as though it were any other business that can be monitored as to its success, expanding it only as it develops a clear payback for its investments, and cutting it off if it doesn't work.

At no point, at no point, regardless of its performance, need we be any worse off in terms of utilization under this bill than with a title in the contractor approach.

Senator SCHMITT. Doctor, we have to look at the experience of Government in this area, and maybe one advantage of having a diversity of patent policies through the agency is that it does give us some experimental evidence of what works. Where there have been concerted, long-term, quality attempts to license patents, it has been extraordinarily unsuccessful. Although there are a few spectacular individual successes, the overall effort has been very unsuccessful.

But when an agency—and there are others besides NASA—does provide title to the contractor, then the success rate jumps markedly.

Dr. BARUCH. We agree. Now what we would like to do is take the sum of those two success rates, which has to be greater than either one of them.

Senator SCHMITT. Not necessarily. You're saying that it's an arithmetic sum. It may not be. There may be an interference and you may actually get less.

Dr. BARUCH. But we have no experience in that area. We have no——

Senator SCHMITT. You are suggesting that we move into an area in which you have no experience. The experience you have is that the title in the contractor provides a high success rate of commercialization.

Dr. BARUCH. We agree. Our indicators show that exclusive license in the contractor will have the same rate of success.

Senator SCHMITT. I know you believe that, but you have no experience base to indicate that's true. In fact, the experience base indicates the contrary.

Dr. BARUCH. No, we have never tried that. So we have no experience base at all.

Senator SCHMITT. You have people trying to license patents in the Government. It has not been very successful. You're saying it's going to be more successful with less to license.

Dr. BARUCH. Senator, with this committee's concern for innovation and new things that have to be done to solve our economic problems, to say we can only make those efforts in which we have experience I think is inconsistent with our joint view.

Senator SCHMITT. It's not inconsistent at all, Doctor. If we have been successful in doing something, we ought to build on that success.

Dr. BARUCH. We have successful experience in the NTIS of licensing patents that the Government held, that the contractor did not choose to utilize. We signed one license about 2 months ago that will have about $1 million revenue to the Federal Government. We have many others. It's a new program, has a very small bureaucracy. And I would be glad to give you——

Senator SCHMITT. Can you provide us statistical data on the number of patents that you manage and how you obtain those patents? Are you being selective in what you pick?

Dr. BARUCH. I'll be glad to submit that information for the record.[1]

Senator SCHMITT. Doctor, your present proposal includes the Bayh bill approach for small business and universities, which is basically title in the contractor. It includes a waiver, as I understand it, of title for licensing by all groups abroad so that they can obtain licenses in foreign markets. However, you would depart from this approach for all other business endeavors, with the concept of exclusive license in the field of use.

Is that a correct summary of the President's proposal.

Dr. BARUCH. Yes, sir.

Senator SCHMITT. The field of use would then be defined by the contractor?

Dr. BARUCH. Right.

Senator SCHMITT. I think this committee is going to have trouble understanding why title is good for small business, and if foreign licensing is pertinent for all with waiver of title, why isn't it good for everything in between? Why do you create more incentives by your policy than would be created by title in the contractor across the board?

Dr. BARUCH. We want to insure the use of inventions made with Federal sponsorship or support in this country in order to increase our economic base. We do not have the same motivation overseas to increase the use of these inventions by foreign companies.

Senator SCHMITT. No, but you do want our inventors to be able to license their inventions abroad; is that not correct?

Dr. BARUCH. We're more interested in their being able to use them abroad, so that it becomes an activity of an American company located elsewhere. But I'm not interested in encouraging the licensing abroad. I just don't think that's appropriate.

Senator SCHMITT. But your bill provides for waiver of title to a U.S. company or inventor so that they can license abroad and can have that net return on their patent; is that not correct?

Dr. BARUCH. Yes. But as I said before——

Senator SCHMITT. Why did you do it, then, if you don't care about it?

Dr. BARUCH. It was necessary for a couple of reasons. One is you can't prosecute a patent overseas unless you happen to be the titleholder. This was pointed out by NASA. But since we don't feel that those companies will in fact license very effectively overseas any more than we feel they would do it over here, we don't expect this to markedly increase the foreign use of American patents.

[1] The information requested was not available at the time of printing. When received, it will be retained in the files of the Committee on Commerce, Science, and Transportation.

Senator SCHMITT. Is there a lack of trust in your mind or the President's mind that draws a distinction between small and large business?

Dr. BARUCH. No, sir, it is not at all based on trust. It's based on our experience with the growth, the dynamism, the contribution that small business makes to our industrial base, and the fact that they have fluidly changing areas of use for their patents.

Senator SCHMITT. You don't change that if you allow medium and large businesses to obtain title also.

Dr. BARUCH. They don't have the same fluidly changing boundaries to their exercise.

Senator SCHMITT. Some do, some don't.

Dr. BARUCH. A company can select as many fields of use as it intends to commercialize by developing or licensing the invention, and that seems to me to take care of the case of the large company.

Senator SCHMITT. Mr. Chairman, I have a few more questions, but I will yield.

Senator STEVENSON. Thank you.

If the contractor designates the field of use, couldn't he stretch his imagination and designate every conceivable field of use, come in with a laundry list that designates everything?

Dr. BARUCH. That's a question of trust, Mr. Chairman.

The contractor also agrees to commercialize in all those fields of use, and we don't believe that business will agree to commercialize in the fields of use where it really has no intention of doing so.

Senator STEVENSON. Can he select fields of use outside his line of business?

Dr. BARUCH. Certainly.

Senator STEVENSON. What if he designates the field of use, gets this exclusive right and then later conceives another, perhaps related field of use or finds a potential licensee who wants to develop it; can he go back to the agency for another license?

Dr. BARUCH. If it has not already been taken by some action of the agency with another industrial firm. Certainly.

Senator STEVENSON. Let's go back to Senator Schmitt.

Senator SCHMITT. Thank you, Mr. Chairman.

Senator STEVENSON. Excuse me, Senator Schmitt, I neglected to mention earlier, and I think you did, too, Dr. Baruch, that you are accompanied by Mr. Charles Herz, the General Counsel of the National Science Foundation.

Dr. BARUCH. And, Senator, by David Guberman, who did substantial staff work for me in developing this legislation.

Senator STEVENSON. Thank you.

Did you have a statement also, Mr. Herz?

Mr. HERZ. I do have a written statement for the record, Senator, and I am prepared to speak briefly from it. I would like to submit the written statement for the record.

Senator STEVENSON. It will be entered in the record. Why don't you proceed now. If you can remain a few minutes, Dr. Baruch, we will be able to come back to both of you.

Mr. HERZ. Thank you, Senator.

Before I launch into the few things I have to say, I would just like to expand a little bit on the line of questioning Senator Schmitt was following.

One answer Dr. Baruch gave was so short that its importance might have been missed. You asked whether—I think maybe Senator Stevenson asked whether exclusive license in these fields of use is the equivalent of title and Dr. Baruch said yes.

I think that's important. We are not proposing that in any field of use where the contractor is interested either in developing itself, or in licensing that it get something less than title. Technically an exclusive license has a different name, but has the same effect.

If I might add to that remark, I think its too bad that the patent policy debate has been carried on for so long as if the argument was between title and license. I think that is not only confusing for a layman not familiar with the technical terms, but it is also confusing for anyone because the legal effect of a license can be the same as the effect of title.

A license is to a patent as a lease is to a building. As you know, a 99-year lease renewable for another 99 years can be the equivalent of title. So I think it's important to recognize what Dr. Baruch is trying to say. Yes, we are giving the equivalent of title to the large business every place that the large business wants to undertake commercialization.

In those other fields of use where it doesn't, then that is a matter of trust. As Senator Stevenson brought out, we are saying, let's let the Government do what it can, recognizing that the Government probably will not exceed the success rate that NASA has achieved with its very active and vigorous program. Hopefully it will exceed the success rate that has been achieved with less active and vigorous programs. Together with the contractor's effort, it should give us a better utilization rate than either could alone.

That's what we are trying to say.

What I would like to say for myself is this: Dr. Baruch has outlined the general case for the proposed act in the larger context. From our special perspective at the National Science Foundation, I would like to dwell on its merits in three particular respects.

From a personal perspective I might add a fourth that is not in my written statement.

First, the Foundation is the agency of the Government whose special responsibility is to maintain and stimulate science and scientific research for the benefit of the public. Because of that responsibility, the NSF has a deep interest in the working out of science for the use of the public. And we think the proposed Patent Policy Act would do much to bring the fruits of science to the public.

Second, we are a research-support agency, and most of the research we support is performed by universities and by small businesses. We therefore share with other research-support agencies a concern for the impact of Government patent policy on research performers, and we have a particular concern for its impact on universities and small businesses. And we think the proposed Patent Policy Act would be a major plus for them.

Third, we have had a special interest, deriving in part from the President's special interest, in drafting legislation and regulations so that they are as clear and comprehensible as the substance and the subject can permit. In drafting the proposed Patent Policy Act, the administration has tried very hard to develop a logical and

comprehensible structure and to use plain English. We believe that the difference is deeper than cosmetics.

Yesterday, Mr. Merrill of the committee staff asked me why, coming from the National Science Foundation, I was so interested in this particular legislation. I gave him the three answers I have just given to you, and which are expanded in my written statement. But, you know, reflecting since, I realize that as we have gotten into this subject a fourth reason has emerged, at least for me.

The Government patent policy issue presents in microcosm a test of our ability to govern effectively in our complicated system of representative democracy.

This patent policy debate has been going on since Mr. Carter was a midshipman. We have yet to reach a sensible and coherent resolution.

I think the major reason is that on this issue what seems most plausible and even obvious to a fairminded citizen who comes to the issues for the first time, turns out after deeper consideration and some experience, to be least workable and the least effective.

I have touched on some of the reasons for that in my written statement. Dr. Baruch has elaborated them further, and I would be preaching to the converted to go into them further.

What we have now, and what we have ended up with, is a briar patch. Our contractors and grantees have to deal with 20-plus different statutes and sets of regulations, all overlain by the President's statement on Government patent policy, which has the effect of an Executive order. There are two other Executive orders in the area covered by this bill. Nor, in my opinion, is it any satisfactory solution to layer yet another statutory scheme that affects only nonprofits and small business on top of all that and congratulate ourselves that we have resolved very much—even though we favor the approach of that proposal, as you know.

Until today, neither the Congress nor the executive branch has been able to achieve a sufficient consensus to come up with an effective solution of this matter.

The proposed Patent Policy Act would cut through all of that, through all the mass of inconsistent laws, executive orders, and regulations, and would replace it with a single statute covering all classes of contractors and grantees. It would be implemented by a single Government-wide set of regulations and a single Government-wide standard patent clause.

Though agencies would retain reasonable flexibility to reflect the peculiar needs of their own programs, or the peculiar circumstances of individual cases, they would all be working from the same basic framework and set of policy decisions instead of 20-odd different ones.

From the standpoint of universities and small businesses who are our principal performers, the proposed Patent Policy Act is particularly favorable. It's essentially similar to S. 414 about which we heard this morning, and which has been favorably reported from the Judiciary Committee. The virtues of the approach adopted in that proposal were well developed in hearings there and have been developed further this morning.

The only departures in this bill are in drafting style and elimination of a few restrictions on nonprofit and small business contractors that the administration considers unnecessary and undesirable. The major difference of course, is that this legislation would not deal with the problem only for nonprofit and small business contractors, but with the whole problem, and it would prune the present legal thicket not add to it.

In my written statement I discuss briefly the effort that was made to provide the proposed act with a logical structure and to couch it in language that is as comprehensible as the subject and substance will permit. I don't argue that we have succeeded completely, just that we have done our best, and, I think have succeeded considerably. That, too, I would argue is more than a surface matter and has something to do with effective government.

Not far from the surface, "plain English" drafting reduces the length of legislation and makes it easier to understand. All those who have to work with it, especially laymen and those who are new to the subject, but even experienced practitioners, are therefore going to be saved both effort and frustration.

A deeper contribution of the plain-English drafting effort is to the substantive formulation and subsequent operation of the statute. By making what is said plainer, it insures that those that have to implement or comply can easily understand what's expected of them. It also minimizes unintended ambiguities that create disputes in the administration of the statute. It thus enhances the effectiveness of the law and the respect paid both to its spirit and to its letter.

Most deeply of all, plain English highlights remaining flaws and issues that unfamiliar legalisms and convoluted structure would obscure. This is a vital and substantive service for drafters, for legislators, we hope, and for the public.

To us at the National Science Foundation, indeed, that's one of the great virtues, not only the style in which the proposed Patent Policy Act is drafted, but of the act itself. Whether it represents an ultimate resolution of the issues in government patent policy remains to be seen. But its speedy enactment, hopefully in this Congress, would remove the thicket of laws, executive issuances, and regulations that now obscure this area. It would highlight the issues and allow us to move on to refinement of a coherent Government-wide policy.

It would also allow us to move on to related and probably more important issues from which the tedious and seemingly endless debate on Government policy has impeded us.

Thank you.

[The statement follows:]

STATEMENT OF CHARLES H. HERZ, GENERAL COUNSEL, NATIONAL SCIENCE FOUNDATION

The National Science Foundation wholeheartedly supports the proposed Government Patent Policy Act that has just been presented to you in draft. It deserves to be enacted in this Congress.

From our perspective at the National Science Foundation I would like to make three points about the proposed Act.

First, the Foundation is the agency within the Government whose special responsibility is for maintenance and stimulation of science and scientific research for the benefit of the public. Because of that responsibility the NSF has a deep interest in

the working out of science for the use of the public. The proposed Patent Policy Act would do much to bring the fruits of science to the public.

Second, the Foundation is a research-support agency and most of the research we support is performed by universities and small businesses. The NSF therefore shares with other research-supporting agencies a concern for the impact of Government patent policy on research performers and has a particular concern for its impact on universities and small businesses. The proposed Patent Policy Act would be a major plus for them.

Third, the Foundation has had a special interest, deriving in part from the President's personnal interest, in drafting legislation and regulations so that they are as clear and comprehensible as the subject and the substance permit. In drafting the proposed Patent Policy Act the Administration has tried very hard to develop a logical and comprehensible structure and to use plain English. We believe the resulting difference is more than cosmetic, and I would like to say why.

Bringing the Fruits of Federal Research to the Public

The current state of Government patent policy reflects our historic difficulty in achieving consensus on the subject. The reason for that difficulty is not hard to find. Government patent policy is a topsy-turvy world where what seems most plausible, even obvious, to a sensible citizen coming to the subject afresh turns out after deeper consideration and experience to be least workable and least effective.

A common and quite reasonable first reaction is this: "The public paid for these inventions; why shouldn't the patents on them be freely available to all members of the public?"

As it turns out, however, if the patent is available to everyone, the invention is likely to be available to no one. Ordinary citizens, even ordinary businesses, can make no use of a patent as such. The invention must first be developed into a product or process and made available on the market before it does anyone much good.

The research that spawns an invention typically involves only a small fraction of the costs and the risks entailed in bringing it to market as a usable innovation. Most of the costs and the risks of development, production, and marketing remain to be borne by the developer. And those costs and risks are usually very considerable. As a result, only a small fraction of the patentable inventions that are made—with or without Government support—ever reach the public as usable innovations.

Fewer still would reach the public without patent protection. Without patent protection the firm that takes the costs and risks of initial development, production, and marketing would have no protection against other firms (particularly firms with dominant market positions) who might otherwise move in for a "free ride" by imitating the fully-developed invention and exploiting the developed market. The narrow and temporary patent "monopoly" on the invention permits the firm that takes the costs and the risks a protected return on its investment and so provides incentive for it to take that enterpreneurial plunge.

Indeed, furnishing investment protection and an incentive for develpment after the invention is made may be the most important of the functions our patent system now serves.

Inventions made in the course of Government R&D contracts and grants are not different from other inventions in this regard. The cost of the research that led to the invention, all or part of which the Government has borne, typically is a small fraction of the costs that remain to bring the invention to market. Thus, the risks that remain—that the invention will not pan out in development, that production costs will greatly exceed what is hoped for, and that the finished product or process will be rejected by the market—are the really high-stakes risks.

In short, the investment protection and incentive to innovation provided by the patent system are as vital for inventions initially conceived under Government R&D contracts and grants as for those initially conceived under purely private auspices.

But now we come to a second common reaction of a reasonable person coming new to the subject: "Granting that someone should have patent protection to bring an invention made with Government funds to the point where it will be useful to the public, why should the contractor have an inside track? Why shouldn't the Government license or auction the patent to any company willing to develop the invention?"

One answer is that the contractor very often has some equities in the matter, having contributed money, expertise, and other resources to the making of the invention and perhaps to some initial development. In such a case cutting the contractor out would not seem fair. But one could, of course, make an exception for such cases—understanding that it would be a quite commonly used exception.

The more important answer is that at least in its own established markets, the contractor is usually a much better bet to successfully develop and market the invention than anyone else. The contractor is usually established and experienced in the technical field to which the invention pertains. It has the equipment, models, computer programs, and so on that were use in maturing the idea. It has any know-how surrounding the invention that has already been developed. Above all, it has the inventor as an employee.

Having the inventor is doubly important. The inventor is not only the one person who knows most about the invention and therefore is most qualified to carry forward its development. The inventor is also emotionally committed to his creation. A common theme found in research about progress in technology is that to become a successful innovation and invention needs a "champion"—someone who believes in it deeply and will devote time and energy to making it work and getting resources devoted to it. In most success stories this champion, in the early stages at least, is the inventor.

In theory, of course, the Government could license someone other than the contractor and require by contract that the contractor make its employee-inventor and its invention-related know-how available to any such licensee. I think I need not belabor the practical difficulties and delays involved in trying to make such an arrangement work across institutional and geographic barriers, especially when neither the inventor nor the inventor's employer has any financial stake in further development.

For all these reasons and more, the most sensible policy, and the one most likely to bring the fruits of scientific research and technical development to public use, is one that allocates principal rights in the invention to the contractor wherever the contractor is interested in developing or actively licensing the invention. That is the approach adopted by the Administration's proposed Patent Policy Act.

This Act would recognize, however, that the contractor often has no deep interest or no interest at all in developing or licensing inventions outside its regular markets. The inventions might nonetheless have substantial potential application in other markets if someone would "champion" them there. Unless a contractor is willing to make a serious licensing effort in such other markets or fields of use, therefore, the Government should be given sufficient rights to let it champion the invention there. Under the proposed Patent Policy Act the Government would retain rights in all fields of use where the contractor does not undertake to bring the invention to public use by either development or active licensing. We think this too will help bring the fruits of Government-sponsored science and technology to the public.

In promoting innovation, no previous proposal seems to us to combine so effectively the advantages of allocating principal rights to the contractor with the advantages of Government licensing.

Relieving the Burden on Research Performers

The present state of Government patent policy is, in my view, a briar patch for contractors and grantees. They must deal with twenty-plus different statutes and sets of regulations, all overlain by the President's Statement on Government Patent Policy, which has the effect of an Executive Order. Several of the statutes, though not the Foundation's impose serious procedural and paperwork burdens that often result in months or, not uncommonly, years of delay. At least one proposal now pending would layer yet another statutory scheme, affecting only certain types of contractors, on top of the existing structure.

The proposed Patent Policy Act would cut through all this and replace it with a single statute covering all classes of contractors and grantees. It would be implemented by a single Government-wide set of regulations and a single Government-wide standard patent clause. Though agencies would retain reasonable flexibility to reflect the peculiar needs of their own programs or the special circumstances of individual cases, all would work from the same basic framework, instead of twenty-odd different ones.

Nor would the proposed Act impose any excessive administrative burden. Field-of-use designation, in particular, should be manageable. They know their own markets. When the time comes for field-of-use designation they will know the invention and have some idea of its possible uses as well. Moreover, this is not a matter the contractor has to debate with the agency. So long as it is prepared to commit to an effort to develop or license in any field of use, its designation of that field will not be questioned—unless, of course, it is later shown to have done nothing to commercialize in a field where other firms would like to try.

From the standpoint of the universities and small businesses who are the Foundation's principal performers, the proposed Patent Policy Act is particularly favorable.

Indeed, it is essentially similar to S. 414, which has been favorably reported from the Judiciary Committee. The virtues of the approach adopted were well developed in hearings there. The only departures are in drafting style and in the elimination of a few minor restrictions on nonprofit and small-business contractors, restrictions the Administration considers unnecessary and undesirable. The major difference, of course, is that this legislation would not deal with the problem only for nonprofit and small-business contractors, but with the whole problem. And it would prune the present legal thicket, not add to it.

Coherent Structure and Plain Language

Finally, I would like to say a word about the special effort that has been made to provide the proposed Act with a coherent, logical structure and to couch it in language that is as comprehensible as the subject and the substance permit.

I do not mean to claim that the Act will be easy reading for someone new to the subject. This is, after all, a complex and technical area; patent law is almost a profession in itself. We cannot avoid using its specialized terms—"exclusive license", "field of use", "author's certificate", and so on. Nor can we avoid complex and technical provisions. The considerations bearing on policy in this area that must be accommodated within the rules established preclude simple solutions.

What we can do, however, is avoid the whereases, thereupons, convoluted constructions, and half-page uninterrupted sentences that still unfortunately abound in Federal statutes and regulations. We can also structure the statute so that it is as easy as possible to follow and to understand and so that its principal provisions stand out. Those things the Administration has tried to do in drafting this legislation. I do not argue that we have succeeded completely, but I think we have succeeded substantially.

In our view, this is not a minor virtue, having to do only with the surface of things.

Not far from the surface, of course, "plain English" drafting reduces the length of the legislation and makes it easier to understand. All those who have to work with it—especially laymen and those new to the subject, but experienced practitioners as well—will therefore be saved both effort and frustration.

A deeper contribution of "plain English" drafting is to the substantive formulation and subsequent operation of the statute. By making what is said plainer, it ensures that those who are to implement or comply can easily understand what is expected of them. It also minimizes the unintended ambiguities that create disputes in the administration of the statute. It thus enhances the effectiveness of the law and the respect paid to both spirit and letter.

Most deeply, "plain English" highlights remaining flaws and issues that unfamiliar legalisms and convoluted structure would obscure. This is a vital, substantive service for drafters, legislators, and the public.

To us, indeed, that is one of the great virtues not only of the style in which the proposed Patent Policy Act is drafted, but of the Act itself. Whether it represents an ultimate resolution of the issues in Government patent policy remains to be seen. But its speedy enactment would remove the thicket of laws, Executive issuances, and regulations that now obscures this area. It would highlight the issues and allow us to move on to refinement of a coherent policy. It would also allow us to move on to related, probably more important, issues from which the tedious and seemingly endless debate on Government patent policy has been keeping us.

Senator STEVENSON. Thank you, sir.

If exclusive rights in specified fields of use is good for big business and the public interest, why not for small business?

You have said that these exclusive rights are tantamount to title. I anticipate that your answer goes back to your feelings about the rigidity of big business as opposed to the flexibility of small business.

However, small business has other limitations, bigger limitations. It may not have the resources, credit, production facilities, research facilities, and so on with which to exploit all of the fields of use to which it is entitled, and which, incidentally, could be found in a larger company.

It may not even have the resources with which to identify all the fields of use or the necessary incentives to license them if it did.

Why, therefore, shouldn't we apply the same approach, exclusive rights in identified fields of use, to small businesses? That would also overcome our problems in identifying what is small and what is big. We could treat everybody uniformly and we wouldn't have to leave it to the SBA or anybody else. And you wouldn't be punishing them, if that's the right expression, as soon as they become big. Success is rewarded.

Dr. BARUCH. Senator, it is not my view of big businesses that they are rigid, but I do believe that, because of their size, they have less flexibility in the kinds of changes they can make in their lines of business.

You are quite right that we will find small businesses which are as rigidly narrow as the worst conception one might have of a large business—I could name two or three—And you are quite right to ask, why give them title.

Senator STEVENSON. I am agreeing with you. Maybe rigid is the wrong word. I think big business tends to be rigid. You are being more favorable to big business, I suppose, than I am.

I am willing to assume the truth of whatever it is that you are saying. I think you used the word "fluid." Let's just assume then that it's just a question of fluidity. Small business is fluid and big business is not.

What I'm trying to suggest is that there are other limitations on small business.

Dr. BARUCH. If those limitations interfere with the use of those patents, then the Government can—and in the unlikely occurrence a small business is not utilizing it, it is reasonable that it will—exercise the march-in rights the Government will retain.

Senator STEVENSON. Do you want to expand a little on your experience in march-in rights for Senator Schmitt?

Dr. BARUCH. Senator, there are certain areas in which you and I completely agree. One of them is utilization and the inability or unwillingness of the Government to exercise its march-in rights.

I would like to point out some of the biggest bars to small businesses for expanding fields of use, exercising patents, are financial ones.

Senator SCHMITT. And regulatory. Administration regulation. Big business has an advantage.

Dr. BARUCH. Let's take the financial one first, because the patent doesn't help them much in the other area. You're right; it does. I'm sorry. If we give them title, it's one less tie to the Government that they have.

But, in fact, if you give them title, they have an asset which provides a valuable tool for raising cash, either by borrowing against it or by using it for licensing and getting royalties without investments, and that kind of encouragement to the growth of a small business is in the national interest.

Senator STEVENSON. Senator Schmitt?

Senator SCHMITT. Mr. Chairman, if I understand correctly, one of the reasons, if not the reason, for the difference between small and large business approaches is to provide some extra advantages to small businesses. Is that correct?

Dr. BARUCH. No, sir. It's to provide for the opportunity for small business to utilize these inventions in a wide range of areas. It's

not an additional advantage, because we have put the big business under no disadvantage.

Senator SCHMITT. There's not complete agreement on that.

Dr. BARUCH. I'm clearly voicing the opinion of a witness.

Senator SCHMITT. If that's true, why change the policy as the business gets larger?

Dr. BARUCH. Because as businesses get larger, they become less likely to license those patents in fields of use other than those in which they're actually engaged.

Senator SCHMITT. Are we forgetting that there's a middle ground here in which most businesses fall? Can you point to statistics which show that the medium-sized businesses—whatever is between small business and the Fortune 500—in fact, do poorly in licensing?

Dr. BARUCH. No, sir. But as is the case with most executives, I frequently have to make decisions based on insufficient evidence, and I do the best I can.

Senator SCHMITT. Over here in Congress, some of us at least try to make our judgments based on experience and history and what the basic facts are.

Let me move in a little bit different direction, Mr. Herz. To the best of your knowledge, what is the university community's position on the President's proposal?

Mr. HERZ. Senator Schmitt, I would hesitate to speak for the university community. Among other things, since the President's proposal, as you correctly said, officially hit the streets sometime late last evening, it's a little early to ask the whole university community to react. We have talked with a few people. I think realistically—I'll try to be as candid as I can in answering that—I think the university community likes the administration bill substantively. Their worry is, "Hey, we have this bill that takes care of our problems, that's already been reported out of committee and may be less controversial. We're worried that by pressing the administration's bill, you'll jeopardize the chances for that bill."

And what we have said to them at the very least is: "Wait and see. We think the administration's bill or some bill like it does have real political prospects. If you will support the effort to get such a bill, we certainly are for the same approach, that's in the bill the university community is concerned about."

I think candidly that the university community will find that although the bills are essentially similar, the administration's bill is slightly more favorable to universities—or at least has fewer appendages, you might say.

One of those is one you pointed out earlier. There is no so-called recoupment requirement in the administration's bill—as there is not in yours—although I don't think that kind of requirement is so serious a requirement for universities or anyone else if it's done right. It is not in this bill, and I would find that better.

There are a number of other small things rather like that.

Senator SCHMITT. But as of now, you have not explored substantively with the university community how they feel about the details of the bill?

Mr. HERZ. I have explored it informally with a few of the most obvious representatives, and I think I have accurately stated their

reaction. I think that they do like the administration bill as it affects universities substantively, and their worry is a political one about its impact on the other bill.

Senator SCHMITT. Outside NSF, what has been the reaction of the major Federal R. & D. agencies to the President's proposal? And I would include the R. & D. portion of HEW in that question.

Mr. HERZ. Senator, I would personally hesitate to speak for them, except to say, this is the administration's bill and they're supporting it.

Senator SCHMITT. They're expected to fall into line. Right?

Dr. BARUCH. As of yesterday, we had an agreement on this bill.

Senator SCHMITT. Was that agreement by Presidential edict? What was the advice that the agencies gave to the President with respect to this or other proposals?

Dr. BARUCH. It's a negotiated position throughout the administration, as are most positions.

Senator SCHMITT. Well, this committee has had testimony that would indicate that at least during those negotiations, there were very strong objections expressed.

Dr. BARUCH. To some other versions of the bill. Many changes have taken place in this bill.

Senator SCHMITT. In particular, to the concept of exclusive licensing.

Mr. HERZ. Senator, I think one thing would be helpful on this, and this goes back to the comment I made before I started my own formal, oral statement.

I think early on there was a lot of concern in a number of quarters, including the committee, that the exclusive license arrangement was intended to be something negotiated between the contractor and the agency. That would be very troublesome. It is, as we've tried to explain very carefully, not what's intended at all by the bill, and I think a lot of the concerns that were earlier expressed reflect that worry.

Senator SCHMITT. But you still have to monitor field of use, right? How is the monitoring of a license in the field of use going to be undertaken?

Dr. BARUCH. What do you mean, "monitoring." I'm sorry.

Senator SCHMITT. You're defining a field of use, presumably.

Dr. BARUCH. Our policy asks the contractor to do that. Yes.

Senator SCHMITT. It's going to be self-enforcing?

Dr. BARUCH. In general, if you want to look at the practicality of using this, the question of whether the contractor is actually commercializing some field of use is most likely to be brought up, not by the government, but by some third party, who would like to get a license for that field and hasn't been able to do so—who claims that they're not using it; And that he want to commercialize it. That's about the only circumstance that I expect that the question of field of use adherence to come up.

Senator SCHMITT. You don't expect any definitional problems on whether this field of use of clothes includes hats or shoes or whatever?

Dr. BARUCH. No, I do not.

Senator SCHMITT. Well, where is the burden of proof in this? Is it on the Government to prove that the contractor is outside the field

of use defined, or is it on the contractor to prove that they're within the specific field of use?

Mr. HERZ. In those rare cases where you actually had any difference on that——

Senator SCHMITT. You say "rare", but you have no experience yet. So we don't know what the number of cases are.

Mr. HERZ. On that sort of thing, I think there's a lot of experience in the private sector, and also the realities are such that they would be rare. What we're talking about is a situation where the contractor has already issued a license or is itself commercializing in some field that's related to some other field in which the government has come up with a potential licensee or in which a potential licensee has appeared on its own motion.

That doesn't happen very often, and it certainly has not happened very often. It is, by the way, exactly the kind of situation we expect to run into with the march-in rights we have now.

As you say, the march-in rights are not exercised very often. I suspect they should be exercised more often.

Senator SCHMITT. If you want to give Congressmen and Senators some case work, yes.

Mr. HERZ. There's something to what you say. Our agency is about to exercise a march-in, by the way, in a particular case, and it's just that kind of situation.

Senator SCHMITT. Will you inform the Congressmen and Senators whose district is concerned before you exercise that?

Mr. HERZ. If——

Senator SCHMITT. I'm being a little bit facetious, but I'm trying to give you an idea of some of the reasons we are concerned.

Mr. HERZ. In this case, the holder of title is a university. If it is sufficiently concerned—and I think candidly in this case it is not sufficiently concerned—we would, of course, do that.

Dr. BARUCH. Senator, my suspicion is, if it were a third party action that initiated this, we would have two Senators and Congressmen to notify, if they were from separate States.

Senator SCHMITT. Well, I'm sure you will. Fortunately, Mr. Chairman, in spite of what you may have heard this morning, I think the Congress has been moving in the last few years toward consensus. Certainly, the House and Senate committees have an interest in this. They have generally agreed philosophically. They are not yet fully in agreement as to scope, but they've agreed philosophically as to what history and commonsense tells us should be done.

I don't think the proposal by the administration is going to derail that effort. I don't know where Mr. Herz and Dr. Baruch feel their political support is coming from, because certainly the testimony before this committee and the House, and a great deal of the testimony before the Judiciary Committee has been supportive of the concept of the Commerce Committee bill which would go in a different direction. So hopefully you haven't derailed us. I don't think you have.

Mr. HERZ. We had no intention of derailing.

Senator SCHMITT. I know your intentions are good, but we in the Congress were moving in a fairly consistent direction. Now there's a new concept introduced which I don't think is supported by fact,

experience or commonsense. And for that reason I don't think it's going to hurt the progress that we were making before and I think will continue to make.

Mr. HERZ. What I would just like to say, Senator Schmitt, is that we have no intention of derailing. I agree with your statement about the movement of the Congress toward consensus, from what little I'm able to judge of it. I didn't mean to suggest anything to the contrary, and I would emphasize that I think that the administration's bill is entirely consistent with the kind of consensus that's been developing in the Congress, and I hope it will be seen that way.

What it adds, in terms of the field of use wrinkle, is a minor addition and intended to be a small contribution to supplement the effort that's already been going on. We don't regard this bill as inconsistent in any serious way with the consensus that's been developed.

Senator SCHMITT. My time is up. Thank you, Mr. Chairman.

Senator STEVENSON. Well, now that I understand it better, I find it more interesting than I did before. Maybe it does offer, not a new possibility for derailment, but some new possibilities for compromise to make it easier to get some action——

Dr. BARUCH. And I hope it will broaden the consensus.

Senator STEVENSON. Well, we'd better keep moving. Thank you, gentlemen, for joining us.

Dr. BARUCH. Thank you, Senator. Thank you, Senator Schmitt.

Senator STEVENSON. Our next witnesses are invited to come forward together. They are Robert Benson, director of the Patent Law Department of Allis-Chalmers; Homer O. Blair, vice president, Itek; James K. Haskell, director for patenting and licensing of Hughes Aircraft; Dr. Albert L. Broseghini, director of research administration at the Children's Hospital Medical Center in Boston; Eric Schellin, a patent and a trademark attorney from Arlington, Va., and Monte Throdahl, senior vice president of the Monsanto Co.

I understand that Mr. Throdahl is going to have to leave soon, so we'll call on him first. But let me urge you all to summarize your comments, so we'll have some time for questions. Your full statements will be entered in the record.

Mr. Throdahl?

STATEMENTS OF MONTE THRODAHL, SENIOR VICE PRESIDENT, MONSANTO CO.; ROBERT B. BENSON, DIRECTOR, PATENT LAW DEPARTMENT, ALLIS-CHALMERS CORP.; HOMER O. BLAIR, VICE PRESIDENT, ITEK CORP.; DR. ALBERT L. BROSEGHINI, DIRECTOR OF RESEARCH ADMINISTRATION, CHILDREN'S HOSPITAL MEDICAL CENTER, BOSTON, MASS.; JAMES K. HASKELL, DIRECTOR, PATENTING AND LICENSING, HUGHES AIRCRAFT CO.; AND ERIC SCHELLIN, PATENT AND TRADEMARK ATTORNEY

Mr. THRODAHL. Thank you, Mr. Chairman.

I think I would like to speak to you this morning from the point of view of a person who is a nonpatent attorney, but who has had a professional lifetime of experience in the area involving the kinds of problems you've just been discussing.

Let me begin by saying that I think there are three basic factors that control the success of nearly all innovations, certainly those that I've been associated with. Let me list them for you.

First, the time usually measured in years, required for commercialization is almost always longer than our collective patience allows—I'll have some more comments on this later. Ten to fifteen years in high technology is not at all uncommon. Those may be averages.

The second factor is that the timing is really a narrow window that's open only for a short while. That occurs when the public readiness to accept the innovation coincides with the state of the art. We've got lots of examples of great innovations that came too early or too late. This factor is extremely difficult to predict and also bears on some points I would wish to make later.

The third factor I would cite is that the innovation process itself really proceeds erratically because there are no probabilistic calculations to guide the innovator. The events either happen or they do not, and this means that the inventor must proceed regardless of whether he thinks they will or will not happen. That's the one essential difference between uncertainty and risk.

Now the presence of these three factors—time and dealing with uncertainty—makes patent exclusivity a viable, positive force to help the entrepreneur over these various difficult conditions. And so, representing one sector of a high technology industry, we would say that exclusivity obviously has to be a must, and I don't sense there's a lot of disagreement on that point.

Then I would say that an invention is the key proprietary step in this long process of innovation, which culminates in the manufacture and sale of a product or an application of some new process.

When normal commercial incentives are lacking, then the Government sometimes can offer financial support. Now the public as taxpayers do finance this research and development. Certainly, they haven't received the full benefits of these results, and that's been pretty well concluded this morning as well.

I think the reason for this is the understandable reluctance of private concerns to invest substantial moneys—and those substantial moneys begin after the invention is made usually—the talent that they have and these years of time and the highly uncertain quest for innovation when these rights to proprietary benefits are not exclusive.

The Patent Subcommittee of the Advisory Committee on Industrial Innovation recognized this when it recommended that patent rights on Government-supported inventions be transferred to the private sector for commercialization, and of course the Subcommittee on Federal Procurement Policy in the recent domestic policy review made a similar recommendation.

As we understand this administration bill, it does go far toward implementing this recommendation. And so, I applaud many of the forward looking provisions of the bill.

Many of these provisions should receive, it seems to me, reasonably universal support, certainly from our industrial colleagues. Everyone does recognize, I think, the value of a Government-wide policy that eliminates the present practice of the multitude of policies which vary from agency to agency. It doesn't seem to me

that anyone would disagree with that, nor would they disagree with government's retaining for itself a royalty-free, nonexclusive license.

We think that the provision in this administration bill, which permits an agency to move away from the provisions, is a practical approach. There are some problems that have arisen in past Government policy. We think this will protect the equity of the contractor in cosponsored cost-sharing and joint venture contracts, and certainly it does give the agency the flexibility to strike a deal with the contractor best qualified to do the work.

The Government would retain march-in rights, so that it does have the opportunity to seek other parties. We think that makes sense.

This concept, of course, is used extensively by businesses in licensing practices, and we certainly do that in our own corporation. In fact, we think that the march-in rights can provide the mechanism for accomplishing a good deal, if not nearly all, that the field of use provision attempts to do.

I would support the protection of the background patent rights. And it seems to me that this, then, would remove serious obstacles that in the past have prevented the Government from obtaining the most qualified R. & D. contractors. It would seem appropriate to me also that most of the provisions of the bill could have the wholehearted support of government and academe and business because they do protect the public interest while they do facilitate Government-sponsored innovation.

This is another way of saying, perhaps, that half a loaf is better than none.

Underlying the administration bill, as we understand it, as well as your bill, Senator Schmitt, and the Bayh bill, is the valid principle in granting exclusivity to the contractor, which will result in less cost and less adminstrative problems for both Government and contractor.

Both this bill and Senator Bayh's bill grant title to the university and small contractors. We think this is good. We expect that universities and small businesses will play an increasingly important role in the future as we hopefully rejuvenate U.S. innovation.

But again, I come back to the point that we've dealt with so extensively just recently. If this principle is sound for universities and small businesses, why shouldn't it apply equally to other contractors? We would represent such an organization.

For the latter, meaning someone in the larger sector, such as ourselves, this bill places the title in the Government with the contractor receiving exclusive licenses in specified fields of use. We could live with that, but we wonder if this discrimination is wise and whether it will not discourage rather than encourage innovation in the long run?

But if this distinction is necessary, then it seems to me the bill does contain a few improvements over past patent policy. For that reason, I think we can go along with it.

Let me cite those three improvements:

The first one is that it offers the probability of greater exclusivity to all contractors.

Second, making larger contractors' exclusive license automatic unless the agency makes some sort of prompt determination to the contrary. It's an improvement over putting the burden of justifying a waiver of title on the contractor, as is now the case, I believe, with NASA and the Department of Energy.

Third, although there will be problems that will arise when the party filing for a patent doesn't hold title, certainly this bill would avoid Government expense by having the contractor file. It also puts the job of filing for the patent in the organization that will usually have the most information about the invention.

There is an unfortunate part here, that the exclusive license granted under these provisions is limited to the fields of use that are specified by the contractor as soon as the invention has been identified, and I think that's the key point. We think this is sort of unrealistic, because in most cases it ignores the way that inventions are developed. Let me try to explain that.

I would like to use three maxims for research, if I may, that will illustrate this. The first maxim is that researchers do not usually find what they're not seeking.

The second one is that most research is done usually where the light is best.

And the third one is that the first use of an invention is usually not the most important one.

Normally the developer commercializes the first use, and then he broadens into other uses after he has gained additional technical and market knowledge about the invention.

I have an example here that could well come from an organization like our own. Suppose, for the sake of this example, that we consider the fiber division of a large diversified company—in other words, a company such as our own that would have a number of small parts making up the bigger whole, where many of those small parts are completely dedicated to the idea of finding new applications for products that already exist, and finding new fields, new markets in which to serve.

So, suppose this division finds a way to improve the tensile properties of nylon in carrying out, say, a government contract to develop better truck tires.

Now the first field of use is tire cord, or perhaps, more broadly, fibers. The invention then would be tested. We'd make market studies, create a pilot plant. This is where the big expense starts. And we might make 100 or so tires, and we rigorously test them. This may take all the way from 2 to 5 years or more. And the costs at that stage would exceed by many-fold the costs of the research that would lead to the original invention.

Now, meanwhile the knowledge that would be gained in these tests might have suggested other uses for the improved nylon, such as injection molding of machine parts, or in plastic sheets, or in other uses, none of which would come within the original field of use that was expected.

And so then the contractor faces the disincentive—the Government may have already licensed others in these new fields of use. So, as it now reads in the bill, this provision seems to us to restrain innovation in the long run, because it does narrow the options.

As I said, in the early part, the three concerns of ours are in terms of the uncertainty. Events either do or do not happen, and they're very unpredictable.

We'd also suggest that since the first use of anything is rarely an important one, this might turn out to be a key point. So I would urge in this bill that the field of use concept be reconsidered.

But if, in the judgment of those who will be passing it, it is retained, I'd like to suggest two improvements if we're going to do that:

First, the contractor ought to have the right to designate the field of use any time within some fixed period, such as 3 years or so. Preferably there should be no designation until the agency has concluded that it is necessary to hasten some commercialization or broaden the exploitation of the invention. At least that gives us some sort of time frame in which to put the contractor, and that's not all bad.

The second suggestion for improvement would be this. I believe that once a contractor has chosen a field, or fields, for use he ought to have the right of first refusal of any new uses as they may be identified by the agency, either on its own or by some other party who seeks a license from the agency. That may seem a little unfair, but I think it would be practical.

In sum, gentlemen, I think overall this bill is a move in the right direction from past policies. I would certainly urge that it be considered whether it is necessary or wise to distinguish between the large businesses and small businesses.

And, as I said earlier, I wonder if the field-of-use concept is necessary when the Government's right of march-in would achieve all that the field of use is designed to do.

But with these qualifications, as I have explained them, I believe that you have before you a bill that has many excellent provisions stemming from the President's initiatives in improving the climate for innovation. It seems to me this bill combines many of their best proposals on Government patent policy.

I think proper patent policies can help rejuvenate our American innovation, to the benefit of everyone. This is a bobtail version of our thoughts of necessity. We would certainly be glad as an organization to meet and work with anyone of your choosing on implementing our thoughts in a further detailed manner.

[The statement follows:]

STATEMENT OF MONTE C. THRODAHL, SENIOR VICE PRESIDENT, MONSANTO CO.

The recent Domestic Policy Review concluded that innovation is indeed lagging in this country. While there are many proposed solutions to the problem, there is no doubt that improved government policies concerning federally-funded inventions would have a positive impact.

Three basic factors control the success of nearly all innovations. First, the time from idea to commercialization is almost always longer than patience allows. Ten to 15 years is not uncommon. Second, timing is really a narrow window, open only for a short while, that occurs when the public readiness to accept the innovation coincides with the state of the art. This factor is very difficult to predict. And third, the innovation process really proceeds erratically because there are no probabilistic calculations to guide the innovator. Events either happen or do not, and the innovator must proceed regardless. The presence of these three factors makes patent exclusivity a vital, positive force to help the entrepreneur over these difficult conditions.

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An invention, then is the key proprietary step in the long process of innovation, which culminates in the manufacture and sale of a product or the application of a new manufacturing process. Where normal commercial incentives are lacking, the government sometimes offers federal support for the project. However, the public, who as taxpayers finance this research and development, have not received full benefits from the results. Less than five percent of the patents held by the government have been commercialized.

The reason for this is the understandable reluctance of private companies to invest money, talent, and years of time in the highly uncertain quest for innovation when the rights to proprietary benefits are not exclusive. The Patent Subcommittee of the Advisory Committee on Industrial Innovation recognized this when it recommended that patent rights on government-supported inventions be transferred to the private sector for commercialization. The Subcommittee on Federal Procurement Policy made a similar recommendation.

As I understand the Administration's draft "Government Patent Policy Act of 1980," it goes far toward implementing this recommendation. As one whose entire career has been that of encouraging innovation in business, I applaud many of the forward-looking provisions of this bill.

Many of these provisions should receive universal support. Everyone recognizes the value of a government-wide policy, thereby eliminating the present multitude of policies which vary from agency to agency. Nor does anyone disagree with the government's retaining a royalty-free non-exclusive license.

I also think the provision which permits an agency to deviate from the provisions of the bill is a practical approach to some problems that have arisen under past government patent policies. This permits protection of the equity of the contractor in co-sponsored, cost-sharing, and joint-venture contracts, and it gives each agency the flexibility to strike a deal with the contractor best qualified to do the work.

The government would also retain march-in rights, so that it has the opportunity to seek other parties to commercialize an invention if the contractor is not moving appropriately to do so. This concept is used by businesses in their licensing practicies, and it sound for the government to use it. In fact, march-in rights provide the mechanism for accomplishing much, if not all, that the "field-of-use" provision attempts to do.

I support the protection of background patent rights. This removes a serious obstacle that in the past has prevented the government from obtaining the most qualified R&D contractors.

It would seem appropriate that most of these provisions should have the wholehearted support of government, academia, and business because they protect the public interest while they facilitate government-sponsored innovation.

Underlying this bill as well as the Schmitt Bill, S. 1215, and the Bayh-Dole Bill, S. 414, is the valid principle that granting exclusivity to the contractor will result in less cost and administrative problems for both government and contractors.

Both this bill and S. 414 grant title to university and small business contractors—subject of course to march-in rights. This is good. I expect universities and small businesses to play increasingly important roles in the rejuvenation of U.S. innovation. But if this principle is sound for universities and small businesses, why would it not equally apply to other contractors as well?

For the latter, this bill places title in the government with the contractor receiving an exclusive license in specified fields of use. I wonder if this discrimination is wise, whether it will not discourage rather than encourage innovation.

But if this distinction is considered necessary, the bill does contain three improvements over past patent policy.

First, it offers the probability of greater exclusivity to all contractors. This is obvious in the case of universities and small contractors. The larger contractor, which is often the most capable of carrying an invention through commercialization, would be more attracted to government-sponsored research.

Second, making the larger contractor's exclusive license automatic, unless the agency makes a prompt determination to the contrary, is an improvement over putting the burden of justifying a waiver of title on the contractor—as is now the case with NASA and DOE.

Third, although problems may arise when the party filing for the patent does not hold title, this bill would avoid government expense by having the contractor file for the patent. It also puts the job of filing for the patent in the organization with the most information about the invention.

Unfortunately, the exclusive license granted in these provisions is limited to fields of use specified by contractor as soon as the invention has been identified. This is unrealistic in most cases, for it ignores the way inventions are developed.

At least three maxims prevail in research. One, researchers do not usually find what they are not seeking. Two, most research is done where the light is best. Three, first use of an invention is usually not the most important one. Normally, the developer commercializes a first use, then broadens into other uses after it has gained additional technical and market knowledge about the invention.

For example, suppose the fiber division of a large diversified company finds a way to improve the tensile property of nylon in carrying out a government contract to develop better truck tires. The first field of use is tire cord, or perhaps more broadly fibers. The invention is tested, market studes are made, a pilot plant is constructed, and a hundred or so tires are rigorously tested. This may take two to five years, and the costs exceed by many times the costs of the research leading to the original invention.

Meanwhile, the knowledge gained in the tests may have suggested other new uses for the improved nylon—such as in injection molding of machine parts, or in sheets, or in other uses, none of which come under the original field of use. So the contractor faces the disincentive that the government may have already licensed others in these new fields of use. As it now reads, this provision seems to me to restrain innovation in the long run because it narrows the options.

I urge that the field-of-use concept be reconsidered. But if it is retained, I would like to suggest two improvements.

First, the contractor should have the right to designate the field of use anytime during a fixed period such as three years. Preferably, there should be no designation until the agency has concluded that is necessary to hasten commercialization and to broaden exploitation of the invention.

Second, I suggest that once a contractor has chosen a field or fields of use, he should have the right of first refusal of new uses as they are identified by the agency on its own or by a third party seeking a license from the agency.

Overall, this bill is a move in the right direction from past policies. I do urge you to consider whether it is necessary or wise to distinguish between universities and small businesses, on the one hand, and large businesses, on the other. And, as I said earlier, I wonder if the field-of-use concept is necessary, when the government's right of march-in achieves all that field-of-use is designed to do.

But with these qualifications, I believe you have before you a bill with many excellent provisions. Stemming from the President's initiatives in improving the climate of innovation, this bill combines many of the best proposals on government patent policy. Proper patent policies can help rejuvenate American innovation—to the benefit of government, business, and especially the tax-paying American public.

Senator STEVENSON. Thank you, sir.

I recognize that you must leave very shortly, so we'll see if there are questions for you, and then you are free to leave.

I have just one. Are you suggesting that if the Congress were to accept the field-of-use approach, with or without your modifications, that it should be applied to small businesses as well as to larger businesses?

Mr. THRODAHL. We would say so, yes. We don't really find the distinguishing between small and large very helpful. The arguments that you were carrying out earlier I think would share our views quite well.

Senator STEVENSON. Senator Schmitt.

Senator SCHMITT. Pursuing that field-of-use question a little bit further, it would seem to me, that by your proposed modifications you are basically saying you might as well go to title with march-in rights.

Mr. THRODAHL. We would prefer that. I think we would say that.

But, on the other hand, if the mood of the Congress would be to not deal with the title question, we could live with this. That's what we're really saying.

Senator SCHMITT. You could live with it. You have a considerable record of contracts with the Federal Government, so you can see into the organization. What would you think would be the effect of

the President's proposal on the activities of the agencies with which you've had your principal dealings?

Mr. THRODAHL. I hadn't thought about that in those terms. I would suspect it might improve the receptivity of the agencies to us for the contractor. I think our main concern would be exclusivity; and that if we had to choose between exclusivity by license, and title, we'd take title. And I'm not sure we would work any more diligently. Hopefully we would be more inclined to move into some of the other use areas that I tried to illustrate earlier that we normally just would not think about.

I can tell you that we had some contracts—gee, this is many, many years ago—it must be 15—with the Office of Saline Water. And these were in regard to dealing with clarification of brackish and saline water.

Some of that work lay fallow for many, many years. And long after some of the original patents might have expired we carried on some of the legacy of that work into fields that were allied but distinctly different. And now, well over 15 years later, we end up with what we hope is a promising set of new applications for what you'd say would be the son of the initial work we did.

But we would never have done it under the basis of the original relationships we had with the Office of Saline Water, because any patents there would have been nonexclusive, so we would have had no incentive at that time.

But, again, to repeat, sir, I think if we have to take the choice between two, we'd rather have exclusivity by way of title. We think it would be much simpler.

Senator SCHMITT. Well, we do, too. But your testimony basically is that there are tremendous definitional problems and practical problems in the field of use, contrary to the testimony we've had from the administration.

Mr. THRODAHL. Yes. And that is one of the most difficult things we have internally to deal with.

Senator SCHMITT. And this would be particularly true if, as I understand, the President's proposal, the definition by the contractor has to be with sufficient peculiarity to allow the Government to identify those fields of use not accompanied by the described field.

Mr. THRODAHL. We find it very difficult.

Senator SCHMITT. You don't know what the field of use is going to be for years after the invention.

Mr. THRODAHL. That's right. That's why we would say put a time limit in it at least. I don't mind time pressure; I think that's not bad. But there's just no way that I'm aware of that people are imaginative enough to come up with other uses at the outset.

Senator SCHMITT. Well, I'm concerned that if you're going to have field-of-use, or even if you had an aggressively pursued march-in program, which is an alternative approach, that the bureaucracy that it would take for the individual agencies to exercise that in a responsible way would be very large. Many of the things that are done now, for example, in the Department of Defense by people not trained in legal matters would probably not be possible; would you agree with that?

Do you deal with the Department of Defense in these contracts?

Mr. THRODAHL. I do not personally deal with the Department of Defense.

Senator SCHMITT. Monsanto does.

Mr. THRODAHL. Yes.

Senator SCHMITT. Is it your understanding that much of the negotiation work is done with military officers on assignment to that particular endeavor for some short period of time?

Mr. THRODAHL. Yes, it's difficult for them. In fact, it's difficult for anybody to deal with an area that's not his own.

Senator SCHMITT. Do you feel that the Presdent's proposal would require a different approach by the Department of Defense to contract negotiations in terms of the personnel assigned?

Mr. THRODAHL. I couldn't answer that, but I would certainly think it would take a different kind of understanding than we've seen in the past. Therefore, that might be a logical conclusion, that there would have to be a different sort of personnel assigned.

Senator SCHMITT. Finally—and then I'll let you go—the President's proposal precludes a contractor from acquiring even an exclusive license if it would be contrary to the requirements of the agency's mission. Does that give you any pause?

Mr. THRODAHL. It certainly would. It would give pause. But, again, I came to this table with the thought that if we could break the barrier of nonexclusivity versus exclusivity—if we could break that barrier, I would like to see that barrier broken in favor of exclusivity with the understanding that, for the reasons I gave, that it's the most critical thing for anyone who has to go through the uncertainty and the patience and the commitment of lots of resources beyond the invention stage to make it come to the public good, so that the public benefits and the organization that assumes the risks and the uncertainty benefits.

Then it seems to me that that's the main thing that we have to get over. And I'd be willing to compromise a good deal to get that part of exclusivity in any kind of bill.

Senator SCHMITT. Well, we have to be very careful. I think the Congress and the Administration—at least in their rhetoric—agree that we need to be aiming toward a uniform policy.

Mr. THRODAHL. That's correct.

Senator SCHMITT. And the exclusivity, in itself, is important. The controversy is going to come down to what does the administration proposal really represent, a uniform policy? It clearly does not, in terms of the definition of business and other entities. It does not in terms of giving the agencies latitude to make decisions on whether they apply the President's proposal.

Uniformity is not there nearly as much as many of us would like to see. I'm afraid that it has potential for building in the same kind of problems that we have all faced whether we've been in Government or out of it with the diversity of patent approaches and background of approaches that one finds in the Federal Government today.

Mr. THRODAHL. I would say, Senator, that there are many features of the two bills, S. 1215 and S. 414, along with this one. And I think with some judicious melding we could come up with most of what all of us would think fair.

Again, if I bear in on the exclusivity factor, I think I testified before your bill, Senator Stevenson, S. 1215, that I would be willing to see a payback to Government funding agencies that would be the result of successful commercialization.

I like to use the term "bringing to the public good." I really believe that's one way to get over that emotional hurdle that seems unfair when you first think about it. But that's a small price to pay to get that particular——

Senator SCHMITT. That may be a small price to pay for Monsanto, but it's a very large price to pay for a small company, to have that hanging over their heads if and when they're trying to go out and raise funds based on the existence of a patent that they're eventually going to have to pay back on.

And I think those arguments have to be discussed.

Mr. THRODAHL. Certainly.

Senator SCHMITT. But it's not at all clear to me that the overall public interest is served by that kind of requirement. It can inhibit the commercialization process.

Mr. THRODAHL. I agree with you, sir. And I think it's more imaginary than real. But again, on the whole premise——

Senator SCHMITT. It's not imaginary if you're a small business trying to raise capital.

Mr. THRODAHL. I understand what you're saying, sir. I was really speaking that it's more imaginary in the general public's mind that somebody is getting an unfair advantage because he would get an exclusive license out of a patent granted by the Federal Government, paid for by the general taxpayers' funds.

Senator SCHMITT. But I think that's starting to break down.

Mr. THRODAHL. I'm glad to hear that.

Senator SCHMITT. There's a greater understanding in the Congress of the issue now and more discussion. Your testimony and the testimony of your colleagues will help in that.

Thank you very much.

Mr. THRODAHL. Thank you.

Senator STEVENSON. Thank you, sir.

Mr. BENSON. Could I ask Mr. Throdahl one question before he leaves? This has to do with the statements we heard earlier about the fluidity of big business.

Monte, what percentage of the product that Monsanto markets today weren't on the market 10 years ago? Do you have an idea?

Mr. THRODAHL. Were unmarketed or were not on the market?

Mr. BENSON. Were not on the market 10 years ago.

Mr. THRODAHL. Well over half. Well over half.

That would mean that we now have more than trebled our size, I would think, in the last 10 years. But our constant struggle is how do we fight the obsolescence of what we have because of the fast-moving nature. I would say that certain people who are representing my own industry struggle very, very hard to avoid this obsolescence, and I have testified to this point. The presence of a regulation is not a totally unwelcome thing, because, in fact, we should have been more far-seeing in years past than we have been now or than we are now.

I would think that, for the most part, we struggle very hard to keep an open mind on how is it that we bring to the public good

and, therefore, to our shareholders' good, that would be lost to us if we don't have the capability for fair innovation.

Mr. BENSON. It's essentially true, that if you don't do that you are going to fall behind in market share and basically you are not going to prosper.

Mr. THRODAHL. That is correct.

Senator STEVENSON. Gentlemen, that is why we are here, because we are falling back in our market share in the world. And usually, those products are not generated exclusively by internal research, but more and more frequently, it's under license from foreign corporations.

Mr. THRODAHL. That's right.

Senator STEVENSON. Thank you.

Mr. THRODAHL. Thank you, sir.

Senator STEVENSON. We better keep pushing.

Mr. Benson, can we proceed with you next?

Mr. BENSON. Thank you.

I was asked to testify primarily on the Patent Advisory Subcommittee of President Carter's domestic policy review on industrial innovation. I was chairman of that committee. My prepared statement includes a complete copy of that report, so I will limit my remarks to some of the features and some of the background of that report, and I will try not to be repetitious of some of the things that have already been said.

As you know, one of the four major recommendations of that subcommittee was that the Government should develop a better system of transferring the commercial rights to Government-supported research to the private sector.

The conclusion of our committee, unanimously, was that if the Government really wanted to increase the amount of Government-owned technology incorporated in products which actually get into the marketplace, it must find a way to transfer the rights to that technology to the private sector in a sufficiently attractive form that would induce members of the private sector to make an additional investment. Clearly, the preference of our committee was that you just give them the title.

Now, you have to understand what a businessman faces everyday. He has only so much money to spend on various projects, and he has to look at them, compare their merits, their potential, the likelihood of return, and make a decision. So, therefore, any grant from the Government that has restrictions on it is less attractive than one which comes out of our own labs.

When you put restrictions on the grants that you're giving to people in the private sector, you make it less attractive to them. That is one of the reasons why some of this Government technology has never been commercialized. In fact, I would go a little bit further than some of the other people that spoke today. I think that the whole concept of march-in rights is a disincentive. If anyone especially a small corporation, is asked to invest millions of dollars in developing the market, with the threat hanging over their head that because they didn't develop this particular part for some area of the market, someone else is going to come in and get an exclusive license over them this threat certainly has to be a deterrent.

I think that S. 1213 would be much more likely to achieve its goals if the march-in rights were deleted.

I had something in my statement about the windfall profits, which we hear all the time, is bad. I think that's a very misleading thing. When you look at what is accomplished if a person or a corporation takes some unused technology, invests money in it and makes it successful—and, after all, that's the only way he can make any money is to be successful—the rewards to the general public, the citizens, is tremendous. They have something which they never had before.

The results to the Government are pretty good, too. You figure that a corporation has to pay a 46-percent tax on their profit, and I will tell you, that's a very good royalty. So, we think that that argument really doesn't have much merit.

We feel very strongly that the title should go to the private sector, not only to the contractor, but if the Government transfers commerical rights to it own developed inventions, they ought to be transferred in somewhat the same way that the contract inventions are transferred.

I just want to make some mention of the fact, during the committee report, we were told that the Government had 30,000 patents. Less than 10 percent of them are used. I have read some literature more recently which would indicate that it's an even smaller percentage of that—1 or 2 percent. I have to observe that that's a pretty poor record, and I can assure you that none of us in private practice or industry would survive with that kind of a performance.

When we're talking about a uniform Federal patent policy, one of the things that should be addressed is: How are decisions being made on what patent applications are being filed? After all, the Government filings represent 3 percent of the total workload in the U.S. Patent Office, and a reduction in that would solve some of the problems that Senator Bayh is concerned about, with budgets and personnel, over in the Patent Office. So, I think that's one thing that is not addressed in these bills very well, and perhaps should be.

Your bill talks about the utilization of technology. What the bill is really talking about is transferring of patents, and many times very valuable technology is not patentable in the first place. Maybe it wasn't the intention of your committee to direct attention to that particular problem, but it does not appear to be addressed in your bill.

The President's statement on October 31 mentions the exclusive-field-of-use licensing, and, of course, you heard all about that today. All I can say is that from our committee's viewpoint, that is a much less desirable alternative to title. We can see many administrative problems in that particular area, some of which Monte talked about, not the least of which is, who's going to enforce this exclusive license. Patent suits cost a quarter of a million to a half million dollars apiece. If I were to have a license which included, say, 30 percent of the total market, am I then expected to enforce that patent for the benefit of the Government and the other licensees in the other 70 percent of the market.

And the other concept, is whether people in the private sector would really feel comfortable in filing a lawsuit based on a patent owned by the Government. For example, take a major corporation filing a lawsuit against a small corporation based on a Government patent. After all, it's the Government's patent, not theirs. And so I think that particular concept, has some problems.

There are some other problems in connection with exclusive licenses. The way the bill reads, as I understand it, the licensee would be expected to prosecute the patent application. That creates both practical and ethical problems. Many States consider the filing of patent applications as the practice of law, and in most States corporations are not entitled to practice law. So, the preparation filing and prosecution of patent applications on behalf of the Government, at least in some States, would create problems for the corporations who are the licensees.

The practical problem is that you put yourself in a awkward situation if you prosecute patent applications for somebody else. We don't do it; and I think most corporations insist that the licensor get his own patent. To give you an example, let's assume that you prosecute in good faith a patent application, but for one reason or another the claims turn out to be too narrow. The licensor and other licensees are upset. If you did a poor job in prosecuting that patent application do I have some liability to the other parties?

One other point I want to mention. When we were doing our study on industrial innovation, we were concerned with the total innovation process, not just the patent area, and patents are just one step in a long process. One of the things we're talking about today is, who's doing the R. & D., who's coming up with the inventions? But the real problem with getting a product to the market is that point between coming up with a concept and coming up with something which is practical and can be sold in the marketplace. That skill is a different skill than the innovation of the original idea. That skill, in many cases, is very strongly lodged in the corporations who have been successful in marketing. That's their strong point, and you need them. Small corporations and individual inventors often turn to the larger corporations for assistance in marketing and for the refinement of engineering to make things practical. We need that skill. There is no reason, in my view, to discriminate against the large corporation in this area, where your real goal is to get things into the marketplace.

In conclusion, of all the things we've seen, we like S. 1215. We think that's as close to the recommendations that our committee has made, in spite of the fact that I personally think you can drop out the march-in rights and have a much better bill.

Thank you.

[The statement follows:]

STATEMENT OF ROBERT B. BENSON, DIRECTOR, PATENT LAW DEPARTMENT, ALLIS-CHALMERS CORP.

My name is Robert B. Benson of Milwaukee, Wisconsin. I have been practicing Patent Law for over 25 years. I am the Immediate Past Chairman of the Patent, Trademark and Copyright Law Section of the American Bar Association and during the last year I served as Chairman of the Advisory Subcommittee on Patents of the

President's Domestic Policy review on Industrial Innovation. I have also been active in other Bar Associations.

I have been asked to testify about the findings and recommendations of the Patent Advisory Subcommittee of the Domestic Policy Review on Industrial Innovation as they relate to this proposal. As you know, the development of a system of transferring Commercial rights to government supported research to the private sector was one of the primary recommendations of our committee. I have set forth the full text of the committee report as an appendix to this statement. I will limit my comments to some of the more significant parts of the recommendation.

The members of our committee were very clearly against the idea of the government owning U.S. patents. The nature of the government activities is such that it does not need the right to exclude people from using its inventions. The patent grant which gives the patent owner the right to exclude others from using his patented invention is normally used during the period of time that the patent owner is developing a market for the product. Since the government is not in the business of marketing products, it has no need for these rights.

Our committee concluded unanimously that if the goal of the government is to increase the amount of government-owned technology that is incorporated in products which actually get to the market place, it must find a way to transfer the rights to this technology to people in the private sector in a sufficiently attractive form that would induce members of the private sector to make the necessary additional investment required to commercialize the technology. Clearly the preference of our committee was that the rights in government patents be assigned totally to a party in the private sector who has expressed an interest in commercializing the patented invention.

Any restrictions which are put on the grant, detracts from the overall incentive and could be the difference in having the invention utilized at all. The term of a patent is only 17 years, which is really a very short time in the history of the country. Many inventions are not commercialized in that period of time in spite of efforts to do so. In other cases, patents and technology become obsolete before the patents expire. Therefore, the concept of march in rights as set forth in Section 304 of this bill are a disincentive to commercializing government inventions and technology. The concept that such march in rights protect the public, in my opinion, is misleading and it would be very rare circumstances in which such rights would be exercised, especially since the government retains a license in these patents to use and have made for its own purposes the products and processes covered by these patents. The granting of title to government-owned patents to individuals or corporations in the private sector is a very small price to pay for the potential benefit to both the government and the public and the title should not be clouded by such things as march in rights except in very unusual circumstances. S. 1215 would more likely achieve its goal of greater utilization of technology resulting from government sponsored R. & D. if Section 304 march in rights were deleted from this Bill.

Our committee was aware of the claim that large windfall profits are a likely result of granting of title to inventions resulting from government sponsored R. & D. to people in the private sector. We think such claims are very misleading, particularly when you consider the alternative that the technology remains unused. If a party acquires title to government technology and patents and, in fact, makes a substantial profit through its use, the benefits to the government are substantial. The government receives 48 percent of the profit in the form of taxes which turns out to be a very satisfactory royalty rate. In addition, citizens receive the benefits of the products which are made available to them. Additional jobs are provided, which in turn, result in a tax benefit to the government because of the income tax paid by the employee, who might not otherwise be employed. Just how much of a return is the government entitled to for the utilization of its technology.

Our committee was informed that the government owned approximately 30,000 patents and that less than 10 percent of them were being used and even in the area where contractors took title the percentage of usage was not significantly higher. This is a very poor performance that would not be tolerated in most commercial organizations. Our committee felt very strongly that the government could and should make better decisions on the inventions on which to seek patent protection. Much greater emphasis should be given to the potential commercial utilization of such inventions.

Our report points out that approximately 3 percent of the load in the Patent and Trademark Office is due to the filing of patent applications on government-owned inventions. A reduction in this number of applications based on more astute decisions on the potential commercial value of these inventions would have a significant positive impact on the operations of the Patent and Trademark Office.

Although the title of this bill infers that we are talking about greater utilization of government technology, the present text deals only with transferring rights in patents and much of the value of the government-owned technology is not patentable nor would it automatically be transferred with the licenses spelled out in this bill. Some consideration should be given to a system of transferring related or supportive technolgy with any transfer of patent rights to the private sector.

The President's statement of October 31 proposed exclusive field of use licenses under government owned patents. This is clearly less desirable than assigning title to such inventions to the private sector for the reasons I have stated earlier. In addition, such a proposal would incorporate major problems in administation, not the least of which is the question of who would enforce the exclusive licenses and at whose expense.

Our committee considered a number of proposals for transferring the rights in inventions made by government employees at government expense. About half of the committee members favored giving title to such inventions to the employee and the other half favored assigning the rights to a government-run corporation similar to the Connecticut Product Development Corporation. However, relative to using a separate organization to sell licenses under unused patents and technology, the direct experience of many of our members was that these activities rarely brought significant benefits and clearly are not worth the cost and expenses of the activity. Many corporations have embarked on such programs in an effort to capitalize all their "fall out" technology and have had to abandon the operation as a failure.

In conclusion, the thrust of S. 1215 is about as close to the recommendations of our committee of the Domestic Policy Review that I have seen and we would support the enactment of the Schmitt bill.

APPENDIX

Transfer Commercial Rights to Government-Supported Research to Private Sector

The United States patent system is designed to stimulate the progress of the useful arts by encouraging the public disclosure of new technology and making available to the public new products and processes utilizing this technology. It is not necessary to go through the expensive, time-consuming procedure of obtaining a patent to fulfill the function of disclosing information to the public. This can be accomplished by a simple publication. On the other hand, the patent grant has played an important part in commercializing inventions, making new products available to the public. The Federal Government does not normally participate in this function.

The theory of the patent grant is to give the inventor or his assignee the exclusive rights to his invention for a period of time so that he can invest the time and money necessary, commercialize the invention and develop a market for the product or process incorporating of developing inventions for commercial use, it has no need to own patents. On the other hand, the government is a substantial user of products and services and in that context needs, or at least can benefit from, a license to use patents.

Experience has shown that the government, as a purchaser or consumer of goods and services, is not in a position to take advantage of its ownership of patents to promote enterprise. Private companies, on the other hand, who are in a position to utilize the patent grant are ordinarily unwilling to take a nonexclusive license under a government-owned patent and commit the necessary funds to develop the invention, since it has no protection from competition. This is a major reason that over 90 percent of all government patents are not used. Another important reason is that the government obtains patents on technology which, in the opinion of the private sector, does not provide an attractive business opportunity.

Several years ago, the Federal Council for Science and Technology supported the most thorough study ever conducted on the issue of government patents, commonly referred to as the Harbridge House Report. The following findings were included in the report:

"Government ownership of patents with an offer of free public use does not alone result in commercialization of research results.

"A low, overall commerical utilization rate of government-generated inventions has been achieved; that rate doubled, however, when contractors with commerical background positions were allowed to keep exclusive commerical rights to the inventions.

" 'Windfall profits' do not result from contractors retaining title to such inventions.

"Little or no anti-competitive effect resulted from contractor ownership of inventions because contractors normally licensed such technology, and where they did not, alternative technologies were available."

The idea that what the government pays for belongs to the people is not only appealing, it is true. The question is: What instrumentalities can be brought to bear to maximize the possibilities that the people will indeed have available the fruits of their government's expenditures? Nonexclusive licenses to undeveloped inventions, offered by the government or anyone, of sufficient duration are much more likely to attract the money and talent needed to make and market real products to meet consumer needs.

If the results of federally sponsored R&D do not reach the consumer in the form of tangible benefits, the government has not completed its job and has not been a good steward of the taxpayers' money. The right to exclude others conferred by a patent, or an exclusive license under a patent, may be the only incentive great enough to induce the investment needed for development and marketing of products. Such commerical utilization of the results of government-sponsored research would insure that the public would receive its benefits in the way of products and services, more jobs, more income, etc. The cost of government funding will be recovered from the taxes paid by the workers and their companies. Therefore, all the members of this subcommittee recommend transferring the patent rights on the results of government-sponsored research to the private sector for commercialization. In the case of university or private contractor work sponsored by the government, the members of this subcommittee recommend that title to the patents should go to the university or private contractor, but some members feel the government should have "march-in-rights" (i.e., when the invention is not being used and it appears that there is a public need to use the invention, the government would have the right to transfer the patent rights to those in the private sector willing to use the invention). With respect to inventions made by government employees at government expense, the subcommittee members are divided about equally between those who feel that the government employee should have title to the invention, and those who feel that such inventions should be transferred to an independent, nongovernmental organization, perhaps modeled after the Connecticut Product Development Corporation, or auctioned to the private sector or transferred to the private sector in some other manner. In all cases, the government would retain a nonexclusive license to use and have made for its use inventions founded in whole or in part by governmental expense.

At the presnt time, the government has a portfolio of 25,000 to 30,000 unexpired patents. These include patents arising as a result of research and development work in government laboratories by government employees, and also from work done by non-government employees wherein the government retained title because it funded the work. In fiscal 1976, 2,646 patents issued to the government, of which 1,824 were for inventions by government employees.

Considerable sums of money are involved in government patent ownership, the patent budgets of the various government agencies including funding for patent attorneys, supporting staff and equipment being in the millions of dollars.

Our information indicates that the United States government has been filing in excess of 3,000 United States patent applications per year, which amounts to approximately 3 percent of the total workload in the United States Patent and Trademark Office. A decision not to file patent applications on behalf of the government would result in the PTO having available 3 percent of its total capability that could be directed to reducing the backlog in the PTO and handling special problems that have been created by the new reissued program and the anticipated reexamination procedures. In addition, this decision would save the time of government patent attorneys who normally prepare and prosecute the patent applications and the cost of having patent applications prepared by attorneys in private practice. Time and money thus saved could be utilized to provide needed services in other areas of the government.

According to this subcommittee's proposals, the decision to file a patent application would be made by the university or contractor; in the case of inventions made be government employees at government expense, the decision to file would be made by the employee, if he were to retain title, or by the independent nongovernmental organization (suggested above), which would obtain title to the patent.

The subcommittee recognizes the argument that the government applies for patents to preserve its right to institute an interference with patent applications from the private sector. However, such interferences are a very rare occurrance under

present practices. Furthermore, establishment of prior invention by the government would generally constitute a defense in an infringement suit on the basis of prior invention. Prior invention may not be an adequate defense in instances where the government has not reduced the invention to practice, or has, for good reasons, kept the invention secret; special legislation may be required to provide adequate protection to permit royalty-free government use in such instances.

Senator STEVENSON. Thank you, sir.

Dr. Broseghini.

Dr. BROSEGHINI. I am going to make my comments very brief, by pointing out that the reason why I asked to testify is that 2 weeks ago, when I first heard about this bill, nonprofits weren't included in the administration's proposal which obviously got me a little upset as it did a number of my colleagues. Subsequently, nonprofits were included by incorporating essentially the Bayh-Dole provisions. This, we can support.

I don't think that I need to go over the record. However, I do have a statement, which I would like to have entered, which summarizes the peculiar problems that nonprofit organizations, such as Children's Hospital and universities have in dealing with companies and are addressed in provisions of this bill as well as other proposals.

We've been encouraged by the Government to establish a technology transfer program, as we call it, and for the past 4 years we have been actively pursuing relationships with industrial firms. We do have patents pending in the Patent Office now. We have been awarded patents.

Many of the things that I have been hearing in this room concerning the problems of titles and licensing and march-in rights are exactly the sort of things which we want to avoid. Getting title solves these problems. Companies will not even talk to us unless we do have clear title to an invention. Getting a license or anything similar to it, for a nonprofit corporation, of course, doesn't mean anything because we can't do anything with it; we don't have the financing.

I would have hoped that the administration would have supported one of the pending bills in the Congress now rather than coming up with its own proposal at this late date in the session.

I think Mr. Herz clearly indicated the general feeling of nonprofits, and I am pleased to hear that Senator Schmitt reassures us that this proposal will not derail things that are already pending. Obviously, we support S. 414. We can live with the administration's proposal if it goes through. We would obviously like to have something, and my testimony here is really to lend support to getting something this session.

Thank you.

[The statement follows:]

STATEMENT OF ALBERT L. BROSEGHINI, PH. D., DIRECTOR, OFFICE OF RESEARCH ADMINISTRATION, THE CHILDREN'S HOSPITAL MEDICAL CENTER BOSTON, MASS.

The Children's Hospital Medical Center is one of the largest, independent, research hospitals in the United States. According to figures supplied by the National Institutes of Health, using that agency's research awards as a unit of measure, we are now the third largest such hospital in America. In fiscal year 1979 we received in excess of $15 million in research funds of which 65 percent came from federal sources. Our research programs range from the most basic laboratory investigations in recombinant DNA technology to research incorporating the state of the art in

computer technology and engineering as applied to medicine. Many of our research programs rely heavily upon collaboration with institutions such as Massachusetts Institute of Technology and Harvard University as well as industrial firms, both large and small. As with any organization oriented towards basic research we find ourselves increasingly faced with the problem of transferring technological advances made in our laboratories to the public sector. Accordingly, in 1976, at the urging of the federal government, we developed a technology tranfer program to ensure that technological advances made in our laboratories would receive the widest possible dissemination and use. Since then we have made great strides in maximizing our resources so that the greatest possible benefit will be gained from our research programs.

I am aware of the intense discussions that have transpired concerning federal sponsorship of research and the disposition of rights resulting from that research. Since The Children's Hospital Medical Center receives a majority of its research support from the federal government we are vitally affected by any policy that addresses these issues. We have supported, therefore, those individuals and organizations which have labored over the past few years to develop an awareness within the federal government that current federal policies relating to patents and technology transfer are in need of revision. To this end we endorsed S. 414, sponsored by Senators Bayh and Dole, as being a reasonable approach to improving the relationship between the federal government and the private sector in these matters. S. 414 establishes a precedent for further industrial innovation initiatives. It has a good chance of passage in this session. I believe that it is in the public interest for the Administration to support and endorse it. Indeed, President Carter implicitly did so when, in his message to the Congress on industrial innovation, he stated, "I will also support the retention of patent ownership by small businesses and universities, the prime thrust of legislation now in Congress in recognition of their special place in our society." We took this statement as endorsement of the provisions of S. 414 which has received strong support from virtually every corner of the public and private sector.

In contrast to the support S. 414 has received, it is my understanding that the Administration's patent proposal received little if any support from delegates attending the White House Conference on Small Business held last week. In fact, a majority of the delegates specifically endorsed S. 414 provided no major modifications were made. Since universities and non-profits have already indicated support for S. 414 it is this bill which should now be endorsed by the Administration. This would be consistent with the President's commitment contained in his technology message to Congress of October 31, 1979.

Unlike S. 414 which has been subject to intensive discussions and debate the Administration's proposal has only recently surfaced. For example, I received a copy of the final proposal yesterday and I must admit that the time available to me has not permitted the kind of analysis I would have liked to prepare for your committee. However, the fact that the Administration's proposal has not been widely circulated to those organizations affected by it is disturbing since the issue of federal patent policies is too important to receive this sort of treatment. When I first heard of the Administration's proposal non-profit organizations were excluded from it and it was this omission that led me to ask to testify first, on behalf of the Children's Hospital Medical Center and secondly, on behalf of other non-profits. Even when the Administration recognized the need to include non-profits it did so but defined them in such a way that many of them, including Children's Hospital, would have been classified as large businesses. The proposal now under consideration has rectified this treatment of non-profits by adopting the definition contained in S. 414.

I cite this very brief history of my involvement with the Administration's proposal because it illustrates clearly my uneasiness. During the past 10 days since I first became aware that the Administration was preparing a legislative proposal and I asked to appear before this committee, I have been exposed to widely conflicting descriptions of what the Administration's position on patents is. Given the legislative history of the various proposals dealing with Government patent policies it is difficult for me to understand why the Administration does not lend its considerable prestige behind one of the pending bills (S. 414 or S. 1860). Furthermore, given the events of the past week I have been led to believe that the Administration is not united on the issue of federal patent policies. Speaking for the Children's Hospital Medical Center I urge the Administration to support S. 414 which adequately deals with the problems of educational institutions, small businesses and non-profits and has received the endorsement of these groups. I am pleased to say that this request for enactment of S. 414 has the endorsement of the Association of Independent

Research Institutes. Dr. Walter D. Syniuta, President, Advanced Mechanical Technology, Inc., (Newton, MA), also supports passage of S. 414.

Attachments.

ASSOCIATION OF INDEPENDENT RESEARCH INSTITUTES

Addiction Research Foundation, Palo Alto, Calif.; American Type Culture Collection, Rockville, Md.

Boston Biomedical Research Institute, Boston, Mass.

Cancer Research Center, Columbia, Md.; Caylor-Nickel Foundation, Inc., Bluffton, Ind.

Eye Research Institute of Retina Foundation, Boston, Mass.

Forsyth Dental Center, Boston, Mass.; Friends Medical Science Research Center, Inc., Baltimore, Md.

Haskins Laboratories, Inc., New Haven, Conn.; Fred Hutchinson Cancer Research Center, Seattle, Wash.

Institute for Medical Research, Camden, N.J.; The Institute for Medical Research, San Jose, Calif.; The Institute of Medical Sciences, San Franciso, Calif.; Institute for Research in Social Behavior, Berkeley, Calif.

The Jackson Laboratory, Bar Harbor, Maine; W. Alton Jones Cell Science Center, Lake Placid, N.Y.; Joslin Diabetes Foundation, Inc., Boston, Mass.

The Lindsley F. Kimball Research Institute, the New York Blood Center, New York, N.Y.; Lovelace Foundation for Medical Education and Research, Albuquerque, N. Mex.

Virginia Mason Research Center, Seattle, Wash.; Medical Care and Research Foundation, Denver, Colo.; Medical Foundation of Buffalo, Inc., Buffalo, N.Y.; Mental Research Institute (MRI), Palo Alto, Calif.; Michigan Cancer Foundation, Detroit, Mich.

Alton Ochsner Medical Foundation, New Orleans, La.; Oklahoma Medical Research Foundation, Oklahoma City, Okla.; Oregon Research Institute, Eugene, Oreg.

Pacific Health Research Institute, Honolulu, Hawaii; Palo Alto Medical Research Foundation, Palo Alto, Calif.; Papanicolaou Cancer Research Institute at Miami, Inc., Miami, Fla.; Pasadena Foundation for Medical Research, Pasadena, Calif.; Professional Staff Association, Harbor General Hospital, Torrance, Calif.

The Roche Institute of Molecular Biology, Nutley, N.J.

The Salk Institute for Biological Studies, San Diego, Calif.; Scripps Clinic and Research Foundation, La Jolla, Calif.; Southwest Foundation for Research and Education, San Antonio, Tex.

Trudeau Institute, Inc., Saranac Lake, N.Y.

The Wistar Institute, Philadelphia, Pa.; Worcester Foundation for Experimental Biology, Inc., Shrewsbury, Mass.

ADVANCED MECHANICAL TECHNOLOGY, INC.,
Newton, Mass., January 23, 1980.

Dr. ALBERT L. BROSEGHINI, Ph. D.,
Director, Research Administration,
The Children's Hospital Medical Center,
Boston, Mass.

DEAR DR. BROSEGHINI: I am writing in opposition to the "Government Patent Policy Act of 1979", as proposed.

I have had a long standing interest in government patent policies, especially as it pertains to small business, non-profit institutions, and universities. Our present government patent policy is counterproductive in stimulating innovation in the very sector that has shown the greatest productivity of innovation—small business. While the proposed act would take positive action with regard to small business rights to inventions, it would do so at the cost of a further increase of government involvement (Department of Commerce, Administration of General Services, the Secretary of Defense) through monitoring not just of contract inventions, but also of commercialization of inventions after rights have been relinquished by the government. Not only will this lead to higher government management and monitoring costs, but through its reporting requirements, it will also increse costs by the supposed beneficiaries of this policy.

The act also attempts to further the exploitation of inventions owned by the government. This is in no doubt in response to the government's present poor performance in this area. However, in my opinion the act merely establishes a

larger bureaucracy to work toward this end, but without any reasonable reassurance that the objectives would be achieved.

The Bayh-Dole bill (S. 414, revised) offers a reasonable and intelligent approach to stimulating innovation by improving government patent policy. The "Government Patent Policy Act of 1979" does not.

Very truly yours,

WALTER D. SYNIUTA, *President.*

Senator STEVENSON. Thank you. Your complete statement, and the others, will be entered in the record.

Mr. Blair.

Mr. BLAIR. Thank you, Mr. Chairman, Senator Schmitt.

I am vice president of Itek Corp. One aspect of my background which might have a bearing in this bill is that I am a past president of the Licensing Executive Society, As a matter of fact, LES has members in all of the companies on this panel, and most big manufacturing companies do. The people in LES are those who have significant responsibility in licensing.

Licensing is a two ways street: You license your own technology; and you go out and buy technology from others. At Itek—and I know this is true with many, many other corporations in this country—we license more technology in than we do out. That's a situation which I believe will become more common, because there is reduction of R. & D. development of new products in this country. More and more of us are having to go outside our own companies, and sometimes outside of our country, to get the technology we need.

I want to briefly mention Itek's background and how it's relevant to this. I feel a little bit like a thorn between two roses here, between my two associates on each side of me from big corporations, and Eric Schellin represents small business. We're sort of in the middle, not giant, not small.

We were formed in 1957 out of the Applied Physics Laboratory of Boston University. We started out in very large, sophisticated optics, strictly a government contract company. Now we're not in the Fortune 500. We would like to get there someday, but we're not there yet our sales at present are about $300 million.

About 25 percent of our business is in government contracts; 75 percent is in commercial business. One part of the products we make in the commercial business relates to certain aspects of printing. The printed patents that are first issued from the U.S. Patent and Trademark Office are printed using our equipment.

In our Government business there are a couple of things you're familiar with, although possibly not by name. The photographs that were taken on the surface of Mars and were sent back to this country were taken with Itek equipment. Frankly, we found they worked better on Mars than they did on Earth.

Senator SCHMITT. Less noise.

Mr. BLAIR. Right. Also, remember seeing the Apollo astronauts go outside their capsule to pick up film from cameras. Some of that film was from Itek cameras, which were taking photographs of the Moon's surface.

I have one comment to make pertinent to Dr. Baruch's comments on the flexibility of small business and large business. At Itek, we were not in the photo typesetting business until 3 years ago. Now we're in it in a big way. It's bringing new business to us,

but it relates to a marketing area in which we have some expertise, which we were able to use to get into that business. I think we're flexible in that area.

Briefly, patents don't really give you the right to do anything, and they don't give you the ability to do anything. There are some comments in my prepared remarks about how patents are not really a monopoly. If you get a license under a patent it just means that the guy who owns the patent won't sue you. You still have to worry about somebody else's patent.

More important, particularly to the licensee, you have to have the know-how, the technical information. If you get a license under a patent, that gives you the right to go out and do research, I suppose. But you haven't got a product ready to go. When you're getting a license from the Government you may get immunity from a lawsuit, but you're unlikely to get the person-to-person contact with the technical people that can give you the technical information they know and you need. They have to have an incentive to do this.

Personally, I agree with Bob Benson that the large number of Government patents are not very useful. Frankly, I think the vast majority of them, maybe even 90 percent or more, if they had been owned by industrial corporations, would not have even tried to be patented. Not because they aren't inventions. They are inventions. But the market isn't there for the patented product or process. We get inventions on very large, sophisticated mirrors or lenses that we make up to 80 inches in diameter, or something like that, and we're only going to sell one of those things. Why get a patent on it? We don't bother with patents unless it's something we're going to manufacture in enough quantity to make it worth our while.

I would recommend if the government does decide to go in the licensing business, as has been mentioned, it should only be done if the licensing agency makes a profit.

If they don't make a profit and they're spending more taxpayers' money, I frankly don't think it's worth the effort.

I'd be surprised if they did make a profit.

I think one problem with the administration proposal is that if the Government retains the rights in these various fields that are not elected by the contractor, I think it will be nearly impossible to license those rights because you're merely offering the naked patent license.

People in the licensing business will tell you naked patent licenses are very difficult to sell. Usually, the only way you can really go after one of those licenses is by a lawsuit, which can be very expensive. If you haven't got the know-how to tell somebody how to do something, you won't be successful in licensing.

I'd like to give very briefly—there's more detail in my written comments—an example which might have some bearing on this situation.

In the early 1960's, our people came up with some inventions in photographic film processing, the construction of the processors and how you get excellent contact between the film being processed and the various chemicals involved.

This turned out to be useful in a wide variety of fields in photographic processing.

It also became evident that nobody in this country, and I think it's still true today, is active in all those fields. No one company. Different organizations work in those fields. You can understand this because handling microfilm one-half inch wide and processing it and getting the small amount of chemicals involved in good contact with the film being processed is one kind of technology. Handling medical X-ray films 18 inches wide is a completely different technology, as well as also being a completely different marketing operation; medical X-ray people don't know how to market microfilm, and vice versa.

There are also industrial photograph markets in which you get involved in film, say, 8- to 12-inches wide.

Itek developed this technology for aerial reconnaissance. We didn't know anything about X-ray films, et cetera.

But over a period of time we found a number of licensees. This was not done by the people in this particular division that developed the technology; it was done by the licensing people in the corporation working with the division people with their technical expertise.

We were able to find licensees who we could help get to their products. We would loan them our film processors, which they could not directly adapt to their field, but the use of our processes was still very helpful to them. It taught them the principles used.

Then we could help the licensee's people on a person-to-person basis. Our people would go to their place, they would come to our place. They were able to adapt our technology to their uses, but each one wanted an exclusive license because they had to make a considerable investment to develop their product and they wanted to protect their investment.

They paid pay minimum royalties each year in order to keep their exclusivity, but after 5 years, they had the option, if they didn't want to keep exclusivity, to no longer pay the minimum.

This technology was used in a number of fields. Now it is no longer used because it became obsolete. The patent still has 2 years to go. If anybody wants a license on it, I'll be happy to work out a deal with them.

Right now it's worthless.

But this is an excellent example of how something can get out into different fields if you have some basic technology to go along with it and help the other people get there.

We could not have licensed this technology without the patent. The licensees said that they wanted exclusivity, they wanted to keep their competition out of this field as they had invested a lot of money to get the product.

On the other hand, we could not have licensed the technology with only the patent. The patent by itself would not have been much good.

They wanted our know-how, they wanted the contact with our people. They needed both.

That's why I think that one part of this Government proposal is quite difficult, because they won't be able to provide this know-how and this relationship.

I agree with Mr. Throdahl, particularly, that it's nearly impossible to select the fields in which you wish to commercialize in a

very short time after you make the invention or report it to the Government. However it's certainly better to do it at that time than at the time you make the contract.

But in our particular example our people were aerial reconnaissance experts. They didn't know anything about medical X-rays. They wouldn't even have thought about medical X-rays at the time, or microfilm.

Those uses developed over a few years after we got our technology under control in aerial reconnaissance. And the licensing people, with the technical people and other marketing people were able to come up with licenses in these other areas which we hadn't even thought about.

Another problem, I think, lies in the Government negotiating licenses—my experience in negotiating with Government people in those areas are that you're dealing with lawyers. There are no people behind them with management ability and experience in the business involved.

In the licensing business, management people are necessary to make business decisions, the royalties, and other things. The lawyers do the negotiating.

Some of my associates here, you will note, are lawyers. But when they go into negotiations in licensing, they put on the business hat. They aren't there worrying about clauses, they're worrying about a business deal, trying to get the right business deal, so both people can have the best of both worlds.

Frankly, in our experience, in dealing with the Government, in the licensing we've had a lot of problems. I've made a statement before which sounds a little ridiculous, but I'll make it again.

I would rather have a patent that we own in the Soviet Union which the Soviet Union was infringing than own a patent in the United States which the U.S. Government is infringing.

I can get along better with the Soviet Government and negotiate with those people; I can't do it with our people.

There is an administrative claim procedure in this country of which many of you are aware, which can be used to negotiate a license to the Government. However many of us, rather than use it, will sue in the Court of Claims and then we'll finally get into negotiations with the Government.

That may not get me anywhere, either, as Jim Haskell says. He may be right. But I think at least Government contractors could do a better job of licensing as they have some management business people involved who understand the business aspect of the technology.

In conclusion, I do think that the administration's proposal is a very creative try. I think they gave it a good rassle. But I really don't think it would serve the Government interest best, nor the public interest.

My preference is for the Schmitt bill. If you can't get that, I think the Bayh-Dole bill is good. It's a step in the right direction. I agree with Bob Benson.

I'd rather not have recoupment in there, and I'd certainly rather have the Schmitt bill, if I had my druthers. I think that that would be the best bill in the public interest. Thank you.

[The statement follows:]

STATEMENT OF HOMER O. BLAIR, VICE PRESIDENT, PATENTS AND LICENSING, ITEK CORP.

Mr. Chairman and Members of the Committee, my remarks will be directed primarily to my understanding of a proposed administration position of Government Patent Policy.

EXPERIENCE AND BACKGROUND

My opinion is based on my experience of some 25 years in the practice of law involving technology and, particularly, in patent, trademark and copyright law and licensing and technology transfer. I have two bachelor degrees, one in chemistry and one in physics and a J.D. Degree (law), all from the University of Washington in Seattle, Washington.

I have been an employee of five U.S. corporations and I am presently employed at Itek Corporation in Lexington, Massachusetts, where I am Vice President, Patents and Licensing.

I am a Past President of the Licensing Executives Society (U.S.A./Canada) and am the first recipient of the LES Award of Highest Honor. I have been a member of four United States Government Delegations, one to the Soviet Union in 1971 on Exchange on Patent Management and Patent Licensing, two to the United Nations (UNCTAD) in Geneva relating to the Role of the Industrial Property System in the Transfer of Technology and one to the United Nations (Economic Commission for Europe) in Geneva relating to a Manual on Licensing Procedure. I am also a member of the U.S. State Department Advisory Committee on International Intellectual Property.

THE VIEWPOINT OF THE RECIPIENT OF TECHNOLOGY—LICENSEE

Among other things, my views are based on the fact that Itek Corporation, as is true with the vast majority of U.S. corporations, has received more licenses under the technology of others than we have granted to others under our technology. This trend will increase in the future because of the reduction of new product research and development at U.S. corporations, which means that they must receive more of their new product technology from outside sources.

Thus, I and my peers spend more time evaluating the patent rights of others than we do evaluating our own patent rights.

BRIEF DESCRIPTION OF ITEK CORP.

Itek was formed in 1957 as an out-growth of the Applied Physics Laboratory of Boston University. This group had developed some very sophisticated large optics for government customers and were encouraged by these customers to form a manufacturing organization for manufacturing these complex lenses and mirrors. Thus, when Itek was originally formed, it was formed as a government contractor.

Today, Itek is not as large as the Fortune 500 corporations, but we are considerably larger than small business; having annual sales of about $300,000,000 per year. About 25 percent of these annual sales are in the government contracting business, with the remainder of our sales being in various commercial markets.

Our government contracting business is made up of two primary categories. The first is large sophisticated optics and electro-optics. One example of our products, of which you are aware, are the photographs taken on the surface of Mars by the Viking lander. These photographs were taken by Itek cameras and transmitted back to Earth by Itek equipment.

Also, many of the aerial photographs taken from the Apollo Space Capsule as it circled the moon were taken with Itek cameras. As you recall, you saw the astronauts go outside the capsule to recover the film from Itek cameras to bring back to Earth.

The other part of our government contracting is in electronic counter-measures, including radar homing and warning. We make equipment which is placed on fighter planes and which will tell the pilot when someone is watching him on radar or when a missile is fired at him. This equipment will give him real-time warnings so that he may take adequate evasive action.

CURRENT GOVERNMENT PATENT POLICY

For a number of years, there has been much discussion relating to government patent policy. A considerable amount of legislation has been considered with very little being passed. Presently, each agency has its own policy. Some are required to

have a particular policy by legislation, such as NASA and the Department of Energy, while others do not.

At present, there are two Bills of primary significance in the Senate. The first is the Bayh-Dole Bill S. 414 which would give title to patents made under government contracts to the contractor in most circumstances when the contractor is a university or a small business. There are provisions for recoupment of some of the government costs out of royalties or profits made by universities or small business.

Another approach is that set forth in the Schmitt-Stevenson Bill S. 1251, where, in most cases, title would reside in the contractor with, of course, the government having a royalty-free license for its own purposes.

I understand, partly as a result of the recently-completed Domestic Policy Review of Industrial Innovation, and based on President Carter's message to Congress on Innovation, that the Administration may be proposing a Government Patent Policy Bill in the near future.

In general, my understanding is that this Bill will propose that title to inventions made under government contracts would reside in the contractor when the contractor was a small business or a university.

In other cases, title would remain with the government, with the contractor being able to obtain an exclusive license for certain fields, which the contractor can specify, if the contractor decided to file a patent application in the United States or other countries involved.

In general, I support the policy set forth in the Schmitt-Stevenson Bill S. 1215. However, if it is not feasible to get this legislation passed in the present Congress, I would certainly support the Bayh-Dole approach as a step in the right direction.

The remainder of my comments will be addressed to my understanding of the administration's proposal.

THE VALUE OF PATENTS

Contrary to statements often appearing in print, patents are not a "monopoly" to do anything. Patents give you the right to exclude others from practicing your inventions.

This important distinction can be understood as follows: When Alexander Graham Bell got his original patent on the telephone, he got a legal right to keep others from making, using or selling a telephone. Later someone else invented, and got a patent on, a dial telephone, which gave him a legal right to keep others from making, using or selling a dial telephone. Thus, no one has a "monopoly" on a dial telephone because no one can legally make a dial telephone. Bell would need a license from the dial telephone inventor and the dial telephone inventor would need a license from Bell.

Thus, when you have a license under a patent, you still have to make sure your product will not infringe the patents of someone else.

While patents can be of significant value in the licensing business, the most valuable thing to licensees is the technical know-how for developing and/or manufacturing an actual product. The patent right may give us certain legal rights, but the best patent in the world will not give us the know-how to start immediate manufacture. Thus, when we are looking for a license, we are looking for someone who can give us manufacturing know-how so that we can get into the market as soon as possible with the least amount of expense.

Thus, when dealing with the government, all we are likely to get is an immunity from suit if the government owns the patent and it is very unlikely that the government will have adequate know-how itself to make it of interest to us. Even if the government should have this know-how, it may be very difficult to have real access to it and to encourage the government employees who have this know-how and provide the person-to-person continued contact permitted to make the best use of this know-how in our manufacturing. This is an even greater problem if the know-how is only possessed by a government contractor who has no incentive to help us.

Otherwise, with merely a license under a government-owned patent, all we really have is a license to do R. & D. and develop a product on our own at our own expense and over a significant amount of time.

GOVERNMENT OWNERSHIP OF PATENTS

Frankly, I think government ownership of patents is a waste of time and an unnecessary burden on the taxpayer. The taxpayer, which is all of us, must pay for staffs of government patent lawyers who tie up some of the U.S. Patent and Trademark Office in prosecuting their patents.

It is often heard that the government has many thousands of patents, with the figure of 30,000 being one which is frequently mentioned. Again in my opinion, the vast majority of these inventions, probably over 90 percent, would not be patented if they had been owned by a commercial organization, as the organization would not have thought it was worthwhile to spend the money to obtain a patent on these inventions.

In Itek's case, we are interested only in getting patents on products which we manufacture and we rarely, if ever, get patents on technology that we would only license. Our job is manufacturing and we can make more money by using our limited assets in this direction as opposed to developing technology for others to manufacture under a license.

INCOME TO THE GOVERNMENT

If contractor owned the patent right and the appropriate technology was developed for commercial use, the government would make more money in taxes from the profit made by the contractor or, in a few cases, the royalties taken in by the contractor, and also taxes on the profits made by the licensee, than the government would ever be able to make itself on any royalty basis. This is particularly true when the expense of organizing a major licensing effort is taken into account.

In the regard, I would strongly recommend that if the government decides to go into licensing in a big way, the orgnaization budget be carefully checked and if after a very few number of years the organization is not making a net profit, but is providing a drain on the taxpayer, I do not believe it should continue in existence.

FIELD LICENSES

With specific respect to licensing by the government in a particular field, it becomes even more difficult than a general license. As I mentioned before, the licensee may have a legal right under the patent, but the government would be in no position to provide know-how in a variety of different fields of use suitable for commercial development.

Any licensing person would tell you that nothing is more difficult than attempting to license a naked patent right without know-how to go along with it. It can be done on occasion, but it often involves a lawsuit with hundreds of thousands of dollars spent in a non-productive manner.

If you can provide actual know-how and provide a real new product to the licensee, it is easy. If you cannot do this, it merely gives the licensee a legal right to practice under the patent and it is extremely difficult and often not worth the effort.

ITEK FLOFILM PROGRAM

I would like to give you an actual example of technology which was developed a number of years ago at Itek and how such technology can be made available to others in different fields. Our technical people developed an improved technique for processing photographic film. The invention related to the particular structure of the film processor and the manner in which the film passed through the photographic chemicals in such a way as to get very even contact between the chemicals and the film providing a fast relative flow between the chemicals and the film to give uniform and prompt development.

It turns out that this technology is useful in a wide variety of fields and at that time, and as far as I know this is still true today, there is no one or two companies which manufacture in all these fields. This because even though the basic technology and the patent and invention are the same for each of these fields, the size of the film being processed varies so widely that it takes quite different techology when it comes to manufacturing products for the different fields. For example, one field is the microfilm field in which you have very narrow film that requries a very small processor but presents particular problems in handling the small volume of chemicals in order to make sure that they evenly contact the film.

At the other extreme is the medical x-ray field. Those of you have had x-rays taken know how large this film is and you need a processor which is wider than the width of the chest x-ray you see in order to process the x-ray film properly As you see, there will be completed different characteristics required in a processor to handle something that will be working on films of 35 mm width, or less, as opposed to film that is 18 inches wide.

There are other fields which use this same technology. One is the government oriented field of processing aerial reconnaissance film. Another is the field known as industrial inplant processing, which is an intermediate range, which again requires different processing techniques.

Itek developed this technolgoy primarily for government use in the aerial reconnaissance field.

We were successful in finding licensees in the microfilm industry, in the industrial photography industry and in the medical x-ray industry.

Each of these companies was able to take the know-how we had developed, which gave them an excellent base, and make certain modifications which, frankly, we would not have known how to do. They were able to adapt this technology to their own particular need. Of course, as it turned out, the medical x-ray company which we licensed had no interest in or ability to design products in the microfilm field, much less have the knowledge and ability to market them. The opposite was true for the microfilm license. However, each licensee wanted an exclusive license, as they were required to spend a certain amount of money to modify this technology for their own use and did not want this technology then to become available to their competitiors. Why make significant investments if their competitors could merely copy?

Of course, in licensing you are really attempting to market technology and in order to market any new product you must give incentives to the customer to buy your product rather than someone else's or make his own. In this case, we were able, by giving an exclusive license in their field, to give them that incentive. Coupled with this was the right to borrow our prototype processor that we had developed for our own uses and which, while it could not be directly adapted to their use, gave them an excellent headstart. Also, we agreed to provide access to our engineers on a person-to-person basis both at our plant and at their plant which is a tremendous help and which they have found very valuable.

As a matter of interest, the agreement included an option which was exercisable at the end of the fifth year of the license and each year thereafter, where the licensee could elect to convert the license to a non-exclusive license if he wished, with the only change being that he would not have to pay the minimum royaliites which we required of him in order to keep his licesnse exclusive. This minimum royalty technique is a very common one in licensing and if it turns out that the technology is no longer of major interest, the exclusive licensee does not pay the minimum and the license may either terminate or may become non-exclusive depending on the particular arrangement negotiated.

Thus, by use of this exclusive field license technique and having our own technology available to all our potential licensees, we able to make this technology available to the public in a number of fields which resulted in improved film processing and better quality at less expense.

As is often true with technology, after a number of years, this particular invention was made obsolete by other inventions and our licensees and we ourselves have gone on to other techniques.

The patent was issued in 1965 and has two more years to run. At present, we have no licensees and we are not using the invention ourselves. If someone wanted a license under this patent, we would be delighted to make a reasonable arrangement with them. No one has approached us and we certainly do not intend to waste our time attempting to license this technology because it is obsolete.

This is an excellent example of how a piece of technology became available in a number of fields by a licensing operation and we were able to manufacture a product ourselves. It has now served its purpose and the area of technology has moved on to other things.

I might mention that with only the technology and without the patent, we would have a lot of difficulty in licensing the technology, because each of our licensees wanted protection so that their competitors could not copy their devices as soon as they appeared on the market. To our knowledge, competitors did not infringe our patent during the years that the licenses were active.

What does this mean in the subject context of government patent policy? In my opinion, it means unless you have the technology available to go with a patent, you will not be very successful in licensing it. On the other hand, if you do not have good patent protection, it is very difficult to license merely the technology. If the government had owned this patent, in my opinion, it would not have been capable of licensing this technology in the variety of fields necessary. Even if Itek had an exclusive license in the field it wished to develop, namely, aerial reconnaisance, the government would not have been successful in licensing other fields exclusively because it would not have had the real cooperation of Itek and the Itek technical people to give the person-to-person contact, to loan the equipment at some inconvenience to Itek, etc. Even within our own divisions, we find that we do not get good cooperation between technical people in different divisions unless it is to the benefit of the people providing the technology. We have developed, although we have not

had to use it yet, an internal policy of licensing which would provide actual royalties to the divisions involved if some of their technology was used by another division. This gives them the incentive to assign people to work on such a project. Without that incentive, particularly in a government oriented division, they have no budget to assign these people to and without a budget and a particular project, people will not be able to spend time on a project.

OTHER COMMENTS FOR THE GOVERNMENT PROPOSAL

Other points in the proposed legislation, as I understand it, would require the contractor to make his selction as to which field he wishes after the invention is made but as soon as he reported it to the government (Sec. 301(b)(3)). Often this is at a very early stage in the technology development and the contractor is in no position to know the exclusive field he may be able to develop later. It make take a number of years before he knows.

In addition, I understand that complete technical information (Sec. 301(b)(1)) must be given to the government when it is notified of the invention. While this sounds nice in theory, in practice it is very burdenson as there may actually be too much information in order to finally get complete technical information, which the government does not need anyhow. What the government needs is enough information to determine what the invention is. Under the present law if the government wishes to file a patent application on an invention, sufficient information to permit this is certainly available. However, complete information would mean possibly hundreds of pages of engineering drawings, voluminous reports, tremendous amounts of detail that is only found in the heads of the people working on it. This provision is quite impractical.

Another point is that I understand that Sec. 402 provides the government could publish information on the invention one year after it receives information. While in many cases this time period is appropriate, in many others it is not. The contractor may not have sufficient technical information to file a useful patent application in one's year time a number of circumstances. At Itek we have often had our divisions Patent Review Committee decide they wish to file a patent application on a piece of technology when it has reached sufficient level to file a patent application. However, the actual application would not be filed for two, or sometimes even three, years after this decision because this information was not yet available.

It is very difficult to legislate details in a complex field like this because in some cases they may be very appropriate and in some cases not.

It seems to me that this proposal would create a very complex administration within the government involved with these field licenses which can be very sticky in defining them. As a matter of fact, in my opinion, the most important part of any license agreement is always the definition of what is licensed and what is not licensed and this sometimes takes up a major part of the negotiations. If this decision must be made a very short time after the invention is made and before the technology has even been developed sufficiently so that the developer can see if there is a real product at the end of his development, it is premature and negotiations may be very difficult.

If the contractor sets forth these fields, the government is certainly in no position to know whether or not those fields are reasonable and to be able to negotiate what the government would or would not want as the government usually has no background in these areas of technology.

In my experience in negotiations in government patent matters with government people, it is often a very fruitless negotiation because even though they may be bright, dedicated and hard working, they don't have the experience and background in a particular technology involved to be able to react with confidence.

NEGOTIATING PATENT LICENSING AGREEMENTS WITH THE GOVERNMENT

One final point. When negotiating license agreements, lawyers may or may not be involved in a number of aspects of the negotiations but the final business decision is by management. In negotiating with the government, you often end up negotiating either with contracting officers or with lawyers who are not really management people and who don't have the management viewpoint.

As one illustration of this, personally, I would rather have a patent in the Soviet Union which I own and which the Soviet Union was infringing than have a U.S. patent in the U.S. which the U.S. Government is infringing. We have had Administrative Claims against the government pending for over nine years with no satisfactory resolution because we cannot get to anyone who has any business sense in the

situation. We are merely negotiating with lawyers who have absolute no incentive to settle or work out a reasonable arrangement. Many of my associates feel that filing Administrative Claims against the government is a waste of time so they go directly to the Court of Claims. They cannot really negotiate a license with many of the government agencies in a satisfactory manner.

CONCLUSION

Thus, on balance, I am not enthusiastic about the administration proposal although I think it is an excellent and creative try. I think it will run into many practical difficulties which will make life unnecessarily complex and would not really serve the government interest or, more importantly, the public interest.

If I can give you any more comments or answer any questions, I would be happy to do so.

Senator STEVENSON. Thank you, sir. Mr. Haskell?

Mr. HASKELL. Thank you, Mr. Chairman and Senator Schmitt, I'm director of patents and licensing at Hughes Aircraft Co. Our company has some 50,000 employees, including 15,000 engineers.

We do about $2 billion worth of business a year, primarily in military electronics. So we do have a great deal of experience in dealing with our Government friends.

Some $700 million of our sales are in communications satellite systems and small electronic components.

Significantly, some of the technology developed primarily for our military markets has been very instrumental in the development of our commercial products. Communications satellites, weather satellites, cable television, laser cloth-cutters, and such all fall into that category.

Obviously, then, Hughes has a very definite interest in the U.S. patent system in general and in the Government patent policy related to sponsored technology, in particular.

I will skip over some of the comments that are in my prepared paper characterizing the bill and go directly to some of our concerns about the bill.

The procedure that is described in the administration bill, as we have reviewed it very quickly this morning, has a number of serious defects that would inhibit and significantly reduce the incentive value that sponsored technology patent rights has for Hughes Aircraft Co.

First, we fear that the standards to be specified for march-in rights may be applied in a nonuniform manner by different agencies, leaving the contractor without secure knowledge of his position relative to his investment of funds.

Second, the requirements to specify areas of technology for exclusive license rights under an invention at an early time, which, in spite of what we have heard this morning, may be rejected by the agency and will probably result in costly negotiation, create uncertainty, and drastically increase the burden on the contractors and the Government staffs.

Also, as was mentioned by Bob Benson, there is a serious question as to whether attorneys on the contractor's staff may properly and legally prosecute applications in which a company has an exclusive license for a limited field of use. Mr. Benson mentioned various aspects of this but one he did not mention is the very definite possibility of a conflict of interest arising.

As far as we are concerned, these defects may effectively remove the incentive for Hughes Aircraft Co. to acquire patent rights under such a policy.

Let's take a look at a patent situation that has created an entirely new industry resulting in thousands of new jobs and untold benefits to society the world over.

I'm speaking about patents in synchronous communications satellites.

In the late 1950's and early 1960's, Hughes scientists, operating on company funds, developed and invented the necessary hardware and techniques assuring successful satellite operations.

The company then received a critical patent.

Secure in its knowledge of its patent position and with knowledge of the great economic potential of satellite communications as an incentive, we invested heavily in capital and other resources. Today, we have real time worldwide communications—voice, television, facsimile, and data transmission, all at our fingertips.

Comsat Corp. was born to capitalize on this new technology breakthrough. Canada was able to link its east and west through its domestic satellite system. Indonesia did the same.

And several American companies have invested heavily in human resources and capital to establish vastly improved transcontinental communication capabilities based on satellite transmission.

To take another example, the laser industry began with the operation of the first laser being done under company-sponsored research and development.

This effort was followed by a substantial number of DOD contracts to further develop the technology and under which the Hughes Aircraft Co. obtained additional patents.

This industry has now spread from the military to the recording, building, mapping, communications, clothing, and medical industries, among others.

There was no way in 1960 that we would have been able to foresee the scope of these applications.

Obviously, the company prefers to spend most of its limited patent prosecution resources to acquire patents that arise from its own research.

It does, however, spend substantial amounts of money to secure patents based on Department of Defense sponsored technology. And the company uses such technology and such patent rights thereon to license and sell its products; thus bringing sponsored technology with all of its benefits to domestic and foreign markets.

Hughes Aircraft Co. has found the DOD policy has been most productive for the contractor and the Government.

That policy encourages investment of contractors' funds to compete for Government programs with the best available technology.

When the contractor wins the contract, he knows, in advance, that improvements made upon such technology may be retained by the company for its foreign and domestic commercial markets.

That, gentlemen, is a powerful incentive.

On the other hand, the Government take-title policy, which makes the outcome of the patent rights uncertain, greatly inhibits investment and technology growth. There is at least one alterna-

tive that holds much promise. Several years ago, the Congressional Commission on Government Procurement recommended that the revised Presidential Statement of Government Patent Policy be implemented promptly and uniformly.

This policy generally is the one embodied in S. 1215, known as the Schmitt bill.

Hughes Aircraft Co., and most of the industry with which we are acquainted, supports this bill as the one that would provide the kind of incentive that American inventors require, the kind of incentive that would reverse our declining innovation trend.

Again, thank you for this opportunity to discuss the merits of the proposed legislation and to express our views on a viable patent policy.

We seriously believe that a policy more in concert with the current DOD practices would reverse the decline in incentive in the United States and stimulate renewed technological growth.

[The statement follows:]

STATEMENT OF JAMES K. HASKELL, DIRECTOR, PATENTING AND LICENSING, HUGHES AIRCRAFT CO.

Mr. Chairman and members of the committees, I am James K. Haskell, director of Patents and Licensing for the Hughes Aircraft Company. Our company has some 50,000 employees, including 15,000 engineeers, and does about $2 billion of business a year, primarily in military electronics. Some $700 million of our sales comes from commercial communications satellites systems and small electronic components.

Significantly, some of the technology developed primarily for our military markets has been instrumental in the development of nonmilitary products. Communications satellites, weather satellites, cable television, and laser cloth cutters fall into that category. Obviously then, Hughes Aircraft Company has a substantial interest in the U.S. Patent System in general and in the government patent policy related to sponsored technology in particular. And we welcome the opportunity to express our views on the Administration's proposed new patent policy.

It is my understanding that the issue we are dealing with in the patent policy to be proposed focuses on ownership and licensing rights involving contractor inventions made under federal contracts.

Let me state that Hughes considers patents to be property rights that encourage further innovation stimulated by the potential rewards of the market place. An incentive system of this type encourages maximum innovation and application of new technology while keeping contractor and government administrative expense at a minimum.

Let's take a look at some of the salient features of what we believe the proposed uniform patent policy will be and the probable impact on contractors, such as Hughes Aircraft Company.

It is assumed that the policy will require all government agencies adopt a standard policy wherein the government would acquire title to any patent based on an invention made under a federal contract, and that the contractor will receive an exclusive license in the technology areas he elects under patents covering inventions made under federal contract.

This procedure has a number of serious defects that would inhibit and significantly reduce the incentive value that sponsored technology patent rights has for Hughes Aircraft Company.

First, we fear that the standards to be specified for march-in rights may be applied in a nonuniform manner by different agencies, leaving a contractor without secure knowledge of his position relative to his investment of funds.

Additionally, costs would increase drastically for a contractor striving to meet all the requirements of the proposed policy.

Also, there is a serious question as to whether attorneys on a contractor's patent staff can legally file and prosecute applications in which the company only has an exclusive license for a limited field of use.

These defects may effectively remove the incentive for Hughes Aircraft Company to acquire patent rights under such a policy.

Let's take a look at a patent situation that has created an entirely new industry resulting in thousands of new jobs and untold benefits to society the world over. I'm speaking about patents and synchronous communications satellites.

In the late 1950's and early 1960's, Hughes scientists, operating on company funds, invented the necessary hardware and techniques for assuring successful satellite operations. Our company then received a critical patent. Secure in its patent position and with knowledge of the great economic potential of military and commercial satellite communications as an incentive, Hughes invested heavily in capital and other resources.

Today, we have real-time worldwide communications . . . voice . . . television . . . facsimile . . . and data transmission, all at its fingertips. Comsat Corporation was born to capitalize on this new technology breakthrough. Canada was able to link its east and west through its domestic satellite system. Indonesia did the same. And several American companies have invested heavily in human resources and capital to establish vastly improved transcontinental communication capabilities based on satellite transmission.

Obviously, the company prefers to spend most of its limited patent prosecution resources to acquire patents that arise from its own research and development efforts. It does, however, spend substantial amounts of money to secure patents based on Department of Defense-sponsored technology. And the company uses such technology, and the patents thereon, to license or sell its own products, thus bringing sponsored technology with all of its benefits to domestic and foreign markets.

Under the DOD patent policy, the contractor retains title to its inventions made under contract and grants the government a free license throughout the world for government purposes.

Hughes Aircraft has found that the DOD patent policy has been most productive for the contractor and the government. That policy encourages investment of a contractor's funds to compete for government programs with the best available technology. When the contractor wins the contract, he knows, in advance, that improvements made upon such technology may be retained by the company for its foreign and domestic commerical markets.

That, gentlemen, is a powerful incentive.

On the other hand, the "government take title" policy, which makes the outcome of patent rights uncertain, greatly inhibits independent investment and technology growth.

There is at least one alternative that holds much promise. Several years ago the Congressional Commission on Government Procurement recommended that the revised Presidential Statement of Government Patent Policy be implemented promptly and uniformly.

This policy, generally, is the one embodied in Senate Bill 1215, known as the Schmitt Bill. Hughes Aircraft Company, and most of the industry with which we are acquainted, supports this bill as one that would provide the kind of incentive American inventors require . . . the kind of incentive that would reverse our declining innovation trend.

Again, thank you for this opportunity to discuss the merits of the proposed legislation and to express our own views on a viable patent policy. We seriously believe that a policy more in concert with current DOD practices would reverse the decline in incentive in the United States and stimulate renewed technological growth.

Senator STEVENSON. Thank you, sir. And Mr. Schellin.

Mr. SCHELLIN. All right, sir. Thank you very much.

As usual, small business is last. We're used to being last.

I would suggest that perhaps if somebody yelled fire——

Senator STEVENSON. You get the last word. You shouldn't complain. That's the position that is usually most sought.

Mr. SCHELLIN. I am afraid you're right. I was going to say if someone yelled fire in this room, the small business people would be the last out of the room but would stop long enough to put the fire out.

I think also that small business is being called upon to reverse that other conflagration, the diminishing of innovation that we're facing.

With that little prelude, let me request that I do have a statement which I've made available to the Senate staff. I would like to have it entered into the record.

I have a few comments that I want to make to embellish that particular record.

As you indicated, my name is Eric Schellin and you know where I come from: I'm chairman of the board of trustees of the National Small Business Association.

I'm also the executive vice president of the National Patent Council. I'm also here representing the American Society of Inventors. I am chairman of their advisory committee. I'm also representing the Small Business Legislative Council. The Small Business Legislative Council is an organization that was godfathered by the National Small Business Association, which is a generalist trade association.

The Small Business Legislative Council consists of over 70 different trade associations in the United States that have specific areas of concern.

So we represent not only the smokestack crowd, but we also represent the mom and pop shops.

We have given great consideration to what has happend in the last few years with regard to the diminishing of innovation. We have looked at the legislation of S. 414 and S. 1215. And now we've had the opportunity to look at the proposed legislation now being promulgated by the administration.

I have a specific mandate that brings me to this table and we are very appreciative of the fact that you have seen fit to ask us to respond.

The specific mandate came out of the fact that so many of our people, our constituency, were being discriminated against because they were small.

In dealing with the Federal Government, when it came to receiving title, as Mr. Haskell has mentioned, that it's a small matter to receive title from DOD, but it is not a small matter to receive title from a great number of other agencies.

One might fight for it.

We have been told time and time again, you will not have title in the invention that you have made because you are small. If you were big, you would get it. As simple as that, Mr. Haskell.

So as the result of that, my constituency resolved, and I'm going to read to you verbatim the resolution that was passed, after due consideration, after due polling of our members, so that there will be no mistake as to what we are for.

The Small Business Legislative Council urges and supports changes in current government patent policy to allow small businesses patent protection in inventions made under government-sponsored research, provided that allowance is made to permit the government to recoup its initial funding under certain circumstances.

Small business innovations developed under federal contract should be patentable by the contractor, allowing that business a reasonable time to develop the new idea commercially.

Failing that, the government should provide exclusive license to such innovations with preference to small business. These actions will provide an increased incentive to the traditionally innovative small business sector to seek R. & D. contracts and to commercialize new and beneficial products for the market place.

We've already demonstrated that small business is innovative. This, then, is my mandate. Let me summarize.

Small businesses desiring of obtaining any patent rights of inventions made under Government-sponsored research. Small business wants a first right of refusal on obtaining exclusive licenses for such developed inventions not titled to small business.

Small business appreciates the necessity to allow Government to recoup its funding that resulted in the development of the inventions.

If we want a free ride, we'll go on welfare.

A carefully considered proposed bill, S. 414, contains the above summarized items and now stands amended to include protection of the small business contractor with regard to its background patent rights found in S. 1215 also.

S. 414 appears to the small business community to constitute a long sought, very sanitary conclusion to ameliorate a critical difficult problem that we now face.

President Carter, in his October 31, 1979 industrial innovation message to Congress, stated that he will support uniform Government patent legislation. That legislation will provide exclusive licenses to contractors in specific fields of use.

But more importantly, to the small business community, he stated:

> I will support the retention of patent ownership by small businesses and universities the prime thrust of legislation now in the Congress, in recognition of their special place in our society.

While the President did not specifically identify the legislation about which he spoke, small business interprets this to mean S. 414. I would further opine that the President intended to incorporate the concept of an "exclusive license to contractors in specific fields of use" in legislation apart from S. 414.

Small business is, indeed, exhilarated by the support of S. 414 by the President. With such support, there is now before us the delightful prospect that there will be satisfactory fruition of the efforts of so many individuals who have devoted considerable time to assisting small business.

This proposed legislation favoring small business has been screened, reviewed, analyzed, and repeatedly modified. It can be truly said that S. 414 has been given all the thoughtful considerations necessary through a thorough democratic process, resulting in a wide consensus of approval which is now S. 414.

Support by the President constitutes the capstone of that activity. S. 414 has also become a focus rallying point for small business as evidenced from the recent results culminating in a week-long White House Conference on Small Business. The treatment to be accorded small business under S. 414 was indicated by the Conference as being worthy of inclusion in a high-priority list of recommendations which will be sent to the President.

One can validly say that the matter of presenting small business contractors with title to inventions made within the purview of a Government contract has now come full circle, and it's time to move on. It must be noted, however, that the proposed draft legislation that we're considering today contains features which are also of enormous interest to small business.

The carrying forward of the concept that small business is to be accorded title to inventions resulting from Government-sponsored research is received as a positive indication that more than lip service is to be given small business. It shows also that the President's initiatives of October 31, 1979, are indeed to be acted upon.

Furthermore, the proposed draft legislation contains a feature that may be attractive to small business. Namely, there is no recoupment. If that's going to be attractive, that's going to be there, we'll take it.

A recoupment section, however, is found in S. 414. In view of the aforementioned SBLC resolution, I have testified on previous occasions in favor of recoupment, even knowing that when big business gets title, under a standard Government patent policy of which Mr. Haskell just spoke, there will be no recoupment. Certainly if small business is treated favorably, the proposed draft legislation has some merit. Especially meritorious portions might even be included in S. 414 such as by deleting that particular section.

On the other hand, it is noted that S. 414 gives preference in receiving and giving exclusive licenses on inventions owned by the Government. No such section giving preferential treatment for small business is found in the proposed draft legislation.

Turning now to some more specifics found in the proposed draft legislation, small business would appear presumptuous to comment on the concept of awarding to large business preselected field of use licenses. While the concept at first interest appears to have an overall salutary benefit, and indeed appears to even possess procompetitive aspects, it is felt that such a concept is now only an invitation for establishing a dialog. It may appear that the concept is controversial, even though it may impact somewhat favorably on small business.

As discerned, the proposed draft legislation gives small business some discomfort as a result of the situation on deviation and waivers and portions of other sections. Small business believes that these sections, in fact, present untoward discretion in the governmental agencies to deviate from the general duties and rights described in the proposed draft legislation.

This kind of legislation could, if administered poorly, result in a nonuniform disposition of invention rights—just the opposite of what is being attempted.

Again, we submit that the proposed draft legislation, while having certain salutary features needs either additional explanation not so far given or modification or both.

Furthermore, the intent found in new title III of the proposed draft legislation covering dispositions on Government employee inventions is laudatory and, as we've said before, has merit. However, small business does not believe it can respond at this time to concepts that are new and untested.

It is submitted at this time that it should be considered at separate hearings.

From the foregoing paragraphs, it is apparent that the proposed draft legislation includes a number of new concepts that may be somewhat controversial which have not been the subject of consideration at additional congressional hearings.

On the other hand, it has been well documented and concluded that it is critical to ameliorate the heretofore treatment accorded small business in the disposition of invention rights resulting from Government-sponsored research.

The following statements are believed to be axiomatic. One, small business has been treated unfairly in the disposition of invention rights. Two, the taxpayer rarely if ever obtains commercial benefits from inventions resulting from Government-sponsored research, and that's been stated. Three, innovation is diminishing in the United States. Four, small business has a great track record in innovation, in creating new jobs, and being at the cutting edge of competition.

Therefore, the President's mandate of October 31, 1979, is best carried out by first attending to the enactment of S. 414, followed by continuing consideration of the proposed draft legislation if that is necessary. Small business is grateful to have found an ally in the President, whose presence complements the many allies already evident in the Congress.

I conclude my statement by saying that when small business is treated the same by Government in almost every activity, it is being treated unfairly and with discrimination. Consequently, S. 414 at least redresses this unfair treatment in at least one area.

That concludes my statement. Thank you.

[The statement follows.]

STATEMENT OF ERIC P. SCHELLIN ON BEHALF OF THE NATIONAL SMALL BUSINESS ASSOCIATION, SMALL BUSINESS LEGISLATIVE COUNCIL, AMERICAN SOCIETY OF INVENTORS AND NATIONAL PATENT COUNCIL

Mr. Chairman and Members of the Committee; my name is Eric Schellin. I am Chairman of the Board of Trustees of the National Small Business Association (NSB), a multi-industry trade association representing approximately 50,000 small business firms nationwide. I am also Executive Vice President of the National Patent Council and Chairman of the Advisory Committee of the American Society of Inventors.

I am also appearing today on behalf of the Small Business Legislative Council (SBLC), an organization of national trade and professional associations whose memberships is primarily small business. SBLC focuses on issues of common concern to the entire small business community. The SBLC membership and their affiliates represent approximately four million small business firms nationwide. The SBLC list of members who have endorsed a policy position paper entitled "An Equitable Policy for Small Business Patents on Inventions made with Federal Assistance" is attached. This position paper and list of associations appear as Attachments A and B.

We commend the committees for the opportunity to address the issue of underutilization of the results of Government-financed Research and Development, especially to complete the innovation process by making available to all of us alike the benefits resulting from such R&D endeavors.

The United States has been the leading innovative nation and has created many new industries. One need only look at the major new industries started within the last fifty years, such as those involving electronics, lasers, antibiotics, synthetic fibers, instant photography and xerography. Most of these industries began as small businesses. There is still room for further innovation and it will continue, especially by small business, if provided with a proper environment. Such an environment existed for years and produced outstanding results. Our patent system contributed significantly to an environment which promotes innovation. Unfortunately, there have been disturbing recent indications that there has been a decrease in the rate of innovation and in that portion of the R&D investment devoted to new product lines and basic research. It is incumbent on all of us to look everywhere to identify sources for innovation. One area not yet properly exploited is the arena of Govenment-financed R&D. Today, as is known, there are as many Government patent policies as there are Government agencies. It is submitted that any effort to establish a uniform government patent policy is commendable and if the policy provides

particular incentive to small business, such policy deserves accolades. Therefore, we fervently applaude with sincerity the fact that two committees of the Senate have been fit to take the time from other pressing business to thoughtfully consider a draft of a proposed bill, which is understood to be entitled, "To establish a uniform Federal system for management, protection, and use of inventions that result from federally-supported research or development, and for related purposes."

Before addressing some of the issues posed in the proposed draft legislation, permit me to share with you the mandate under which I am able to respond to the invitation to appear on this occasion. The Small Business Legislation Council (SBLC) has confronted the lack of a uniform Government patent policy. Many of the individual small business members of some of the member associations of SBLC have met with the stark reality that they are treated by Government contracting officials with discrimination for the sole reason that they are small business. In other words, even when a Government contracting official has discretion to grant title to an invention made under a Government contract, it will be refused to small business but granted to a larger business. Worse yet, any proprietary rights gained as a result of a developing expertise garnered before small business entertains funding under a Government contract may be jeopardized with a loss of such property rights ensuing. It will be recalled that a number of individual small business persons, some of whom are members of the National Small Business Associations, shared their experiences with the Committee on the Judiciary during hearings on S. 414 on June 6, 1979.

Because of the aforementioned inequities and the lack of uniform Government patent policies, the SBLC, after careful consideration, approved the following resolution:

RESOLVED

The Small Business Legislative Council urges and supports changes in current government patent policy in allow small businesses patent protection in inventions made under government-sponsored research, provided that allowance is made to permit the government to recoup its initial funding under certain circumstances. Small business innovations developed under federal contract should be patentably by the contractor, allowing that business a reasonable time to develop the new idea commercially. Failing that, the government should provide exclusive license to such innovations, with preference to small business. These actions will provide an increased incentive to the traditionally innovative small business sector to seek R. & D. contracts and to commercialize new and beneficial products for the marketplace.

This, then is my mandate. To summarize:

1. Small business is desirous of obtaining any patent rights on inventions made under Government sponsored research.

2. Small business wants a first right of refusal in obtaining exclusive licenses for such developed inventions not titled to small business.

3. Small business appreciates the necessity to permit government to recoup its funding that resulted in the development of the inventions.

A carefully considered proposed bill S. 414 contains the above summarized items and now stands amended to include protection to the small business contractor with regard to its background patent rights. S. 414 appears to the small business community to constitute a long sought very salutary conclusion to ameliorate a difficult problem facing small business.

President Carter in his October 31, 1979, Industrial Innovation Message to the Congress stated that he will support uniform Government patent legislation and "that legislation will provide exclusive licenses to contractors in specific field of use." More importantly to the small business community he stated: "I will also support the retention of patent ownership by small businesses and universities, the prime thrust of legislation *now* in Congress, in recognition of their special place in our society." (Emphasis supplied.) While the President did not specifically identify the legislation about which he spoke, small business interprets this to mean S. 414. I would further opine that the President intended to incorporate the concept of "exclusive licenses to contractors in specific field of use" in legislation apart from S. 414.

Small business is indeed exhilarated by the support of S. 414 by the President. With such support, there is now before us the delightful prospect that there will be satisfactory fruition of the efforts of so many individuals who have devoted considerable time to assisting small business. This proposed legislation favoring small business has been screened, reviewed, weighed, analyzed and repeatedly modified. It can be truly said that S. 414 has been given all the thoughtful consideration necessary

through a thorough democratic process resulting in the wide consensus of approval of that which is now S. 414. Support by the President constitutes the capstone.

S. 414 has also become a focus rallying point for small business as evidenced from the recent results culminating a week long White House Conference on Small Business. The treatment to be accorded small business under S. 414 was indicated by the conference as being worthy of inclusion in a high priority list of recommendations which will be sent to the President. One can validly say that the matter of presenting small business contractors with title to inventions made within the purview of a Government contract has come full circle.

It must be noted however that the proposed draft legislation being considered today contains features which are of enormous interest to small business. The carrying forward of the concept that small business is to be accorded title to inventions resulting from Government sponsored research is received as a positive indication that more than lip service is to be given small business. It shows also that the President's initiatives of October 31, 1979, are indeed to be acted upon. Furthermore the proposed draft legislation contains a feature that may be attractive to small business, namely, that there is no recoupment by the Government of funds expended by the Government in the event the invention titled to small business makes money for the small business. A recoupment section can be found in S. 414. In view of the aforementioned SBLC resolution, I have testified on a previous occasion in favor of recoupment, even knowing that when big business gets title under extant government patent policies there will be no recoupment. Certainly, as small business is treated favorably the proposed draft legislation has considerable merit. Perhaps such especially meritorious portions should be included in already considered S. 414, such as by deleting the recoupment section.

On the other hand, it is noted that under S. 414 small business is given preference in receiving an exclusive license on inventions owned by the Government. No such section giving preferential treatment to small business is said to be in the proposed draft legislation.

Turning now, to some other specifics found in the proposed draft legislation, small business would appear presumptuous to comment on the concept of awarding to large business preselected field of use licenses. While the concept at first instance appears to have an over all salutary benefit and indeed appears to possess procompetitive aspects, it is felt that such a concept is now only an invitation for establishing a dialogue. It would appear that the concept may be controversial, even though it may impact favorably on small business.

As discerned the proposed draft legislation gives small business some discomfort as a result of the section on "Deviation and Waivers" and portions of certain other sections. Small Business believes that these sections in fact present untoward discretion in the governmental agencies to deviate from the general duties and rights described in the proposed draft legislation, that this legislation could if administered poorly result in a non-uniform disposition of invention rights. Again, it is submitted that the proposed draft legislation, while having salutary features, needs either additional explanation and/or modification or both.

The intent found in Title IV of the proposed draft legislation covering disposition of government employee inventions is laudatory and has merit. However, small business does not believe that it can respond at this time. The concept seems new and untested. It is submitted that this subject should be considered at separate hearings.

From the mediate foregoing paragraphs, it is apparent that the proposed draft legislation includes a number of new concepts that may be somewhat controversial which have not been the subject of consideration at Congressional hearings. On the other hand, it has been well documented and concluded that it is critical to ameliorate the heretofore treatment accorded small business in the disposition of invention rights resulting from Government sponsored research.

In conclusion the following statements are axiomatic:

1. Small business has been treated unfairly in the disposition of invention rights.
2. The taxpayer rarely, if ever, obtains commercial benefits from inventions resulting from Government sponsored research.
3. Innovation is diminishing in the United States.
4. Small business has a great track record in innovation, in creating new jobs and being at the cutting edge of competition.

Therefore, the President's mandate of October 31, 1979, is best carried out by first attending to the enactment of S. 414, following by a continued consideration of the proposed draft legislation. Small business is grateful to have found an ally in the President, whose presence complements the many allies already evident in the Congress.

[Attachment A]

POSITION PAPER OF THE SMALL BUSINESS LEGISLATIVE COUNCIL—NATIONAL SMALL BUSINESS ASSOCIATION

An Equitable Policy for Small Business Patents on Inventions Made with Federal Assistance—is supported, as of this date, by 31 members of the Small Business Legislative Council:

American Association of Nurserymen, Washington, D.C.; Association of Diesel Specialists, Kansas City, Mo.; Association of Physical Fitness Centers, Bethesda, Md.; Automotive Warehouse Distributors Association, Inc., Kansas City, Mo.

Building Service Contractors Association International, McLean, Va.; Business Advertising Council, Cincinnati, Ohio.

Direct Selling Association, Washington, D.C.

Eastern Manufacturers and Importers Exhibit, Inc., New York, N.Y.

Furniture Rental Association of America, Washington, D.C.

Independent Bakers Association Washington, D.C.; Independent Business Association of Washington, Bellevue, Wash.; International Franchise Association, Washington, D.C.; Institute of Certified Business Counselors, Lafayette, Calif.

Machinery Dealers National Association, Silver Spring, Md.; Manufacturers Agents National Association, Irvine, Calif.; Marking Device Association, Evanston, Ill.

National Association for Child Development & Education, Washington, D.C.; National Association of Brick Distributors, McLean, Va., National Association of Floor Covering Distributors, Chicago, Ill.; National Family Business Council, West Bloomfield, Mich.; National Home Improvement Council, Washington, D.C.; National Independent Dairies Association, Washington, D.C. National Independent Meat Packers Association, Washington, D.C.; National Office Machine Dealers Association, Zanesville, Ohio; National Paper Trade Association, Inc., New York, N.Y.; National Parking Association, Washington, D.C.; National Patent Council, Inc., Arlington, Va.; National Small Business Association, Washington, D.C., National Tool, Die & Precision Machining Association, Wasington, D.C.; National Wine Distributors Association, Chicago, Ill.

Printing Industries of America, Inc., Arlington, Va.

[Attachment B]

AN EQUITABLE POLICY FOR SMALL BUSINESS PATENTS ON INVENTIONS MADE WITH FEDERAL ASSISTANCE

One of our nation's greatest problems is the decline in the rate of productivity growth, and a major factor in this decline has been the discouragement of innovation at the small business level. Less than 5 percent of all federal research and development dollars go to small business, yet both a Department of Commerce study in 1966 and an Office of Management and Budget study in 1977 show that small business accounted for more than half of all scientific and technological developments since the beginning of this century. A National Science Foundation study for the period between 1953 and 1973 found that small firms produced 4 times as many innovatons for every research and development dollar as medium sized firms and 24 times as many as the largest firms.

It has become increasingly evident that many small innovative companies are avoiding the federal research grant process simply because of the uncertainty over whether or not they will be allowed to retain patent rights on inventions made under research sponsored by federal funds. This is a problem which appears to have a fairly simple solution—allowing small businesses to obtain limited patent rights on discoveries they have made with federal money.

Experience has shown that unless the private sector (including universities, individual inventors, and non-profit organizations) is given sufficient incentive to bring new innovation to the marketplace, the development of new technologies will decline. Given the rapid drop in U.S. productivity increases over the past few years, it is apparent that new technology development in the U.S. must be encouraged.

The federal government itself is a prime disincentive for innovation development—inventions made under various agency grants have been allowed to waste away in government storerooms benefiting no one. The Departments of Energy and Health, Education, and and Welfare, for example, often take months and in some cases years to review petitions for patient rights on inventions developed with federal grants. And, when the government decides to retain patent rights on these inventions, there is little chance that they will ever be developed. Of the 30,000 patents that the government presently holds, less than 4 percent are ever success-

fully licensed. This is very little return on the billions of dollars that are spent every year on research and development.

Small businesses should be allowed to obtain limited patent protection on discoveries they have made under government-supported research if they provide the additional resources needed to successfully commercialize the product. This change would provide the American marketplace with additional innovative product developments and remove the disincentive to many small companies from participation in the federal R. & D. process. The benefit is not only for small business, but the American economy, as well, since small firms have been the greatest source of new jobs in the past decade.

Under present practice, the government lets an R. & D. contract to a small business having the expertise as evidenced by background know-how. The patents devolve to the government, but when it comes to supplying the hardware, the conventional practice is for government to go to larger business, who can manufacture with impunity, in derogation of the proprietary rights of the small business contractor. This should be changed by legislation stating that no funding agreement with a small business firm shall contain a provision allowing the federal government to require the licensing to third parties of inventions owned by the small business firm which were *not* conceived in the performance of work under a federal R. & D. grant. The only exception would be that such a provision had been approved by the head of the agency and a written justification had been signed by the head of the agency. Such action by the agency head should be subject to judicial review.

RESOLVED

The Small Business Legislative Council urges and supports changes in current government patent policy to allow small businesses patent protection on inventions made under government-sponsored research, provided that allowance is made to permit the government to recoup its initial funding under certain circumstances. Small business innovations developed under federal contract should be patentable by the contractor, allowing that business a reasonable time to develop the new idea commercially. Failing that, that government should provide exclusive license to such innovations, with preference to small business. These actions will provide an increased incentive to the traditionally innovative small business sector to seek R. & D. contracts and to commercialize new and beneficial products for the marketplace.

Senator STEVENSON. Thank you, sir.

Senator Schmitt?

Senator SCHMITT. Gentlemen, we have discussed this definition of small business, and we tend—all of us, including myself—to leapfrog the "middle-sized business." When we think about business other than small business, we think about the giants. I presume that most medium-sized businesses were once small businesses. Some of the giants have aggregated a lot of medium or small businesses and therefore became giants in the process.

Would each of you care to comment on whether there ought to be a distinction recognizing the political aspect? Maybe with the distinction, we would get a little bit done that we wouldn't have gotten done otherwise.

But let's set that aside, and just from a theoretical point of view, do you think there should be a distinction, and as Senator Stevenson had said, an implicit penalty, for becoming big?

Mr. HASKELL. Senator Schmitt, as a representative of big business, I'm perhaps prejudiced, but I do not feel that there should be a distinction. I feel that there should be a recognition on the one hand that big business very often is made up of a large number of segments of small business.

Many of us are really conglomerates, managing segments of small businesses. And to the extent that we have big business that does not fall in that category, we have a great deal of support from small business. In some of our product lines, small business pro-

vides as much as 70 percent of the materials that go into products that we manufacture.

So I feel for these reasons, it's extremely difficult to find a viable reason for distinguishing between the two, and if you wish, penalizing success.

Senator SCHMITT. Mr. Blair?

Mr. BLAIR. I suppose representing a somewhat in between, medium-type business, I can certainly comment. I want to echo——

Senator SCHMITT. Itek was small when they started. Right?

Mr. BLAIR. We were very small when we started. We were just a laboratory from a university, about as small as you're going to get. But even today one of our divisions has annual sales of $3 million, which I think is small business by most definitions, and I think that's completely right. Even in some of our divisions that are larger, some parts of them are really a small business.

I certainly am in favor of small business, and I think in general all businesses should be treated alike. I don't see why the big business or the medium-sized business should be discriminated against. Also when you start defining small and big and medium, inflation throws the things out of whack after awhile.

Why not let everybody take the same rights and see what they can do with them?

Mr. BENSON. I don't know whether I represent big, small, or intermediate business, but at any rate our committee that did the investigation, had representatives from every aspect of business.

But I find this diversionary. Why don't we keep our eye on the target? What are we trying to accomplish? We're trying to accomplish the commercialization of unused technology.

Then why don't we get out and get the very best firms available to do it, whether they're big, small, or intermediate?

Let's not use this situation as a technique to get preferential treatment for any segment. Let's get the job done, and let's get it done by the best people who are willing to do the job. That's what we ought to be focusing on.

Senator SCHMITT. Mr. Schellin?

Mr. SCHELLIN. I'd like to make a few comments if I may. I think that the only way that we can get the job done, today and in the foreseeable future, to respond to Mr. Benson, is the fact that we're going to have to be limited to a particular area. This area happens to be small business today.

As I indicated to you earlier, small business has the finer track record. No. 2 is, as Jordan Baruch mentioned, less than 4 percent of their R. & D. dollar goes to small business.

We're talking about, in most situations where small business would get title, a minutiae of inventions that may finally go to small business, because if you're only going to have 3.5 percent of the research dollar going to small business, then only 3.5 percent of the inventions will come out of small business. And that's the universe we're talking about.

Now, the White House Conference last week in one of the 60 priorty items—not one of the high-priority 15 items—did come out and espouse the concept that there should be set-asides at each Government agency level, so that the R. & D. amount going to

small business increases incrementally at a rate of 1 percent per year until 10 percent is reached.

The Small Business Legislative Council's point on that—we also have a resolution on that that I won't read to you now—goes to 25 percent, but we are talking about an area—we're talking about S. 414—that is small, a small area that we can test with, so I say that if we can get this going where heretofore we had nothing to go with except the Presidential orders of 1971 and some of the other legislation that's embodied in some of the agencies—I say let's go with this while we can, and then perhaps have oversight hearings sometime in the future to consider whether or not large businesses also ought to be accommodated in this field.

But let's get the small business people out there and give them that extra break that they need that they don't get now.

As I said before at the very end, if you treat us all equally, then you're going to treat small business unequally, because this has happened time and time again. I think, Senator Stevenson, you mentioned that yourself that this kind of happenstance occurs with regard to Federal regulations, et cetera, that we need not go into today.

But small business, I feel, because of its track record should be preferred at this time in the existence of the Republic.

Senator SCHMITT. I'm sure some of the recommendations—I haven't had a chance to study them all—at the White House Conference would imply, if not explicitly state, that the principal problems that small business has today is capital formation and handling the regulatory environment in which they're trying to compete with everybody else.

Large businesses do have an advantage in that respect in terms of internal financing and in terms of being able to handle administrative overhead. I hope that the Congress in general can treat those two problems very soon in very specific ways.

Mr. Blair, when Itek was formed did you spin off with title to a specific technology or was that licensed to you by the university?

Mr. BLAIR. I think in our case, Boston University permitted the individuals in the laboratory to form a corporation. The university got no return from it. The individuals formed the corporation separately. The corporation obtained contracts based on their expertise and their past background, and they went on from there. They had no continuing relationship with the university, and there were no patents involved when they were originally formed. It was just because of their general expertise in designing these very large and sophisticated optics.

I think some parts of the Government felt that there wasn't really anybody in industry at that time that had the capability of designing and manufacturing the things that these people had designed. So they encouraged them, and some Rockefeller money helped them get off the ground, and then they went out and got Government contracts.

Senator SCHMITT. Mr. Chairman, the panel has selectively and in aggregate covered almost all of the questions that I had put together.

I would like a final comment, though, from those of you that do a great deal of DOD contracting. Mr. Haskell has already to some

extent commented on that, but can you say that your approach to competing for DOD contracts would change if the policy proposed by the President became the law of the land?

Mr. HASKELL. Yes, sir.

Senator SCHMITT. Would you stop competing?

Mr. HASKELL. No, sir. We would compete less vigorously and with less of our best technology.

Senator SCHMITT. You would give up that area to somebody else?

Mr. HASKELL. What we would try to do——

Senator SCHMITT. I want you to be as objective as you can.

Mr. HASKELL. What we'd try to do—I discussed this subject with our chief executive officer and chairman of the Board, and the general view is that what we would try to do is do all the good things on independent R. & D. and then try to do whatever we could in the way of contracting.

Senator SCHMITT. With the Government?

Mr. HASKELL. With the Government or whatever customer we could find.

Senator SCHMITT. So you'd try to get the patents before you went into the competition for contracts?

Mr. HASKELL. Yes, sir. We would otherwise feel we would not have sufficient protection for our investment.

Senator SCHMITT. Mr. Blair, your company does a considerable amount of DOD contracting.

Mr. BLAIR. I think the net result would be something like Mr. Haskell. We would certainly compete just as vigorously for the contracts. We might have a little bit of difference in a corporate sense in putting more of our good things into our commercial business and less into the government contracts business. But our Government divisions operate very independently within the company.

The Government-oriented divisions want to get those contracts in the worst way, but they might very well consider some internal changes as to what people are putting into the Government contract.

Senator SCHMITT. You're saying that what this would force you to do is not so much to back away from Federal contracting completely, but to try to end run the problems you defined within it, that is, the legal problems as well as the basic marketing problems?

Mr. BLAIR. Right. We would still definitely go out and get contracts, but we would probably handle our internal matters somewhat differently.

If we can get title, that's something we can use. We can license that if we don't use those things ourselves. If we have part of the title, if you want to call it that, the exclusive part in some limited areas, that's better than not getting anything, but it's certainly not as good as title and permitting us then to develop the technology.

If we ourselves can't use it, fine. We'll license it to somebody else in other fields, but we can often use the basic technology—which we have, as I mentioned in my example—to show other people what we have, and they can modify our technology and make the things that they can do.

In the example mentioned in my testimony if we only had the exclusive right in the aerial reconnaisance field, the rest of that technology would never have been developed, and this would never have had the products that these other people were able to make and pay taxes to the Government on them.

Senator SCHMITT. Mr. Benson, would you care to comment?

Mr. BENSON. We do not do a lot of DOD work. In fact, we do not do an awful lot of Government work.

Senator SCHMITT. Is that by choice or because you can't compete?

Mr. BENSON. No, we can compete. It's by choice.

We have some different problems than just patent problems, which maybe it's inappropriate to talk about now, but we have technology problems.

We have a wealth of know-how, and many of the reasons that we would be a desirable contractor under Government contracts is because of maybe 30 or 40 years of work in a particular process. We know how to do things.

But when you get involved with the Government, aside from patent problems, they want your background technology, and they want to give that away and for, say, a modest, $100,000, or $150,000 contract, they want maybe a million dollars worth of background technology, and it doesn't make any sense.

In the experience we've had with the Government, we have more often than not pursued our development to the point where we really pretty well had it made, and where our amount of investment in a particular area was so high relative to what we were asking from the Government, we were able to work out a position where we could portect our technology in a particular area. I think it's different in every situation. If you're going to go into an area where you have absolutely no background and no rights to protect, so to speak, take the Government money. But when you have a great risk because of prior work and investment, then you have to take a second look at what you're doing.

Senator SCHMITT. Thank you.

Senator STEVENSON. Gentlemen, you've been very helpful to both of these committees. It's been a good discussion, and we are grateful.

Thank you. The committee stands adjourned.

[Whereupon, at 1 p.m., the hearing was adjourned.]

ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

MOLECULON RESEARCH CORP.,
Cambridge, Mass., January 4, 1980.

ALLEN NEECE,
Legislative Counsel, Select Committee on Small Business,
U.S. Senate, Washington, D.C.

DEAR ALLEN: This letter is in response to your request for comments on the Commerce Department draft of the "Government Patent Policy Act of 1979." I have examined it only from a small business perspective and have not considered its effect on universities or large companies.

On the whole I find the small business provisions reasonable, but I am quite concerned that tying large companies into the same bill will cause considerable delay and loss of support for the current legislation (S. 1860 Title II and S. 414). It has been over twenty-five years since the last significant piece of patent legislation was passed by the Congress, and it has taken a long time to get to the point where a politically acceptable bill has evolved for small business. I am under the impression that a number of public interest groups and liberal Senators would not support a bill that provides additional patent benefits to large companies. The small business aspect of the current bills seems to be a politically important feature. On the other hand, I understand that large companies have no objection to S. 1860 Title II or S. 414.

Although I could compare specific provisions of the bills, the overriding consideration is whether we want to see a small business and university patent bill become law during this session of Congress, or whether we are prepared to wait for some future time when it might be possible for a broader scope patent bill to be passed. I personally have talked with enough people about the small business/large business distinction to feel confident it is a critically important factor.

I am sorry I cannot join your meeting on January 10, but this letter should convey the thrust of my viewpoint. If you wish to discuss this further during the following week, I shall be at the White House Conference on Small Business staying at the Washington Hilton.

Sincerely,

ARTHUR S. OBERMAYER, *President.*

INTERNATIONAL BUSINESS MACHINES CORP.,
Armonk, N.Y., February 5, 1980.

Hon. ADLAI E. STEVENSON,
Chairman, Subcommittee on Science, Technology and Space,
U.S. Senate, Washington, D.C.

DEAR CHAIRMAN STEVENSON: On August 6, 1979, I wrote you to offer IBM's support for S. 1215 introduced by Senators Cannon, Schmitt and yourself to establish a uniform Federal patent policy.

This letter is in a sense a follow-up to my earlier one; in this case, to express a concern regarding President Carter's approach to Federal patent policy in his recently announced Industrial Innovation Initiative. Specifically, my concern with the President's approach is that it would establish a basic policy of title in the government, with an exclusive license to a contractor only when the contractor agrees to commercialize the invention. That approach would not provide appropriate freedom of action for contractors and would act as a disincentive for technically competent organizations to participate in government contracts.

Your approach, which normally leaves title with the contractor but provides for title to the government in certain essential cases, is a more preferable approach. The Administration's approach will be burdensome for both the government and the contractor because of the inherent uncertainty in determining in advance who is going to have what rights. Your approach, with the suggestions for modification which I made in my letter of August 6, would have a far more positive impact on industrial innovation.

If you or your staff wish to discuss this matter further, I will be happy to provide additional information as needed, or meet with you or your staff for discussions of the issue.

Sincerely,

WALLACE C. DOUD,
Vice President.

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.,
Washington, D.C., February 14, 1980.

Hon. HOWARD W. CANNON,
Chairman, Committee on Commerce, Science and Transportation,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: It is understood that the Record of the joint hearings held on January 25, 1980 on Federal Patent Policy has been left open to receive Statements from interested parties. It would be appreciated if you would include the attached Statement of this Association in the Record.

Very truly yours,

KARL G. HARR, Jr.

Attachment.

STATEMENT OF AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.

The Aerospace Industries Association of American, Inc. (AIA) is the national trade association representing the manufacturers of aircraft, spacecraft, missiles and related components and equipment. Being at the leading edge of high technology, our member companies have long recognized the incentives of the U.S. Patent System and, in particular, the manner in which such incentives have fostered and continue to foster the development and advancement of our nation's technological base and industrial innovation. It is for such reasons that AIA has supported and will continue to support proposed legislation and government policies which best utilize such incentives.

The many years of combined experience of AIA member companies in industrial innovation, corporate diversification and government research and development (R. & D.) contracting have led to the conclusion that a Federal Patent Policy allocating the rights to inventions made under government research and development contracts should balance the equities of the parties involved, i.e., the government, the public and the contractors, both large and small. Such a policy should utilize the incentives inherent in the U.S. Patent System, in order to reduce the most competent firms to compete for government research and development contracts and to apply the most talented personnel to the performance of such contracts, as well as to commercialize the new technology in inventions which may result from such efforts.

In the past, AIA has urged Congress, the Executive Branch and the Commission on Government Procurement to promulgate a single Federal Patent Policy to replace the several policies now in existence. AIA believes that such a policy should make maximum use of the incentives of the patent system by providing that a contractor would have the option to retain title to inventions made in the performance of government contracts for research and development (R. & D.).

AIA strongly believes that the real issue, as to the allocation of title, is whether the government or the contractor is in a better position to assure that new technology and inventions will be brought to public use. Clearly, the contractor has working experience in the technology of his patentable inventions. In fact, one of the major factors in the government's decision to award a contract to a particular contractor is the background knowledge and know-how of that contractor. Moreover, the contractor generally has both an existing marketing capability and the profit incentive to commercialize such inventions.

On the other hand, unless the government contemplates a new role as a competitor to American business in commercial markets, the government has neither the expertise to determine which of the many inventions that are made under government R. & D. contracts have a commercial potential nor the capability (or perhaps even the incentive) to bring such inventions to the marketplace. History has proved that it is rare for other companies to develop marketable products from government-provided patents in any more productive fashion than the firms which created the new technology in the first place.

Because S. 1215 introduced by Senator Harrison Schmitt, with the bipartisan support of Senators Howard Cannon, Adlai Stevenson and John Warner, would establish such a policy AIA supprts the enactment of S. 1215 into law.

The Administration's proposed Patent Policy seeks to improve the present situation by contemplating a single policy that is to be uniformly administered by all federal agencies. It also attempts to minimize, to some extent, the current uncertainties as to the allocation of rights to inventions under government (R. & D.) contracts. It is respectfully submitted, however, that the Administration's proposed policy does not achieve the full utilization of the patent incentives as does S. 1215. Further, the proposed policy would create many significant problems, both practical and legal.

As to fostering competition for government R. & D. contracts, the Administration's proposed policy proceeds on the false premise that "larger" business will be satisfied with exclusive licenses in selected fields of an identified invention. Such licenses would be based upon a promise by the contractor to commercialize the invention in the selected fields and his filing of a patent application. This concept is apparently based on the reasoning, as explained by Dr. Jordan Baruch, Assistant Secretary for Science and Technology, Department of Commerce on January 25, 1980 in testifying before this joint hearing that "larger" companies are less flexible in diversifying into multiple fields of endeavor. One has only to review the histories of those companies which form the aerospace industry to recognize the error in such reasoning.

This concept appears also to be based on the assumption that a company, large or small, can predict with any degree of certainty, in which field or fields an invention may enjoy commercial success. With the ever present threat of a government bureaucracy standing by to grant exclusive licenses in any field not selected by the inventing company, the concept of exclusive licensing is in most instances less acceptable to industry than current practices.

In regard to the management of the proposed exclusive license policy, it should be noted that a patent generally has utility in many fields. In fact, the Administration's proposed policy recognizes this facet of a patent. At present the Government has title in over thirty thousand patents. It is entirely probably that these patents could find use in hundreds of thousands of fields. Therefore, it is probable that the management of an "exclusive license" policy would probably require a substantial bureaucracy rather than the small group contemplated by Dr. Baruch. And, that would be directly contrary to the stated objective of President Carter to reduce the size of government bureaucracy and to get the government out of the private sector.

The distinction drawn in this proposed policy between small contractors and nonprofit organizations on the one hand and large contractors on the other clearly indicates that the same patent incentives to innovate and commercialize are not to be provided to all contractors. The obvious corollary is that less than the maximum patent incentive is to be enjoyed by the large contractor. A policy of patent title in all contractors large or small would clearly appear to maximize the incentive for all to innovate and commercialize with minimum administrative burden and yet with adequate safeguards as provided by Government march-in rights (Sec. 206).

The Administration's proposed policy also gives rise to several legal problems. For example, it requires that larger contractors file patent applications even though the government has title to the inventions. In many jurisdictions that would comprise the unlicensed practice of law by a business corporation and would expose the contractor to possible criminal penalties. It is also apparent that contractors legally barred from filing applications would be limited to receiving a non-exclusive license and even that would be subject to revocation. Clearly the Administration's proposed policy would offer little or no incentive to contractors in this situation.

The prosecution of such an application by a larger contractor may also give rise to conflicts of interest. The contractor may be prosecuting a patent application on a subject matter in which the government has title and at the same time be prosecuting another application on similar subject matter but in which the contractor has title. Also, the larger contractor prosecuting an application in which the government has taken title might later be charged with failure to obtain claims of sufficient scope to cover the invention appropriately, e.g., claims broader than the field or fields selected by such contractor.

Another legal problem which could result from the proposed "exclusive license" policy of the Administration is the enforceability of an exclusive license. Thus, there is a question as to whether the "exclusive License" granted by the government is more illusory than real. Although the draft legislation to establish the proposed patent policy contains provisions which would authorize an exclusive licensee to bring a legal action to enjoin an infringer, it is extremely doubtful that such

provisions would survive judicial examination. A defense of patent invalidity would require the patent owner, the government, to be before the Court in order that judgment be rendered on the patent. There is nothing in the draft legislation requiring the government to join in such legal proceedings. Can one envisage the government joining with a larger contractor to obtain an injunction against a disadvantaged minority enterprise? In any event, should the government join a larger contractor in seeking injunctive relief to enforce an exclusive license, the government would be in the impolitic position of assisting one member of the public to prevent another member of the public from answering a public need by increasing the availability of an invention made with public funds.

There are many other vexatious legal problems which could result from the proposed policy. For example, if an exclusive licensee threatens an injunctive action against an alleged infringer who then seeks to bring a declaratory judgment suit to hold the patent (owned by the government) invalid, would the government accept service? Is the exclusive licensee a necessary party? Should other exclusive licensees in other fields also be joined? If an exclusive licensee causes a patent to be exposed to judicial review the result of which is that the patent is held invalid, do other exclusive licensees have a cause of action to recover for economic loss—and against whom?

The Administration's proposed Patent Policy is apparently intended as a stimulus to industrial innovation. However, it does not reflect the findings of several important studies conducted for the government and which considered our Patent System an industrial innovation.

In 1966, President Johnson established "The President's Commission on the Patent System". That Commission, formed of distinguished representatives from both the public and government, found "* * * that the Patent System has in the past performed well its Constitutional mandate 'to promote the progress of * * * useful arts'," and most importantly, unanimously agreed that "* * * a patent system today is capable of continuing to provide an incentive to research, development and innovation * * *"—and that "* * * no practical substitute for the unique service it renders * * *" was discovered.

In 1968, Harbridge House, Inc., conducted a study sponsored by the Committee on Government Patent Policy, Federal Council for Science and Technology. That Study clearly indicates that the major adverse effects of a patent policy in which the government takes title to inventions made in the performance of R&D contacts are "* * * program delay, loss of participants, diversion of private funds from government lines of research and refusal to use government inventions and research when questions regarding a company's proprietary position are raised * * *"

Finally, in the final report of the Advisory Committee on Industrial Innovation, dated September 1979 (p. 156) which was established as a part of the Domestic Policy Review at the direction of President Carter, stated that "* * * in the case of universities or private contractor work sponsored by the Government the members of this Subcommittee recommend that title to the patents should go to the universities or private contractor * * *" These findings from industry and government experts are apparently rejected in the Administration's proposed patent policy.

For the foregoing reasons, AIA respectfully submits that the proposed Administration's Patent Policy would not balance the equities of the parties involved in government R&D contracting and would not be as effective in fostering competition for such contracts as would S. 1215. Accordingly, we recommend that S. 1215 be enacted into law as promptly as possible in order that it may begin to solve the problems now being experienced in connection with declining industrial innovation.

ASSOCIATION FOR THE ADVANCEMENT OF INVENTION & INNOVATION,
Arlington, Va., February 20, 1980.

Hon. ADLAI E. STEVENSON AND Hon. HARRISON SCHMITT,
U.S. Senators, Washington, D.C.

DEAR SENATOR STEVENSON AND SENATOR SCHMITT: The interest of A^2I^2 to promote a better climate for invention and innovation leads me to submit to you three documents which appear to seek to answer the question, what is a "small" business?, and presumably by difference, what is a "large" business?

The documents are listed below. In our testimony given before the Subcommittee on Science, Research and Technology of the House Committee on Science and Technology on October 17, copy of which you have, we discussed the various then pending bills.

We reiterate our statements made in the testimony and now extend that testimony to include H.R. 5715 introduced by Representative Ertel October 26, 1979, which

we support in principle for its provision which would vest title in the contractor in an across-the-board manner. This letter is not intended to be inclusive of all comments on H.R. 5715.

However, our comments presented in our statement of October 17 in discussion of specific portions of S. 1215 Schmitt, S. 414 Bayh-Dole, H.R. 8596 Thornton, H.R. 5427 Ertel, extended in the comments as presented to S. 1860 Nelson, and now to H.R. 5607 Neal Smith, introduced October 16, 1979, are to the extent there presented applicable to similar provisions of the bills not therein specifically addressed.

As you probably already know, Chairman, George E. Brown, Jr. of the Subcommittee on Science, Research and Technology of the House and Chairman, Allan E. Ertel of the Task Force on Federal Patent Policy were concerned at the hearing on February 8 on "* * * how to draw the line between a small business and a large business * * *". Further, they were concerned that "small" businesses wanted to become "large" businesses and would be "penalized" for having successfully done so.

The enclosed materials were acquired specifically with a view to supplement pages 6-11 of our October 31 testimony, included here for your convenient, ready reference, as reproduced from the Journal of our Association, September-October, 1979, pages 117-123.

We would be pleased to find that this information has been helpful and that this letter and its enclosures have been made a part of the record.[1]

Enclosed are:

Part 121 SBA Rules and Regulations, Revision 13 (includes amendments 1 thru 26) Consolidated: October 5, 1978

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 27, Sections 121.3-3 and 121.3-6 Published, May 8, 1979, Effective, May 8, 1979, Cite, 44 FR 26852

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 28, Schedule D Published, August 10, 1979, Effective, August 10, 1979, Cite, FR 44 FR 47039

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 29, Section 121.3-11 Published, September 28, 1979, Effective, September 28, 1979, Cite, 44 FR 55815

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 30, Section 121.3-10 Published, October 9, 1979, Effective, October 9, 1979, Cite, 44 FR 57914

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 31, Section 121.3-9, Published, October 16, 1979, Effective, October 16, 1979, Cite, 44 FR 59504

Part 121—Small Business Size Standards SBA Rules and Regulations, Revision 13, Amendment 32, Section 121.3-6 Published, October 30, 1979, Effective, October 30, 1979, Cite, 44 FR 62280

The foregoing documents, which may not be all there are, give an idea of the present manner of how to draw the line between "small" and "large" business. Please see the extensive tabulations beginning on page 22 and ending on page 29 of the first above mentioned document.

Also enclosed is a final draft which I understand is to supersede all of the above documents. It is now before the administrator of the Small Business Administration. He may approve the "draft" in a "week or 10 days" for publication in the Federal Register. Opposition to the proposed revisions, I understand, has been received and can be expected to swell.

Senator Stevenson's letter of January 29, 1980, addressed to me is acknowledged with thanks and appreciation. As you already have a copy of our October 17 statement, above mentioned, I do not now include it. However, should you need an additional copy or so, I will gladly supply the same.

At the hearing on February 8, testimony was given on the proposed administration bill. This bill is fraught with great disincentives to bid for Government contracts because it would not vest title in a "large" Government contractor. It would only grant an exclusive license requiring complex field-of-use negoatiations, including down-the-road negotiations for fields of use becoming apparent at a date well beyond the date of the negotiated contract by which time the then desired field may have been licensed elsewhere. The administrative and bureaucratic involvements and the risks also to be considered are, in our opinion, factors making the administration bill impossible to support.

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[1] Copies of the SBA regulations referred to in the above letter have been retained in the files of the Commerce, Science, and Transportation Committee. Readers are referred to the Federal Register citations for the size standards currently applied in various SBA programs. At the time of printing, the proposed uniform size standards referred to in the letter had not been published in the Federal Register for public comment.

Our Association, as you know, "* * * is not seeking to have the Government favor larger businesses over smaller business or smaller businesses over larger ones." Kindly refer to page 10 of our October 31 testimony, first full paragraph, from which the quote, just made, is taken. We are simply interested "* * * in the provision of a better climate * * * to promote invention and innovation, * * *."

However, if "small-business-concerns" require special help, there is some precedent for specially designed help in 15 U.S.C. 638 Research and development-Declaration of policy. Such directly given help could be beneficial. It would not impinge upon the best service to Government which a uniform patent policy, which involves many disincentives for those best qualified to seek certain Government contracts, could be avoided by such direct help. It has been and is our position that our nation and its individual citizens are, on the whole, by far best served (taxpayers getting what their Government has paid for) by uniform, across-the-board policy.

Kindest personal regards,

PAUL L. GOMORY,
Director and Adviser.

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