GOVERNMENT PATENT POLICY

HEARINGS

BEFORE THE

SUBCOMMITTEE ON PATENTS, TRADEMARKS, AND COPYRIGHTS

OF THE

COMMITTEE ON THE JUDICIARY

UNITED STATES SENATE

EIGHTY-NINTH CONGRESS

FIRST SESSION

PURSUANT TO S. RES. 48

ON

S. 789, S. 1809, S. 1899, and S. 2326

PART 2

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GOVERNMENT PATENT POLICY

TUESDAY, JULY 6, 1965

U.S. SENATE,
SUBCOMMITTEE ON PATENTS,
TRADEMARKS, AND COPYRIGHTS
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10 a.m., in room 3302, New Senate Office Building, Senator John L. McClellan (chairman of the subcommittee) presiding.

Present: Senators McClellan, Scott, and Burdick.

Also present: Thomas C. Brennan, chief counsel, Edd N. Williams, Jr., assistant counsel, and Stephen G. Haaser, chief clerk, Subcommittee on Patents, Trademarks, and Copyrights; Horace L. Flurry, representing Senator Hart; and Clyde DuPont, representing Senator Fong.

Senator MCCLELLAN (presiding). The subcommittee will come to order.

The subcommittee this morning is resuming the public hearing on four bills concerned with various aspects of Government patent policies. These bills are S. 789, introduced by Senator Saltonstall; S. 1047, introduced by Senator Williams of New Jersey; S. 1809, introduced by myself; and S. 1899, introduced by Senator Long of Louisiana.

Since these hearings, commenced on June 1, the Senate has considered on the floor amendments relating to the patent policies of the National Aeronautics and Space Administration and the Department of Health, Education, and Welfare. Although both of these amendments were tabled, the debates clearly indicate that many Members favor legislation to establish the uniform Government patent policy. As indicated during those debates I shall do everything possible to expedite the subcommittee's examination of this issue and facilitate the reporting of a bill during the current session of Congress.

The subcommittee is fortunate to have as its first witness today Congressman Daddario from Connecticut. We are very happy to welcome you here. Through his services as chairman of the Subcommittee on Patents and Scientific Inventions of the House Committee on Science and Aeronautics he has acquired a deep understanding of the matters being considered by this subcommittee. We welcome you, Congressman Daddario, and we will be very glad to have you give us the benefit of your knowledge and experience in this field.

STATEMENT OF HON. EMILIO Q. DADDARIO, A REPRESENTATIVE IN CONGRESS FROM THE FIRST CONGRESSIONAL DISTRICT OF THE STATE OF CONNECTICUT

Mr. DADDARIO. Mr. Chairman and members of the committee, I am grateful for the opportunity to appear and present my views on this most important subject.

As you, Senator McClellan, have recently been pointing out on the floor of the Senate, anything associated with patents is likely to be a highly complex matter, and a Government-wide patent policy is assuredly so. I wish to compliment this committee for its wisdom in treating the matter accordingly—and not in the simple black-and-white fashion which some people at both ends of this issue tend to advise.

It is not my intent here, today, to recite the history of the Government research patent problem, nor to discuss facts and figures, nor to present you with isolated cases in point designed to prove an argument. You have already been exposed to such discussion, and adequately, I am sure.

But I would like to summarize my philosophy on the Government-owned patent question—a philosophy which I believe is shared by many of our colleagues. It is also a philosophy which has emerged from a good deal of interest and time spent in study and hearings.

As you may know, I have chaired a special subcommittee which was charged with the duty of reviewing the Government patent relationship in connection with our national space program. We spent better than 4 years on the subject between 1959 and 1964; we issued three major reports, reported out two bills amending the National Aeronautics and Space Act patent section and passed one of them through the House. So, while I am not a patent lawyer and make no pretense of being an expert in regard to the patent system itself, I am familiar with the issues surrounding Government patent policy.

Mr. Chairman, I have three main basic convictions which I should like to submit to you and your committee on this matter.

First—it is very clear to me that where federally financed research and development is concerned both the Government and contractor have logical and justifiable equities in the ownership of such patents as may arise in the course of the contract.

It is idle to pretend that the Government, at least in its role of representing the public, has no reason for nor interest in the title to such patents. Without the use of the taxpayers' funds the patent might not evolve in the first place—and the fact that the United States always has a free and irrevocable license to use the patent item or to have it produced by any party it chooses for governmental purposes is not always sufficient to protect the public interest. By the same token, it is equally unrealistic to assert that the contractor, who may have contributed as much or more than the Government in terms of know-how and the expenditure of its own money toward the development of the patent, has no claim to ownership nor the exclusive right to utilize the patent for commercial purposes. To take the latter position may be unfair to the large contractor and, in addition, downright disastrous to the small contractor, to whom a patent portfolio is an important

asset, both because of the financial support it offers and the protection it gives. This is because, in most cases, doing research for the Federal Government does not of itself assure the contractor of anything like a substantial profit. Our studies showed that in research contracts the profits tend to be 1½ up to 2½ percent. The profit tends to lie with the procurement and/or commercial marketing.

Second—the head of the department or agency which is contracting for research should be given the responsibility for protecting the Government and the public interest in regard to the disposition of patents arising from such research. He should do this, I believe, with the help of guidelines established by the Congress—or, at a minimum, with the aid of policy memorandums promulgated by the President, such as President Kennedy's order of October 1963. But he should make the decisions and he should be responsible.

I cannot find myself in agreement with those who contend that our Federal administrators are not to be trusted to dispose of patent rights in a proper and judicious way—that they yield to the blandishments of big business or are easily persuaded to "give away" the public's rights, or to take title in all instances without regard to the equities. I have more faith in the ability of our Presidents to find men of ability and integrity to operate the executive branch; and I have faith in the men and women who are now doing so.

To my mind this is a peculiarly inept argument for requiring a rigid patent policy by statute.

Third—It is most important that the executive administrator be provided with sufficient flexibility in whatever patent policy is adopted to permit him to make the most effective and equitable disposition of patent rights. Only the agency head and his staff are cognizant of all the details; only they have sufficient facts and information; only they are in a position to see the whole picture on any given contract—each of which is different from the others. To tie their hands through unyielding statutory requirements is not only unfair; it is more than likely to result in less effective research at higher cost to the Government.

As I have indicated, our administrators need and should have the benefit of policy guidelines by which to make their determinations. On the basis of the information and data which I have thus far been able to acquire, the guidelines set out in S. 1809 would appear both reasonable and effective. I am not suggesting that the bill needs no further attention. Undoubtedly it will require some changes, and, if passed, periodic review after it has become possible to apply the benefits of experience to it. But the bill does possess the spirit of moderation and equity which I find compatible with the realities of our national need.

It is my belief that if S. 1809 is adopted, with perhaps some modification, we will have an overriding patent policy which gives due consideration to the rights of Government, to the protection of the public, and to the general interests of our private enterprise system. In situations where it is important and proper for the Government to acquire title to patents arising from federally sponsored research, I believe that our executive agencies—under S. 1809—would do so. In other cases where all the circumstances indicated the propriety of title in the contractor, this, too, could and should be the result. And, finally, in the

many "in between" cases, it would be possible to work out an equitable arrangement of exclusive licensing or whatever degree thereof appeared appropriate.

I should like to emphasize that the executive agencies which must deal with the patent problem on a day-to-day basis, without exception, have learned the importance of the kind of flexibility which S. 1809 would provide. Even those agencies which have been required or most prone to exert title in the Government, such as the Atomic Energy Commission, the National Aeronautics and Space Administration, and the Department of Health, Education, and Welfare, have found it necessary to alter their practice according to the individual circumstances. You have heard much about the desirability of the practices of the AEC policy from those who favor a rigid Government-ownership position. Yet, if you look at the 1964 annual report of the AEC for the Joint Committee, you will find considerable variation in patent treatment. AEC now holds about 3,000 patents. On these it has granted nonexclusive licenses to over 1,000 private firms; 561 have been retained by contractors; 330 exclusive licenses have been granted in "outfield" cases; and title to 400 patents has gone to contractors, subject only to a Government license.

Certainly this, it would appear to me, is persuasive evidence of the need for flexibility in whatever system is adopted.

I should like now to turn to several somewhat more specialized aspects of the patent policy problem.

One of these is the international phase, which has not been widely discussed. We have heard much about "giveaways." But a most vulnerable "giveaway" condition occurs in regard to foreign rights when our Government takes title to inventions.

Let me explain. According to U.S. patent law, an application for patent must be applied for by the inventor himself. The Philippine Republic is the only other country in which this is required. In countries such as England, France, or Germany, or many of the Latin American countries, a patent may be obtained by a person who brings the invention into that country even though he imported it from another country such as the United States.

Thus, when inventions are freely available to the public in the United States, we are powerless to stop people in other countries from obtaining patents in other countries of the world on the basis of inventions made in the United States by American inventors. When this happens our own Government cannot use the inventions on which the patents are obtained, and even the American contractors or inventors who were responsible for making the inventions cannot practice them in those countries without infringement or obtaining a license. And this at a time when our balance-of-payments situation is critical and of immense economic importance.

Another aspect of the problem concerns the so-called advance waiver. You may and probably have been told that there is no excuse for waiving title on an invention not yet in being. In the main, I tend to agree with this position. And yet there are situations where it is most beneficial to the Government to be able to waive in advance. I refer to cases where a Federal agency, having discovered that some potential contractor has already done considerable private research in an area vital to the interests of the Government, approaches that con-

tractor and requests it to carry its activity further on behalf of the Government. In such instances it could be essential that the Federal agency involved have the authority to trade its ownership (but not its license) rights in whatever future inventions may occur in exchange for the free benefit of the work already done by the contractor. If this authority does not exist, then the Federal agency will either have to go elsewhere and have this research done all over again by someone else, or pay a higher price to the original researcher.

Hence I do not believe that any overall patent policy should be totally adamant against permitting waivers in advance.

Finally, I should like to mention one provision in S. 1809 which does disturb me.

This is section 8. Particularly that part (p. 14, lines 23–25) which says that "each agency head shall take such action as may be required to protect and preserve the property rights of the United States in any patent so issued to him."

If my understanding of this section is correct, it not only projects the Government pretty far into the licensing business—it requires every department of Government to sue anyone who infringes a Government-held patent.

This has never been a function of our Government. U.S.-held patents have always been considered as dedicated to the public. The Government has not customarily sued infringers since this would be contrary to the dedication concept. The Government does not have the time, money, or disposition to do so. To my mind, this provision could result in considerable additional expense to the taxpayers—plus an inordinate amount of administrative effort and redtape.

May I suggest that, if this section is retained, the language referred to be made permissive rather than directive? A change of this kind would permit the Government to bring suit in those occasions where it might be necessary to grant exclusive licenses, but not force the executive agencies into endless litigation. Legally, I am sure, the Government has the power to do this anyway, but retaining the permissive language might have the advantage of putting contractors on notice of a Federal intent to enforce its licensing rights.

Thank you, Mr. Chairman. I would be glad to attempt to answer any questions you may have.

Senator McClellan. Thank you, Congressman Daddario. I think that you have made an excellent presentation, one that requires both study and thought.

I was intrigued with your statement about the profit that is made out of Government research programs. I think this committee went into that previously, and we found that the usual profit was from 1½ to 2½ percent. Is that correct as to what you found?

Mr. Daddario. That is correct. And another interesting thing——

Senator McClellan. Is that where they have a cost plus contract?

Mr. Daddario. Well, this was in every type of contract involved—the average of them all. And as we compared that with the private research contracts on the same basis the profit there was between 7 and 8 percent. So that there is a wide disparity between the two.

Senator McClellan. And where the Government provided the money for the research it averaged only 1½ to 2 percent?

Mr. Daddario. That is correct, sir.

Senator McCLELLAN. I have tried to say repeatedly that I have no unyielding conviction with respect to the issues involved in this legislation. I think that the Government's rights and the taxpayers' rights should be amply protected, but there is one aspect that is quite persuasive, may be conclusively so with me and, that is, that the Government goes out to a company that has built up a wide experience in a given field, has mobilized the know-how, has it in place and ready, and the Government says, "in this particular area we would like to have a given thing—we will help finance it—we will finance it, we will give you a contract to go right to it and put on a crash program and get this thing done for us."

Now that same company might very well prefer to use its research, its skill and know-how for application to something of its own or to continue on with what it is doing, and thus reap the full benefit from that effort. But there are those who are contending, apparently, that if the company enters into a contract with the Government allowing it to take full advantage of all of that which has been done to bring the research in that area up to its present state so that it becomes the foundation for the new research, and if the Government puts in a dollar or anything then it ought to have all of the patent rights that ensue therefrom. I do not think that is equitable. And that is the thing that gives me concern. Where the Government provides all the funds and starts some new experience and does not get the advantage of something that has already been accumulated there may be some justification for pursuing the patent rights, there may be some justification for stating that the patent rights should go only to the Government, and that the Government should take it and make it available to anyone who wants to use it. I have simply tried to get the best evidence and information that we can to help us establish the equity as nearly as it can be done between Government and private enterprise in this field, to establish adequate protection for the taxpayers, and as the politicians often say, to protect their tax money—to protect their interests—and at the same time to be fair and to be just to those who made investments on their own and have taken the risk in the private enterprise field and have developed to a point where it becomes a great asset, the framework, so to speak, for the goals that the Government seeks and needs.

And if someone has said that this is simple, I do not believe that they know very much about the problem, because it is not simple, it is not easy to find the proper solution to this. I think you have made a very fine contribution to the record of this committee which we will have to carefully study. I, personally, appreciate your presence and the time that you have given us.

Mr. DADDARIO. Thank you, Mr. Chairman, for those remarks.

I would like you to know that with some slight modifications it is my intention in the near future to submit a bill quite comparable to S. 1809 in the House.

Senator McCLELLAN. I am sure that S. 1809 may need some revisions and it may well form the basis for the legislation that this committee will report, and it may not. I do not know, but, in any case, it was the best that I could find at the time of introduction. I think that this is a matter of some urgency. There is no disposition on the part of this committee as I indicated in my opening statement to try to expedite this legislation without giving it the attention and the study

that it needs, but I think that it has reached the point where the Congress should resolve the issue, so that we will have a uniform patent policy for all of the agencies, or, guidelines, as we would like to say—maybe that is a better description—of a Government policy for all of the agencies. It may very well be that there are areas where the Government should take all of the rights and particularly, in the field of health, where the Government may, to research institutions and so forth, provide all of the money and where the discoveries are made, it might very well be that the Government then should have all of the rights, the exclusive rights to whatever comes from such research.

Thank you again very much.

Mr. DADDARIO. Thank you, Mr. Chairman.

Senator MCCLELLAN. Call our next witness.

Mr. BRENNAN. Mr. J. Edward Welch, Deputy General Counsel of General Accounting Office.

Senator MCCLELLAN. Please be seated, sir. We are very glad to have your testimony this morning. Will you identify yourself for the record and, also, your associates, please?

Mr. WELCH. I am J. Edward Welch, Deputy General Counsel, General Accounting Office. On my right is Mr. Milton J. Socolar, who is an attorney adviser in the Office of the General Counsel. On my left is Mr. H. H. Rubin, who is Associate Director of the Defense Accounting and Auditing Division in charge of certain phases of our audit work in the Department of Defense.

Senator MCCLELLAN. Very well. You have a prepared statement?

Mr. WELCH. Yes, sir; I do.

Senator MCCLELLAN. You may proceed.

STATEMENT OF J. EDWARD WELCH, DEPUTY GENERAL COUNSEL, U.S. GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY MILTON J. SOCOLAR, ATTORNEY ADVISER, OFFICE OF GENERAL COUNSEL; AND H. H. RUBIN, ASSOCIATE DIRECTOR OF DEFENSE ACCOUNTING AND AUDITING DIVISION, GENERAL ACCOUNTING OFFICE

Mr. WELCH. Mr. Chairman and members of the subcommittee, we are glad to comply with your request to appear before you and present our views in connection with your consideration of S. 789, S. 1809, S. 1899, and S. 1047. The first three bills are directed toward the desirability of establishing a congressionally declared national policy with respect to the public interest in inventions and scientific and technical information developed through Government-financed research and development. We believe that there is a pressing need for an overall legislative policy in the field of patents; however, we take no position concerning the relative merits of the three proposals.

While we understand that your primary interest in having us appear is to obtain our views regarding S. 1047, we would, however, take this opportunity to call to your attention one aspect of the problem covered by the other three bills which appears not yet to have been touched.

S. 789, S. 1809, and S. 1899 each deals with the acquisition, disposition, and use of inventions and data resulting from contracts directly concerned with research and development financed at taxpayer expense. None of them reaches the situation where negotiated contracts result in substantial public support of the independent research programs of contractors through the assumption of such research costs in overhead rates. Under current administrative policies, the Government does not, so far as we know, obtain any rights with respect to inventions and data financed at taxpayer expense in this manner. We are not in position to make any recommendation concerning the proper policy to be followed. But the question of indirectly Government financed research and development is closely connected with the subject covered by the three bills, and we believe there is sufficient at stake in the way of Government funds involved and inventions made to warrant bringing the matter to your attention.

(Mr. Welch then testified with respect to S. 1047 which is being printed separately.)

Senator BURDICK. Getting back to another portion of your testimony, you referred to S. 789, S. 1809, and S. 1899, and you state, "none of them reaches the situation where negotiated contracts result in substantial public support of the independent research programs of contractors through the assumption of such research costs in overhead rates. Under current administrative policy, the Government does not, so far as we know, obtain any rights with respect to inventions and data financed at taxpayer expense in this manner."

Can you give me an example of that type of situation?

Mr. WELCH. Could I have Mr. Rubin answer that question? He is with our audit group.

Senator BURDICK. Yes.

Mr. RUBIN. The situation described here is a situation where a contractor has a so-called independent research and development program. The Government will negotiate with a contractor in advance as to the extent of the program which the Government will be willing to participate in through inclusion in the contractor's overhead as an allowable item of cost. This cost is then allocated to the contracts then in process which may involve production or research and development. The Government participation may cover as much as 80 or 90 percent of the contractor's costs.

The extent of the independent research programs is rather significant in many cases. We have received an estimate made within the Department of Defense that indicates that the amount of the total of such programs, I think about a year or two ago, was in the neighborhood of $900 million annually. That is a rather significant figure.

Senator BURDICK. I do not quite understand it yet. The Government pays a consideration to the contractor to do this work.

Mr. RUBIN. The Government, you say, pays a consideration?

Senator BURDICK. Yes.

Mr. RUBIN. The Government will pay for a share of it; yes.

Senator BURDICK. What is the difference between a regular and a development contract?

Mr. RUBIN. The point that we make here is that the way these bills read they relate only to contracts directly concerned with research and development. These contracts will not specifically provide for

patent rights arising under indirect research and development. Our point is that you might wish to consider, in addition to the direct research and development contracts, the possibility of establishing a Government patent policy covering the indirect costs which are, also, research and development.

Senator BURDICK. Do you recommend that?

Mr. RUBIN. No; we are not taking a position on that point, but we think this should, also, be considered as to whether the Government ought to consider a title or a license policy or either.

Senator BURDICK. That is all I have, Mr. Chairman.

Senator MCCLELLAN. Thank you very much.

Mr. WELCH. Thank you.

Senator MCCLELLAN. Call the next witness.

Mr. BRENNAN. Mr. John M. Malloy, Deputy Assistant Secretary of Defense for Procurement.

Senator MCCLELLAN. Mr. Malloy, you have a prepared statement?

Mr. MALLOY. Yes; I do.

Senator MCCLELLAN. Identify yourself and your associates, please, sir.

Mr. MALLOY. I am John M. Malloy, Deputy Assistant Secretary of Defense for Procurement. On my left is Mr. Howard C. H. Williamson, procurement specialist, Office of the Assistant Secretary of Defense, Installations and Logistics; and on my right is Mr. R. Tenney Johnson, Deputy General Counsel of the Department of the Army. Mr. Chairman, I have asked other members of the military departments who are specialists in patent matters to be here today, should we get into those details so that they will be available for answering questions.

Senator MCCLELLAN. You may proceed.

STATEMENT OF JOHN M. MALLOY, DEPUTY ASSISTANT SECRETARY OF DEFENSE (PROCUREMENT); ACCOMPANIED BY HOWARD C. H. WILLIAMSON, PROCUREMENT SPECIALIST, OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS); R. TENNEY JOHNSON, DEPUTY GENERAL COUNSEL, DEPARTMENT OF THE ARMY; ALSO LT. COL. JOSEPH HILL, CHIEF, PATENT DIVISION, OFFICE OF THE JUDGE ADVOCATE GENERAL OF THE ARMY; ALBERT HELVESTINE, CHIEF PATENT COUNSEL OF THE NAVY, OFFICE OF NAVAL RESEARCH; AND HARRY HERBERT, CHIEF, PATENTS DIVISION, OFFICE OF THE JUDGE ADVOCATE GENERAL OF THE AIR FORCE, DEPARTMENT OF DEFENSE

Mr. MALLOY. It is a pleasure to present to you today the views of the Department of Defense concerning Government policies for acquiring patent rights under research and development contracts and for utilizing privately owned patents without license from their owner.

I will discuss first the acquisition policies, which are generally discussed under the heading, Government patent policy. It is not my purpose to rehearse for you in detail the many arguments which have been made over the years on this issue. Few issues of public policy

have been debated so vigorously, so thoroughly, and for such a long time. The several hearings your subcommittee has conducted on this point have made you thoroughly acquainted with the opposing viewpoints. The Department of Defense presented its views to your committee in 1961, and we reaffirm those views today.

Suffice it to say that the mainspring of the patent policy which the Department of Defense has followed has been incentive. In contracting for national defense research and development the Department of Defense has sought, among other things, to take advantage of the incentives implicit in the patent system. The patent system was established to encourage invention, disclosure, and exploitation of new ideas. It is a fundamental part of the economic framework of incentives in which American industry operates.

When the Department has agreed that contractors and their subcontractors may retain patent rights in inventions they make in performing research and development under Defense contracts, provided the Government obtains complete rights to use the inventions itself or to have them used by others in work for the Government, the Department has hoped to maximize the incentive to both large and small companies to seek out and compete for Defense work, to bring their best privately developed background and most promising ideas and most talented people to the task, and to report freely and readily the full results of their work, without fear of losing exclusive commercial rights in their ideas, which would normally be theirs.

The Department has acquired what it bargained for. To accomplish its purposes the Department has not generally needed full title to its contractors' inventions, and it has believed that requiring full title would undesirably dilute a necessary incentive for Defense work. At the same time, it has considered that when the invention remains in private hands, the incentives of the patent system are available to protect and encourage private investment in bringing inventions made in Defense work to the commercial market and thus making them available to the general public.

However, the Department of Defense has long recognized that its general policy of seeking only a governmental license to use its contractors' and subcontractors' inventions is not necessarily the only appropriate policy for the entire Government. Other Government agencies have different missions and roles to play in the national economy, and these different missions and roles may require a different patent policy. In other words, in these instances there may be a specific governmental purpose to be served in taking title. For example, while the Department of Defense does not contract to develop inventions for commercial use—and inventions found useful for military purposes often require considerable private investment to make them commercially useful—other Government agencies do have a mission of developing inventions to the point of commercial application and making them available to an industry without the need for further development. The research and development in commercial fertilizers carried on by the Tennessee Valley Authority is an example of this kind of agency mission.

In 1961, following prolonged congressional interest in the patent policy question, the Department of Defense formally recognized in

the Armed Services Procurement Regulation that there were instances even in Defense contracting where there could be a governmental purpose in acquiring not only a license but full title to inventions made by contractors. For instance, one of these situations would be research and development of a new technological field in which there is no significant private experience on which to build. In such a case, as for example the development of atomic energy, the Government may need to acquire title to inventions made so that the necessarily few contractors who take part in the opening of the field do not obtain exclusive control when the field develops commercially.

The patent policy question has become recognized as a sophisticated problem, not a simple one—a problem demanding a sophisticated approach, not a simple one. Considerations applicable in one case may not apply in another. For example, it has become apparent that a major presumption underlying the license policy—namely, that private companies will develop patented inventions commercially and thereby bring the benefit of the inventions to the public—does not necessarily apply in the case of a company which works exclusively for the Government, and which therefore has no proven performance of working inventions in the commercial market. However, before too sweeping a conclusion be drawn from this consideration, it must also be remembered that many small firms, springing up to meet a Government need for specialized equipment, but without any previous commercial history, need patent protection for their inventions to enable them to gain a foothold in the commercial market against established companies.

A monumental step toward resolving the many disparate factors in the patent policy equation was taken by the late President Kennedy when he issued his statement of Government patent policy on October 10, 1963. President Kennedy's perspective was broader than that of any individual Government agency. The basic objectives of patent policy outlined in this statement are that inventions arising from federally financed research and development are an important and valuable national resource; that these inventions should be developed, used, and thereby contribute to the growth of the civilian economy; and that the necessary incentive to trigger private initiative to accomplish this end should be provided.

This broad policy is thus based upon the concept that with respect to inventions emerging from Federal research and development the incentives of the patent system are to be fully utilized for the benefit of the general public whenever it is appropriate and consistent with the Government's purposes in undertaking the research and development so to utilize them. If there is a firm governmental objective in obtaining title to inventions made by Government contractors under a particular contract—and the President's statement spells out the situations in which there is such an objective—title should be obtained. Where there is no such governmental purpose and where the contractor has a record of commercializing patents, patent rights may be safely left with the contractor subject to certain safeguards. Where no such presumption can be made, the issue of patent rights is to be left for later determination, taking into account any plans the contractor may offer for commercializing particular inventions which

emerge from the contract work. The safeguards which I mentioned include the right to require the contractor to make the invention available to others for use or manufacture to the extent the invention is required for public use under a governmental regulation or to the extent it is necessary to fulfill health needs, and also the right to require the contractor to grant licenses to others if he refuses to commercialize his invention or permit others to do so on reasonable terms within a reasonable time.

The President's statement strikes a proper balance between complete public ownership or complete private ownership of inventions and applicable patent rights which result from performance of research and development work financed by the Government. In addition—and I emphasize this—it provides the administrative flexibility which is essential if the various agencies of the Government are to execute their primary missions and at the same time achieve a consistency in patent policy in areas of endeavor common to several agencies.

The Department of Defense patent policy fully implements President Kennedy's statement of patent policy. It is interesting to note what has happened in terms of division of patent rights. Operating under the old Defense policy, 17 research and development contracts in fiscal year 1963 contained a clause acquiring title to the patents for the Government. In fiscal year 1964 the number of such contracts increased to 29, making a total of 46 such contracts in fiscal years 1963 and 1964. The remainder, more than 99 percent, contained the license clause. In contrast, under the ASPR implementation of the President's statement, for the month of April 1965 alone, out of 695 research and development contracts awarded, 68 contained the title clause, 505 the license clause, and 119 a clause which defers the allocation of rights of inventions until disclosure, and 3 did not contain patent clauses (because the subject matter made it unnecessary to do so). In our opinion, these figures demonstrate the marked swing from what was substantially a hundred percent license policy to the more balanced result which was intended by the President's statement.

Nevertheless, we are well aware of the need to improve the implementation of this policy by our contracting officers. They have decisions to make which they have never had to make before. These decisions are not easy. We have several thousand contracting officers located all over the United States, and we are continuing our efforts to impart to each one a common understanding of the Department of Defense implementation of the President's policy. In addition we believe that further revision of the regulations to assure clarity and consistency is necessary, and we expect that changes will be made as a result of analysis of our operating experience.

However, we have enough experience to form the firm opinion that President Kennedy's statement of patent policy is the soundest formulation of policy ever achieved in this most difficult field.

The Department of Defense therefore supports legislation which incorporates the patent policy stated by the President. Because, Mr. Chairman, your bill S. 1809 in large part does this, the Department of Defense supports it.

We do have recommendations for certain aspects of S. 1809 which go beyond or omit features of the President's policy, and I would like to offer our general observations thereon. The specific changes we recommend are discussed in detail in our report on S. 1809 to the chairman of the Judiciary Committee.

First, the Department of Defense believes that licenses for the benefit of foreign governments should not be obtained in section 3(b)(2). Section 3(b)(2) would provide a windfall of patent rights for foreign governments without equivalent benefits for the United States. Furthermore, section 3(b)(2) is not necessary to enable the United States to meet any treaty commitments we now have. If there is a future need to acquire licenses on behalf of foreign governments, the appropriate method is by administrative action tailored to the specific situation rather than by an across-the-board grant in all situations.

Second, we are firmly committed to the proposition that rights in inventions—as well as all other duties and obligations—whenever possible should be established at the time of contracting and then adhered to and carried out. Section 4(b) of S. 1809—a section which provides that the contractor should have the commercial rights—provides that the Government may redetermine patent rights; we think this is highly undesirable as it leaves a cloud on the contractor's rights. The effect of this feature of section 4(b) is to make it only slightly distinguishable from section 4(c) which is concerned with after-the-fact determination.

Possibly this feature is intended to cover a mistake by the Government or the off-chance that some crucial invention will be made. Nevertheless, it would apply in all cases and would leave rights in all inventions subject to doubt as to whether the Government would or would not act. This element of doubt could tend unnecessarily to discourage private investment in commercializing such inventions.

To cover the exceptional case, we recommend relying instead on the compulsory licensing provisions or "march-in" rights set forth in section 1(f) and 1(g) of the President's policy and also incorporated in ASPR and in our contract clauses. We believe the so-called "march-in" rights are ample protection for the fortuitous event that section 4(b) of S. 1809 is presumably addressed to. We also recommend that in recasting section 4(b), authority be included to obtain greater license rights at the time of contracting than the nonexclusive license specified in section 3(b)(2) if the agency head determines that such greater license rights are required in the public interest.

Third, we do not favor the application of the Administrative Procedure Act and judicial review to the determinations of invention rights such as in the deferred case under section 4(c) of S. 1809. In this connection, we believe that section 4(c) of S. 1809 is not properly balanced, in that the Government may acquire only a nonexclusive license in cases where the allocation of invention rights has been deferred unless the Government can show that the public interest would suffer if the contractor acquires the principal rights. This is weighted against the Government. Preferably, each party should be on a basis more appropriate to its interests. For example, under the President's

statement, in the deferred situation, a contractor (normally a company without a commercial background) can usually expect to obtain title if it can show a positive plan for commercializing the invention. However, the burden is on the contractor to show the plan, and on the Government to decide whether fundamental public policy requires that title vest in the Government. In particular, this kind of decision should not be subject to judicial review. Judicial review may be appropriate to procedures which have as their purpose divesting rights previously established. However, here the issue is the allocation of rights in the first instance, a procedure substantially different from divestiture.

In general, however, we would favor enactment of S. 1809, if changed in accordance with our recommendations. We believe that this bill can be interpreted to preserve the administrative flexibility which is contained in the President's policy.

With respect to the other bills before the subcommittee dealing with Government patent policy, the Department of Defense considers that S. 789 contains desirable features but falls short of certain important provisions of the President's statement and therefore the Department does not recommend its enactment. For example, S. 789 would limit the exercise of "march-in" rights to cases in which the Government might have acquired title at the time of contracting but did not. This is more restrictive than the President's statement. We believe that "march-in" rights should be available in any case in which the Government has obtained only a license.

The Department of Defense strongly opposes enactment of S. 1899. This bill would be in effect require the Government to take title to all inventions and applicable patents emerging from federally financed research and development. Such a policy would have, in our judgment, severly adverse long-range effects on the Defense research and development program. It would tend to concentrate our work in only those firms which take our contracts on any terms they can get them and to cut defense work off from the best research work carried on by U.S. companies for their own commercial purposes. It would discourage inventive small business from working for the Government. It would remove the patent incentive and protection for commercializing many inventions made for the Government.

While S. 1899 would provide for after-the-fact review of each invention—an exceedingly cumbersome administrative process—the requirements which would have to be met before a contractor could obtain title to his invention are such that in practical terms no patents would be acquired by contractors.

Our detailed comments on these bills have been provided in written form to the chairman of the Judiciary Committee.

Mr. Chairman, this concludes my statement. I am ready to answer any questions you may have.

Senator McClellan. Thank you very much, Mr. Malloy. Your letter from the Department to the chairman of the Senate Judiciary Committee, of course, will be made a part of the record, and we will have the benefit of that in the record as well as your statement today.

Senator McClellan. At the outset of your statement you emphasized the patent incentive as a consideration in procuring. What,

in your judgment, would be the impact on the Defense Department if that incentive is removed?

Mr. MALLOY. Mr. Chairman, our feeling has been for many years that if this incentive is removed, we will have potentially removed from us sources that have the highest degree of technical competence in a particular field. We may be forced to go to other contractors who, certainly, will perform research for us, but they may not be the very best contractors because they lack the background and the knowledge that has been developed in the quest for commercial markets. I like the way that you described the same situation earlier, Mr. Chairman, when Congressman Daddario was here, because I think that you described it quite clearly; namely, that the Department should not be in the position of going to the contractor who is second best in the research field.

Senator MCCLELLAN. Well now, there is another argument here that I want to discuss in the record; that is, is it true that we have private enterprise, institutions, business institutions that have developed their tremendous skill in certain fields that would refuse to serve the Government to provide services for the Government and do research work for the Government for a reasonable compensation unless they were granted the rights to all patents and to all inventions and discoveries that were to be made—would our large institutions, large business institutions and corporations refuse to do that work for the Government on a reasonable profit basis?

Mr. MALLOY. Mr. Chairman, we have never contended that we would not be able to place a contract for our research, regardless of the patent title question. I think that there would be very few contractors who would absolutely refuse, although there would be some, possibly, but I think that there would be very few who would absolutely refuse to take our contracts.

The question is considerably more subtle than that. A contractor who has an established commercial position would find himself inevitably, I think, if he took a research contract, thinking of the possibility of losing the very commercial advantage that he has invested a lot of money in. If that is the case, he might take a Government contract, a Department of Defense contract, but he might not assign to it the very best people that he has in his organization. He might not bring to the solution, to the solution of the research problem the many, many facets that he has pursued in his commercial venture, because to do so would destroy his commercial position.

It is extremely difficult to prove this point one way or the other. We rely on our judgment that this would inevitably be the result. The possibility of this happening is something that is important to the Department of Defense, but we do not have any way of measuring it with great precision.

Senator MCCLELLAN. Let us take an illustration. Here is a company engaged in a given field where it has mobilized its talent, and has done a great deal of research—it has already made considerable investment in seeking a breakthrough in a given area, but it has not succeeded yet—it has made progress but it has not succeeded in breaking through. The Government gets interested in this same field.

Suddenly, the Government needs this product, and so, realizing that this company has done considerable work already, goes to the company and says, "Here now, we have to have this as soon as possible—we need it. We are willing to give you a contract. You put your best men on it and get this thing done, get the breakthrough as quickly as you can."

And the company responds. Where are the equities? Who should get the patent rights on that patent when it breaks through and is accomplished? There is the difficult problem that we have. If you are starting from scratch, so to speak, and you make a contract to develop it and you secure the skills to do the research, certainly the Government would have it. But where the company has already made considerable investment, it goes out and employs people, mobilizes a lot of skills and talents, and it has developed those talents, as well as bringing them into a position where they are competent to pursue the objective—they have an investment in that, and the Government comes along and says, "Well, we are interested in this, too, so we will finance a crash program here, so to speak. We are very much interested. We will give you a contract for certain aspects of this. And we will furnish all the money from here on in."

There are some equities there on both sides. How are we going to distribute that equity?

Mr. MALLOY. Mr. Chairman, we feel that the equity in that situation would lead a prudent man to leave the title to the patent with the contractor. He has assembled some valuable assets, including both physical and human assets and prior research, so that he, obviously, has an investment in the situation. The Government obtains all that it requires when it gets a royalty-free license, to use or to have others use the inventions that might flow from the research work.

Senator MCCLELLAN. The Government has an inclusive right always.

Mr. MALLOY. I beg your pardon?

Senator MCCLELLAN. The Government would get a license for its purposes, in any event.

Mr. MALLOY. Yes, sir. It is a nonexclusive license, so that the Government can practice any invention or have any other contractor practice any invention for Government purposes anywhere throughout the world. So the Government gets everything it needs to get on with its business. We feel that the equities of the situation call for leaving title to the commercial application of the patent with the contractor. We think, also, that this carries out another primary and fundamental purpose, of the President's policy; namely, to get the invention working in the commercial marketplace. If the contractor has a degree of exclusiveness for a period of time, as provided for under the patent laws, it provides him with the incentive to actually bring the invention to the marketplace to make it available to everybody.

Senator MCCLELLAN. That is giving the patent away. If you give it to the contractor, the exclusive rights, subject to Government license to use it, that is giving away something. That is the way I interpret this. Woud you so interpret it?

Mr. MALLOY. Mr. Chairman, that gets to be a kind of a broad generalization.

Senator McCLELLAN. That is a broad generalization that is used. They want to give patent rights away. What is your interpretation of a situation like that?

Mr. MALLOY. Certainly, when we bargain at the time of contracting to leave one party some property, such as he would get out of the invention, we are, actually, in the bargain giving up a right to one party of the contract. I would not call it a giveaway. It is a negotiated proposition.

Senator McCLELLAN. It is a part of the consideration.

Mr. MALLOY. It is a part if the consideration of entering into the contract; yes, sir.

Senator McCLELLAN. Here is the argument. You are already giving the company, the contractor, a profit. He is guaranteed a profit. He is getting a cost-plus contract, maybe, so that he cannot lose. What is your argument against that?

Mr. JOHNSON. May I answer?

Senator McCLELLAN. Yes.

Mr. JOHNSON. My name is R. Tenney Johnson, and I am Deputy General Counsel of the Army. The question that you posed is, What is the answer to the argument that since a contractor gets a profit from doing the work in the Government contract, does he require a patent incentive in addition? Our feeling has always been that it is a question of fairness in recognition of the contractor's equity that he has already established in his prior work which was not performed for the Government. We are not automatically entitled to full patent rights just because we finance a particular phase of the development work. In other words, the profit on the particular contract that may be involved is not compensation for the investment he has made in the past to be in the position where he can be chosen for research work for us.

Senator McCLELLAN. Yes, but he is not going to discount his profits. I would not anticipate that he would anyway. He undertakes a contract so as to make the usual profit or a reasonable profit of 5, 6, 7, or 8 percent, whatever it is. I do not think that he is going to contract at a lesser price with the idea that, well, there may be some patent he may discover, to which he may have the rights, and thus profit in that respect, too. I do not think that he is going to reduce his price any on that account, but he may hesitate, if he has gone pretty far in the field—he may say, "Well, I do not believe I want this contract, because I am already on the verge of a breakthrough here that would be quite profitable." He might very well hesitate to make available his facilities and his talents that he has under contract to the Government in such a circumstance. That is another aspect of it.

First, let me say that the illustration that I tried to give in the case that I tried to make here is an instance where, under present practices, you might very well give to the contractor the exclusive rights or ownership in the beginning, at the time of the making of the contract, where it was known that he has done considerable work in this field and was still working in it. That is one of those cases, I assume, where you might very well say, "We will give you a contract and in the beginning

the rights to the patents which result from it without waiting to determine it later.?

That question has been raised. Under what circumstances and why should we do that in the beginning, give away the patent? Why not wait until after the discovery had been made, and then settle the proposition?

The case that I gave you is an instant where, possibly, you would grant the exclusive right to the contractor at the beginning, is that correct?

Mr. MALLOY. Yes, sir.

Senator MCCLELLAN. And now one thing further that I can foresee, if the contractor is not to get it, and the Government has a policy where it will take all the discoveries and inventions, have exclusive title to them, there would be a disposition, I would think, on the part of the contractors as you said earlier, maybe not to put their best talents on this particular contract. And, secondly, maybe not to report discoveries made that were not apparent, in other words, let us take the side discoveries, that is, things that were discovered that you were not looking for, that were not necessarily pertinent to the contract, the product that is involved—they would not report those. But they would be required, I assume, under a Government ownership policy to report all of that, and the Government would become the owner of that, too. I can foresee that there might not be an enthusiastic inclination to report all those that were discovered.

Mr. MALLOY. I think both points are well taken. I think that there would be a reverse incentive against reporting in the other situation. It would be against the contractor's interest. Obviously, he would comply with the terms of his contract which requires reporting, but here again is an area of subjective judgment. In a borderline case, in which reasonable men might disagree, these things may not be reported, as you suggested.

Senator MCCLELLAN. How will this affect small business? You made some reference to that. If the Government policy is that of taking title to all patents, how will that affect small business, particularly with respect to incentives? Is an incentive a big factor in inducing small business to bid or to contract to work for the Government?

Mr. MALLOY. Yes, sir. I think that the small contractor needs the type of protection that we are talking about more than the larger contractor. Small contractors very often are the more inventive group, as a group, and the forces of economic competition are tougher on them. The protection afforded by the patent laws is even more important, I think, in this instance, than for the big contractor.

Senator MCCLELLAN. Well now, let us take another instance here where there is an extraneous discovery, something apart from the general objective of the contract involved in the situation that may have no particular use so far as the objective that the Government was seeking in financing it. If that is left in the contractor, if it has a commercial value, the contractor would naturally develop it, of course, but if it does have that commercial value and the Government takes title to it, then, as I understand the rigid policy of Government ownership of these things, the Government simply then makes it available to

everybody alike. And that contractor's competitors, all of them, would have free access to it.

Now then, that same discovery, although it may have a commercial value, there still must be an investment made—an initial investment made to adapt it to commercialization after its discovery and its being patented. Probably, it has to be refined and considerable money spent on it to bring it to the market, so to speak, to the consumer.

If the contractor has the patent and has the right to the invention, the contractor then is protected and will make that investment, obviously. If not protected—if the Government takes the patent and makes it available to all alike—and nobody has any protection—who then will make the further investment necessary to bring that product to a commercial realization and usage?

Mr. MALLOY. Mr. Chairman, this point——

Senator MCCLELLAN. In other words, let us take the proposition that it takes $100,000, $500,000, or $1 million, depending upon the value of the product to develop it. If I develop it and everybody can do the same thing, if I spend that much money on it and everybody else spends that much money on it to develop it, it loses its value as an incentive to further development, does it not?

Mr. MALLOY. Yes, sir, Mr. Chairman. This is at the heart of the incentive to bring the invented item to the marketplace. Inventions normally require a good deal of investment to bring them to the commercial market. This is not invariably so, but this is the usual situation.

A contractor would have great difficulty, first, in obtaining financing from his bank; second, from his board of directors in terms of the risks that he will be taking in investing capital without some sort of protection against people who do not have to make that investment and who could freely compete with him. So I think that the point here is that if he does not have the protection afforded by the patent system, then there is a suasion against bringing the item to the marketplace and investing money in it.

Senator MCCLELLAN. You spoke here of other areas where, apparently, the Government should not only have a license, but full title to the invention made by the contractor. Does the law omit that now?

Mr. MALLOY. Mr. Chairman, there is no law on this subject now.

Senator MCCLELLAN. Under the President's directive?

Mr. MALLOY. But under the President's directive, yes, sir. There are several situations in which the President's directive requires the taking of title. These situations are: (1) When the contract is for exploration into fields which directly concern the public health or public welfare; (2) when the services of the contractors are to coordinate the work of others or for the operation of Government-owned plants; (3) when the contract is to develop products intended for commercial use by the general public or which will be required for such use by Government regulations; and (4) in situations in which the bulk of the investment in a field of science or technology has come from the Government and where acquisition of exclusive rights might confer on the contractor a preferred or dominant position.

In most other situations, the President's policy calls for the Government to take a license at the time of awarding the contract.

Senator McCLELLAN. Particularly, in the field of medicine, if the Government contracts with a university or with some institution, a nonprofit institution, to do research work, certainly, in my judgment, as I view the situation now, the Government should take title.

Mr. MALLOY. That is now the normal situation.

Senator McCLELLAN. And it does that now?

Mr. MALLOY. Yes, sir.

Senator McCLELLAN. Now, suppose that the Government, let us say, writes a comparable contract, let us say, to some chemical company, to do research within a given field, such as cancer, heart, or a similar disease, trying to find a remedy—who should have the patent rights in that contract?

Mr. MALLOY. In that situation, Mr. Chairman, the President's policy calls for the Government to take the title.

Senator McCLELLAN. That is, the title to what the Government is seeking? If they found a remedy, let us say, in the medicine that was useful for that given purpose, very well. But suppose an extraneous finding is made, something wholly unrelated in doing the research for cancer—suppose they found some medicine in that process that cured some other disease, something wholly unrelated to the general objective—to whom should that patent go then?

Mr. MALLOY. It is my understanding, Mr. Chairman, that in that situation title would, also, be with the Government.

Mr. JOHNSON. May I amplify that answer a little bit?

Senator McCLELLAN. Maybe we ought to ask the Department of Health, Education, and Welfare about it.

Mr. MALLOY. I think that is more in their area. The Department of Defense has some contacts in this area but it is a very small part of our business.

Senator McCLELLAN. Go ahead.

Mr. JOHNSON. There may be some cases in which the contract was not intended for a public health purpose. However, in the course of performance an invention is made which proves to have application directly in the health field. In that case, under the President's policy, the Government would have acquired a license sufficiently broad to permit the use of that invention, if necessary to fulfill health needs. In other words, if you were to have a cancer cure developed under a petroleum contract it would be possible to have a license to permit that cancer cure to be made available as rapidly as possible. That is spelled out in the President's patent policy.

Senator McCLELLAN. Another item, you oppose the Government making a renegotiation of a patent right, I believe. You expressed opposition to that. You do not think that the Government should have the right to do this?

Mr. MALLOY. Not in the terms that are included in S. 1809, Mr. Chairman. We think that the bill goes too far. There are provisions in the President's policy which we think amply protect the Government's needs. There are the so-called march-in rights whereby we can, even though we have contracted to leave title to the patent with the contractor, we can come back later and require compulsory licensing

of the patent if the contractor has not taken steps to bring it to the marketplace. And we can, also, come in and require the granting of nonexclusive licenses in other situations in which the public health or welfare may be involved. So what we are concerned about in the language of S. 1809 is that it goes too far and, in effect, becomes very similar to deferring the decision, or changing the point of decision, from the time of contracting to the time the invention is discovered.

Senator McCLELLAN. Would it oppose the renegotiation of contracts under the same basis and the same technique?

Mr. MALLOY. It is much the same principle involved, Mr. Chairman, when you make an argeement at the beginning of the contract and then without good reason open up the agreement. You have a one-sided agreement when one party can open it up. So we normally try to pin down the obligation and the responsibility of the parties, and the rights of the parties, at the time of making the contract, and not to open them up subsequently. If one party to a contract has the right to do this, in all equity the other party should have the same right. Then your whole system of contracting becomes a little bit shaky.

Senator McCLELLAN. In other words, the Government has the right to demand renegotiation, so it would be for both?

Mr. MALLOY. That would be the argument that we would get.

Senator McCLELLAN. You say on page 10 of your statement:

> The Department of Defense strongly opposes enactment of S. 1899.

And you say:

> This bill would in effect require the Government to take title to all inventions and applicable patents emerging from federally financed research and development.

And then you say:

> Such a policy would have, in our judgment, severely adverse long-range effects on the Defense research and development program.

Now tell us why.

Mr. MALLOY. Mr. Chairman, this relates to the situation that we talked about a little bit earlier in which we feel that it is very much to the Government's advantage, both from a money standpoint and from the standpoint of getting on with the defense of the country as quickly as possible, to be able to go to that contractor who is ahead of the field already. If this contractor is ahead of the field already, because he has invested his own money and has a strong commercial position, we want to be able to go to him to get our work done. That is the best source of supply for us and for the defense of the country. We are concerned that if we have an across-the-board policy or a statute which sets up any type of barrier to this result, it will produce the adverse effects that we are concerned about. We fear that a patent title statute would result in disuading these very good contractors from being interested in our business, in the first instance, or in the second instance, of not applying their full and best talent to the task, or in the third instance, not applying to the solution to our problem the information that they already have—if these things happen, then it is bad for our research and development programs.

This is another thing that you cannot prove with great mathematical precision, but this has been of great concern to the Department for many years and the officials of the Department have this concern today.

Senator McCLELLAN. Who suffers under these the most, the Government's interest, or the public's interest or the contractor's interest, if S. 1899 is adopted—which suffers the most?

Mr. MALLOY. Whose interest would suffer the most?

Senator McCLELLAN. Under the provision, the Government takes title to all and where the Government takes it in the interest of the public, primarily, because that is the only reason for the Government's taking title, because public funds have paid for the research, No. 1—No. 2, the Government, even where the patent rights remained in the contractor, the Government takes a license for its purpose—so it is the public interest, and the contractor's interest, the private enterprise system interest that is involved. Now, which would suffer the most, ultimately, under the provisions of S. 1899, if we enacted that into law?

Mr. MALLOY. Mr. Chairman, it would be my view that the Government's interest would suffer the most, and for the reasons that I just indicated, that we would, probably, not be able to get our research program handled by the very best research contractors.

Now it is also, of course, true that a contractor would lose an advantage as well if the Government had title, but the contractor would not necessarily have to place himself in that position. He could avoid the problem by avoiding the contract.

Senator McCLELLAN. I think that what we have tried to do here, with due diligence to our free enterprise system which we do not want to destroy or unduly or unnecessarily impair—where the Government spends money, the public interest becomes involved—it is public funds that are being expended—so that I think that in trying to resolve a delicate and complex issue such as has arisen here, it would be well for us to consider not just the initial equities and advantages that one may get or the other may get, but what is going to be the long-run, overall impact upon the public interest and upon the free enterprise system, and your conclusion is that, ultimately, the public interest would suffer the most?

Mr. MALLOY. Yes, sir, Mr. Chairman.

Senator McCLELLAN. Precisely and concisely as you can, please state why.

Mr. MALLOY. The President's policy tries to weigh this delicate balance and come up with a solution. The issues that were involved were first, how to get the best performance under Government research and development contracts, and, second, how to get the most benefit for the public from the fallout benefits that result from the spending of Government money on research and development. Our feeling—I know that it is the thinking behind the President's policy as well—is that we are able to get the best research and we are able to bring to the public, through the incentive provided by the patent itself, these spinoff benefits better by leaving title to the commercial application with the contractor.

Senator McClellan. I am asking these questions, because I am trying to search out an answer. I am not irrevocably committed to my bill. I have not reached an irreversible conclusion. I am seeking the facts and information that will enable us to write a bill here, to enact a law that will do equity, and that in the long run will truly serve the public interest as well as the entire field. If we can find that middle ground—if we can find that answer—that is what I seek. I think that we are somewhere inclined to get into extremes. I am trying to keep this thing in the area here where we can take all of these aspects into account and arrive at that which the human capability standpoint is the most equitable that we can find. I do not know the final answer to this. That is why I am trying to search for it. And that is why we want all of these different points to be made as to what the consequences will be if we go this way too far or that way too far as the case may be. I do doubt that any of us knows the exact answer, but we are trying to develop the facts here and to then get a consensus of a judgment.

Senator Burdick. Let us go back for a moment to the statement that the chairman referred to. As you will recall, he said that the Government would seek out a company that had done a considerable amount of work in the field, in research and development, because of the balancing of the equities that you have. Let us carry that illustration one step further. Let us assume that a company is on the verge of getting a breakthrough on some scientific subject, project X, so they seek out a professor at one of the larger universities who has spent a good portion of his life doing research in a similar field, and they bring him in to their company, and they pay him an agreed upon salary and they finally make a breakthrough. Should the company or the employee have the patent?

Mr. Malloy. I understand that it is normal commercial practice in almost all situations for the company to take from the individual the ownership of any patents that are produced by the individual. I understand that the rational for this is that the company invests a lot of money in its people, it employed them, as in your illustration to invent, which was the bargain struck between them at the time of the employment; that the company has large investments in facilities and equipment, and that the companies have, also, established the climate under which inventions are encouraged—all of which require an investment of effort and money on the part of the company. So it is the normal practice, both in industry, and in Government for that matter, to take the patent from the inventor.

Senator Burdick. Notwithstanding the man's knowledge and years of experience and background, he would get no patent rights?

Mr. Malloy. It is my understanding that although the inventor must apply for the patent, the normal situation would be that he has given up, in his contract of employment, his right to the patent.

Senator Burdick. Under the normal commercial transaction the company gets all of the patent rights?

Mr. Malloy. That is right.

Senator Burdick. Let us take another illustration. Let us take an illustration where company A contracts with company B to do the

research work. Company B has had years of experience in this particular area—has not quite succeeded in getting a breakthrough. And so they enter into that contract for a consideration. And they do develop something. They do make a finding. Is it true in the commercial world that company A obtains all of the patent rights?

Mr. MALLOY. It is not nearly as clear as to what is the normal practice between two commercial concerns in the situation you have described. It is my understanding, actually, that the more usual practice would be that company A would not ask and not receive title to inventions discovered in the performance of this contract. This is by no means an across-the-board type of conclusion.

We made a survey some years ago, I believe it was for the Senate Small Business Committee, and found that the practices of the Department of Defense contractors were pretty generally against taking title to patents in your situation, but that there were some exceptions. Where company A was intimately involved itself in the development of the particular item, had invested a lot of its own know-how and money, then it might ask for title in those circumstances.

So to sum up the generality, as I undertsand it, in commercial transactions, the company placing the research contract does not request or get title to the patents that are developed by the other concern. This is because commercial companies are not normally in the business of inventing for other companies. The exception, I guess, to this would be companies that are in strictly research business—they are in the business of making their talents available to other corporations and have no objections whatsoever to giving up titles to any inventions, primarily because they are not in the business of exploiting them.

Senator BURDICK. Maybe I did not make myself clear. This is a case where company A hires or contracts with company B to do research work for company A.

Mr. MALLOY. Right.

Senator BURDICK. They pay them under the contract. Is it your testimony that company A does not retain the patent rights?

Mr. MALLOY. Not normally.

Senator BURDICK. Not normally?

Mr. MALLOY. Yes, sir.

Senator BURDICK. That is news. There has been testimony to the contrary.

All right, you testified here a few minutes ago that under S. 1899, the public interest would suffer most, because there is not a proper balance. Is that what you said? If S. 1899 were adopted and all patent rights went to the Government, you said that the public would suffer most because it was not a proper balance of equity. Let me call your attention to page 21, line 20—you have a copy of S. 1899 before you?

Mr. MALLOY. Yes, sir.

Senator BURDICK. Let me read it to you:

Under such regulations in conformity with the provisions of this section as the Administrator shall prescribe, he may waive all or any part of the proprietary rights of the United States under this act with respect to any invention which has been made by any person or class of persons in the performance of any

obligation arising under any contract or lease entered into, or any grant made, by or on behalf of any executive agency—

(1) The Administrator has determined that—

(A) The contribution of funds, facilities, and proprietary information made or to be made by the recipient or recipients of such waiver to the making of that invention or class of inventions so far exceeds the contribution made thereto by the U.S. Government that equitable considerations favor the granting of such waiver.

Does not that cover that situation?

Mr. MALLOY. It is our feeling, Senator Burdick, that the requirements that have to be satisfied before such a waiver is granted—the Administrator requirement—would be such that there would be very few waivers granted. We think that the whole sum of the requirements as, for example, that the Attorney General must find that the granting of the waiver would not create monopoly conditions, which have to be done with respect to literally thousands of inventions in any one year, would inevitably result in a situation in which very few waivers would, in fact, be granted. And so you would be back to a situation in which the Government would have the title.

Now, too, if the situation were to happen exactly as described here which calls for equity—and this equity was, in fact, there, then I think that we would have no objection.

Senator BURDICK. In other words, S. 1899 takes the position that the taxpayer's money is used to finance these inventions, and that the taxpayers as a whole should have the benefit of it, except in cases where the equities are out of balance and then the Administrator has the right to issue a waiver. Is that not fair?

Mr. MALLOY. That argument presumes several things that may or may not be true. One of which, of course, is that the buyer, in this case the Government, has, in fact, paid for the invention. I think that is subject to some discussion, because for some of the reasons that we have indicated this morning. When you are talking about an unscheduled event which is what an invention is, that happens under the performance of a contract, it is generally felt that the purchase price of a contract does not necessarily compensate the contractor for the investment that he has in it, such as facilities and personnel and what not, thus, it is a little strained to say, as a generality, that the buyer has, in fact, paid for this invention.

Senator BURDICK. I will let the language of the act speak for itself. I have one more question, and that will be all.

I believe you testified that this was necessary to get the most out of American business. Suppose that company A enters into a contract to develop a missile fuel for one of the rockets. Do you mean to say that it is the sentiment of American business that it would deliberately and consciously put in a second team on a project after they received a cost-plus contract?

Mr. MALLOY. No, sir; I do not think that would happen.

Senator BURDICK. I do not think so, either.

Mr. MALLOY. I do not think that will happen in a situation like that. In my situation we are talking about a concern which has a substantial background of commercial effort, and we come along, or any buyer comes along, and wants to place a research contract to super-

impose its requirements on top of the work that has already been done at the private expense of the particular contractor. The contract might be for a very small amount. And if he were to give up his commercial rights for a very small consideration he would, I am sure, think twice about it, and his board of directors would be quite concerned about that situation, too. But in your example, I do not think that there would be any doubt but that the best talents would be applied to the job.

Senator BURDICK. I do not think that any segment of American business enters into a contract, let us say, at the cost of 7 percent that would not do its best in such a situation.

Mr. MALLOY. I would hesitate to say that they would not do their best, because I do not know that this can be proved one way or the other. But in that situation a particular contractor, for the reasons we have stated, may not want to enter into the contract with us in the first place. I think that if he did, I would, certainly, not want to say that he would do less than his best, except in those situations in which human nature might take a hand and the incentive would be against the application of the best ideas.

Senator BURDICK. A transaction for research and development in a contract is at an agreed upon figure, ordinarily?

Mr. MALLOY. Yes.

Senator BURDICK. That is an incentive in itself, is it not?

Mr. MALLOY. What is that?

Senator BURDICK. That is a piece of business in itself?

Mr. MALLOY. It certainly is.

Senator BURDICK. Which most American business would honor and perform?

Mr. MALLOY. Yes, sir; that is right.

Senator BURDICK. Do you know of any instances in the Defense Department where a contractor has refused to enter into a contract, where he was denied patent rights?

Mr. MALLOY. No, sir; I know of no such instance. I suppose that in our experience that has been true more because we have not had in the past a policy of taking title. We have left title to inventions with contractors and have not really had the problem, so that we are looking ahead really and speculating as to what might happen if there is a radical change in the patent policy.

Senator BURDICK. That is a speculation. But according to history and facts there has not been anybody who has refused to do the work?

Mr. MALLOY. I know of none, Senator Burdick. I suppose that there might be some, but as a generality this has not been a problem in the past with the Department.

Senator BURDICK. Well then, the closing question, then you think that the taxpayers in this work—it is just that simple, is it not—would not lose?

Mr. MALLOY. Senator Burdick, I think that, as with all of the questions that are before us in this consideration of patents, it tends to be an oversimplification. I think that this is the easiest thing to do in this field. I think that is, possibly, one, because as I indicated before, it stands on certain presumptions that are not necessarily true.

Senator BURDICK. What is the answer to my question then?

Mr. MALLOY. The answer is that I do not think, first of all, that the public has paid for the invention, and hence as a generality it is difficult to say that they should get the right.

The second part is that in our buying of research and development, we feel that we are getting for the Government and for the taxpayer all of the rights that we reasonably need. We get a royalty-free license to use or have the patent used by others. For the twin benefits of getting the best research and getting the results of the inventions which flow from our contracts to the public, it is best, we feel, in most situations, to leave the title to the commercial exploitation with the contractor.

Senator BURDICK. I say to you that section 10 of S. 1899 takes care of those situations. That is all. Thank you.

Senator MCCLELLAN. The committee will recess until 2 o'clock this afternoon. In the meantime let me say that we have scheduled hearings for tomorrow as well as today. We will not be able to proceed beyond noon tomorrow. Whether we can get through by then is somewhat doubtful. If not, we will have to set another date to complete the hearings. We may not get through, but we will work this afternoon. The committee does have permission to meet. We will resume at 2 o'clock. Our proceedings will be interrupted by a rollcall vote in the Senate sometime during the afternoon.

The subcommittee will stand in recess until 2 o'clock.

(Whereupon, at 12:15 p.m., the subcommittee was recessed, to reconvene at 2 p.m., Tuesday, July 6, 1965.)

AFTERNOON SESSION

Senator MCCLELLAN. Mr. Quigley.

STATEMENT OF JAMES M. QUIGLEY, ASSISTANT SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; ACCOMPANIED BY MANUEL B. HILLER, PATENTS OFFICER, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Mr. QUIGLEY. Mr. Chairman, I appreciate the opportunity to be here before the committee this afternoon.

I would like to indicate for the record that I am accompanied by Mr. Manuel Hiller. Mr. Hiller is the patents officer of the Department of Health, Education, and Welfare.

Senator MCCLELLAN. Very well.

Mr. QUIGLEY. I have a prepared statement. If it is agreeable with you, I would proceed to read it.

Senator MCCLELLAN. All right.

Mr. QUIGLEY. I am happy to have the opportunity to appear before this committee and express the views of the Department of Health, Education, and Welfare respecting rights to inventions developed with Federal financial support, more particularly on the three bills pending before this committee on that subject. Although we are submitting a report on the three bills, I should like to make mention of the nature and scope of the research activities which our Department supports, our fundamental approach to the question of allocation

of rights to the results of such research, and a summary of our recommendations concerning the three measures under consideration by this committee.

As you are aware, constituent agencies of the Department engage in and support research in the life sciences, social sciences, and the physical sciences.

The major portion of our research is medical research and is carried out through the grant mechanism rather than through contract. Also, a very considerable amount of medical research is carried out intramurally in such facilities as the National Institutes of Health, our Communicable Disease Centers at Savannah and Atlanta, Ga., and the Taft Sanitary Engineering Center at Cincinnati, Ohio. The total research budget of the Department for fiscal year 1965 totaled $735 million.

Consistent with the Department's statutory responsibility for the advancement of science and knowledge and the dissemination to the public of the results of research, it is the general policy of the Department that the results of Department-financed research should be made widely, promptly, and freely available to other research workers and the public, by publication and by royalty-free licensing under protective patents or by dedication of Government-owned inventions, though our regulations permit of some exceptions to this where the public interest in achieving the development and practical application of inventions can best be promoted through other means. I might add, in this connection, that our regulations on this subject have been and are under intensive review within the Department to assure that they are effective to accomplish the wide, prompt, and free availability of scientific advances to all segments of the public.

In this context, we regard the provisions of S. 789 now before this committee as wholly incompatible with the Department's research objectives and our current policies and practices. The basic premise of the bill, that the Government should normally acquire only a nonexclusive license for governmental purposes whereas the contractor or grantee shall acquire ownership, is at odds with our concept that the taxpayer is entitled to the fruits of research financed by tax funds. Those provisions contained in the bill under which the Government might acquire more than such a license would not generally be applicable to situations in which our Department is likely to be involved. Moreover, the procedural requirements incident to governmental acquisition of greater rights are so cumbersome as to render illusory the opportunity of the Government to acquire more than a license. We are, therefore, opposed to the bill and urge that it not be favorably considered.

S. 1809, on the other hand, reflects, in the main, the criteria set forth in the Presidential statement on Government patent policy issued in October 1963. Insofar as it would apply to our research activities, the bill embodies the principle that, in general, the Government should acquire rights to inventions resulting from Government-financed research for the benefit of all the people and, of course, we firmly endorse that policy. However, even apart from certain departures in the bill from the criteria contained in the President's statement, we believe that more experience under the statement is

desirable before enactment of these criteria into permanent law. Because our report on the bill points out what we believe to be the major shortcomings and defects of the bill, I will make only a few comments at this time concerning the more important aspects of the bill. In the first place, we strongly urge that before any right greater than a nonexclusive license is granted to a contractor or grantee under the "exceptional circumstances" provision of section 4(a), upon disclosure of an invention, there should be a requirement for public notice of the proposal to grant such greater rights and opportunity for hearings to all interested persons. I might add that, while section 4(a) would permit leaving rights to a grantee or contractor at the time the grant or contract is made where this is considered to be in the public interest in exceptional circumstances, we intend to utilize this exception in our programs rarely if ever.

Secondly, we believe that section 4(b) of the bill—which is similar to section 1(b) of the President's statement and sets forth situations in which it is normally appropriate to leave invention rights with the contractor—should be amended to make clear that it does not apply to situations covered by section 4(a) under which our Department's research activities generally fall. Incidentally, we think that sections 4(b) and 4(c) of the bill go too far in precluding the Government from acquiring title to an invention unless it affirmatively demonstrates that the public interest would suffer if the contractor—or grantee—were to acquire the principal or exclusive rights in the invention. It should suffice if in the judgment of the agency it would best serve the public interest to put these rights in the Government.

Lastly, while we heartily endorse the proposal of section 8(b) to clarify the authority of agency heads to issue exclusive licenses to Government-held inventions, we believe that that authority should nevertheless be carefully circumscribed by appropriate safeguards, including public notice and opportunity for hearing to all interested persons before such a license is granted.

S. 1899, unlike S. 789 or S. 1809, would, in general, have the Government acquire exclusive rights and title to substantially all inventions resulting from research made by a Government employee, grantee, or contractor. As we have previously indicated, we favor that basic philosophy as applied to our research activities. Also, we think that such provisions as section 11 of the bill which would have the effect of standardizing contract clauses throughout the Government, the general requirement that the Government acquire ownership, and centralization of control of disposition of Government-owned rights in inventions would facilitate more consistent action by the various Government agencies engaged in research and development support, to the extent that such consistency is desirable in the light of their respective missions.

However, the lack of criteria for exercise of the virtually unlimited disposal authority conferred by section 8 upon the Federal Inventions Administrator, and the assumption that such an Administrator is more qualified to effect disposition of proprietary interests in the wide variety of scientific fields and disciplines than the heads of the agencies most conversant with the special missions of their agencies, causes us

to question seriously whether the advantages of consistency which such a centralized arrangement might provide would not be outweighed by the disadvantages. Of perhaps even more serious import are the provisions of section 7(a) which would make the Federal Inventions Administration the agency principally responsible for the receipt, storage, and dissemination of scientific and technical information deriving from research and development activities of Federal agencies and their grantees and contractors. There already exist organizations responsible for the collection and dissemination of technical information, for example, the Science Information Exchange, the Clearinghouse for Federal Scientific and Technical Information, and the National Library of Medicine. Apart from the question of the duplication of such resources and repositories of information, there is raised the question whether the provisions of the measure would result in an undesirable diversion of scientific and technical information away from traditional sources.

Section 7(b)(2) provides for the evaluation of scientific technical information available to the administration to determine its probable application to commercial uses in the development of new and better products and advanced technological methods of production. For one Government agency to assume the monumental undertaking of evaluating the results of all research as to their suitability for commercial uses, a task which is now performed on an ad hoc basis by industry and the entire scientific community, would be prohibitive in terms of appropriations and the manpower needed to perform such a task.

In summary, Mr. Chairman, we believe that further experience under the existing policies laid down in the President's statement is desirable. However, if comprehensive legislation is to be enacted at this time the chairman's bill, S. 1809, would in our opinion be the appropriate vehicle if amended along the lines suggested in our report.

This, Mr. Chairman, concludes my summary, and I shall be glad to answer such questions as you may have.

Senator McCLELLAN. Thank you very much for your statement.

If I understand, you sum up your presentation by saying you do not think any legislation should be enacted right now, that we should wait for further experience under the President's directive.

Mr. QUIGLEY. In essence, Mr. Chairman, this is our position.

Senator McCLELLAN. That is No. 1. And No. 2—if a bill is to be passed, you think S. 1809 offers the best vehicle at this time, and you would recommend it only, though, if it is amended.

Mr. QUIGLEY. That is correct, Mr. Chairman.

Senator McCLELLAN. Along the lines of your suggestions.

Mr. QUIGLEY. Of the three bills before the committee, we would endorse—come closest to endorsing S. 1809 because we think it comes closest to the President's statement of October 1963. We would like to bring it even closer to that.

Senator McCLELLAN. Well, not just because it may conform to some Presidential directive—but it is the merit of it we want. What we are seeking here is what legislation is best.

While it may come nearer to conforming to the President's directive than the other bills—unless you wholeheartedly support the directive and think it provides the solution and the best policy—if so then all we need to do is adopt the Presidential directive.

Mr. QUIGLEY. We do not even go that far, Mr. Chairman. We think the Presidential directive of October 1963 afforded a new approach to try and solve this very complex and difficult problem. But we are hesitant to say that on the basis of our experience to date that it should be the answer, and we are so sure it is the answer that it should be written into law.

Senator MCCLELLAN. In other words, it makes an approach that you feel should be given further time and opportunity to demonstrate its value or weaknesses.

Mr. QUIGLEY. Correct, Mr. Chairman.

Senator MCCLELLAN. Well, there is a clamor on both sides, from those who take the extreme one way and those that take it the other for legislation in this field. I would not mind deferring it, so far as I am personally concerned. But in view of my committee position, I feel that legislation is called for under the circumstances, and that the committee must, therefore, try to work out and present and report a bill so that the Senate can work its will.

I said I would not mind deferring it. I mean by that I do not think it should be deferred indefinitely, but I mean I would not mind proceeding with greater deliberation if we could do so to the end that we might get the experience, the additional experience from the President's directive, how it operates, and to the end that we might get better legislation.

This is a highly technical field. Nobody says it is simple and easy—just the question of whether you are going to have the Government pay for something and give it away. It is not that simple at all in my judgment.

Mr. QUIGLEY. I share the view completely. I have struggled with this problem for a long time, both with the Congress and in the executive branch.

Senator MCCLELLAN. Now, I have a request I am going to make and I want to make this of all who have testified and will subsequently testify on this subject. I want to request that you submit for the committee's consideration the amendments that you should like to have adopted to either bill, particularly the one you say you prefer if we must legislate at this time.

I am going to request that of all who have testified and suggested amendments. Some maybe are not equipped to prepare the amendments as they would like to. But our agencies of Government certainly are. And I would like to have them submit them. So that as we consider the legislation, we can then see the amendment as contemplated, as envisioned by the witness or by the agency, and thus we can examine the amendment as such, and not just the recommendation or substance of the amendment. I would like to have it that way. If you would do that, it would be an accommodation to us.

Mr. QUIGLEY. Mr. Chairman, we would welcome the opportunity to do just that.

Senator MCCLELLAN. We can study them and perhaps find some that are appropriate. I have tried to say over and over that the bill which I introduced does not necessarily represent my final views at all. It is a vehicle that will afford us the opportunity to study the problem, hold these hearings and get the views of people who are

deeply interested in the subject, who have a responsibility in this field, and who are experienced and are capable of giving us counsel.

Thank you very much.

Do you have any questions, Mr. Brennan?

Mr. BRENNAN. Mr. Quigley, are you acquainted with the patent amendment that was offered on the Senate floor last month to S. 596?

Mr. QUIGLEY. Heart, stroke, and cancer—yes, I am generally familiar with it.

Mr. BRENNAN. Did the Department support that amendment? There was some confusion during the Senate debate as to what the position of the Department was. Could you clarify this for the record?

Mr. QUIGLEY. Well, to that end, and I hope I suceed—I think the position of the Department was that if an amendment along those lines was to be adopted, this amendment, as it was sponsored by the Senator from Louisiana, was acceptable to the Department. This was an amendment to an amendment. It was worked out from the original proposal by Seantor Long. We indicated that if the Senate and the House were to adopt a measure along this line, we felt we could live with this in these particular areas of research.

Senator MCCLELLAN. You want to submit that as an amendment to that, or do you want to submit a revised version?

Mr. QUIGLEY. I think a revised version, because I think more appropriately this would go as an amendment to Senator Long's bill rather than as an amendment to the chairman's bill. But I think somewhere in this direction would be the thrust of any amendments we would suggest.

Senator MCCLELLAN. I want everyone to be free to offer their best judgment on this, and be as helpful as possible.

Mr. BRENNAN. Mr. Quigley, do I correctly understand your statement to indicate that the Department's position is that the Departnent favors a mandatory requirement that you must acquire patent rights in all inventions relating to public health?

Mr. QUIGLEY. No; you are not correct in that, and I think this is where we parted company with the original proposal by Senator Long.

Mr. BRENNAN. So you are not supporting, then, the amendment that was offered on the Senate floor?

Mr. QUIGLEY. I think we indicated that if an amendment was to be adopted to the bill, that in our judgment this was far preferable to the original proposal. I think our issue with Senator Long's proposal has been the mandatory requirement—despite the fact that as a general proposition, as a general policy, in our areas of research, health, and welfare, we think generally this is a good approach—but we think there ought to be enough flexibility within the Administrator to make exceptions in exceptional cases, the Government not taking title—that would best promote the common good.

Mr. BRENNAN. So the Department then would prefer to retain some measure of discretion?

Mr. QUIGLEY. That is correct.

Mr. BRENNAN. Thank you.

Senator MCCLELLAN. All right. Thank you very much. If you will submit the amendments to us here, we will be glad to weigh them.

I am going to make that same request of other agencies, particularly agencies of Government that testified and suggested amendments—and also from other witnesses. I hope we can get the very best measure possible.

Mr. QUIGLEY. Thank you, Mr. Chairman. I will stand by for Senator Scott's questions.

Senator MCCLELLAN. There was one other question. In making these grants, most of yours you say are by grant. If you make a grant to a nonprofit institution, of course, you expect to get all the patent rights that flow from that.

Mr. QUIGLEY. As a general proposition, yes, Mr. Chairman, that is our approach.

Senator MCCLELLAN. Where you make a grant to private enterprise in this field, do you now require that the Government take all the rights? What is your practice now?

Mr. QUIGLEY. Well, I think I will have to answer that question in this way—for reasons having nothing to do with patent policy or patent procedure.

The Department, for approximately the last 3 years, has not pursued the approach of making grants to other than nonprofit corporations. If we do research with or through a profit corporation, this is done under a contract, and there the requirement——

Senator MCCLELLAN. You make a contract, and there you require it.

Mr. QUIGLEY. Spell out the details.

Senator MCCLELLAN. All right. Thank you very much.

The next witness is Mr. Shelton. Come around, please. Mr. Shelton, you have someone with you?

Mr. SHELTON. Yes, sir.

Senator MCCLELLAN. Identify yourself for the record, please, sir, and then identify your associate.

STATEMENT OF CHARLES L. SHELTON, ON BEHALF OF THE AEROSPACE INDUSTRIES ASSOCIATION; ACCOMPANIED BY FRANZ O. OHLSON, JR., STAFF MEMBER, AEROSPACE INDUSTRIES ASSOCIATION

Mr. SHELTON. Mr. Chairman, my name is Charles L. Shelton. I am director of the patent section of the United Aircraft Corp., but appear here today representing the Aerospace Industries Association of America, Inc.

On my right is Mr. Franz Ohlson, who is on the staff of the association.

Senator MCCLELLAN. Very well. I see you have a somewhat lengthy statement.

Mr. SHELTON. No, sir. If you look a little more closely you will see we have a marked up hill.

Senator MCCLELLAN. I see. Much of the document I have here is a printed bill.

Mr. SHELTON. It is a little frightening when you pick it up.

Senator MCCLELLAN. Very well. We will hear your statement. You may proceed.

Mr. SHELTON. At the outset, we think it would be helpful to highlight the difference in philosophy between S. 1899 introduced by

Senator Russell B. Long on the one hand, and S. 1809 and S. 789 introduced by Senators McClellan and Saltonstall respectively on the other.

The Long bill is obviously based on the assumption that a policy of the Government taking title to patents will not interfere materially with procurement by the various Government agencies in making the types of contracts which are necessary to enable them to meet their responsibilities in achieving the missions for which they were created. In this day and age when technological progress is so vital to the defense and well-being of the country, this is not only a very dangerous assumption to make, but evidence already before this subcommittee as well as the Committee on Science and Astronautics of the House clearly indicates that such an assumption is wholly unjustified.

The establishment of a rigid Government-take-all patent policy such as Senator Long proposes would tend to make industry shy away from Government contracts.

Senator McCLELLAN. I am going to depart from my usual procedure here and ask you some questions as we go along, if you don't mind.

Mr. SHELTON. I would much prefer that, sir.

Senator McCLELLAN. You say a Government-take-all patent policy would tend to make industry shy away from Government contracts.

If the Government pays on a cost-plus basis, or the contract provides for a reasonable profit for the work actually done, and for what the Government gets or expects to get, why would contractors or industry shy away? I don't quite understand.

Mr. SHELTON. Well, this is because, Senator, in cases where a particular company has invested its own money in research and development and has established a position in a particular art with its own money, and if it then takes a Government contract in which it is required to give the Government title to patents for inventions which are made under that contract, this will prejudice its commercial position.

Senator McCLELLAN. Let me ask you this.

Here is a company that already has a patent that is workable. The invention was discovered through its own investment.

The company takes a Government contract and in the course of performing that Government contract it makes a new discovery on which its original patent must be the base.

Now, who is entitled rightfully to that new discovery—even though the Government is financing it? The new discovery would be worth nothing without the base—the basic invention, so to speak, that was produced by private investment altogether.

Mr. SHELTON. Well, let me clear up one thing. The mere fact that a contractor has a patent for which itself has paid does not mean that the Government will not acquire rights under that patent if the contractor takes the contract with the Government.

Senator McCLELLAN. What I am trying to do, as I think this thing through as best I can, is this.

Here is a company that has already got a process that it has patented. The Government gives it a contract for something else, but in the course of performing the contract for the Government it discovers a way to improve this original process that it has developed by its own resources and has been using.

The new process cannot operate without the old process as a base. Who is entitled to that new discovery?

The company was working on a Government contract when it made the new discovery, but the new discovery would not have been made or would not be serviceable, would not be useful except that it implements or improves the old formula.

Who is entitled to that discovery?

Mr. SHELTON. Well, I think you must remember that before the company was in a position to make this improvement invention, it had to spend a great deal in research and development dollars to achieve this background. So that it is a little——

Senator MCCLELLAN. That is correct. That is where these equities enter into it.

Mr. SHELTON. Correct.

Senator MCCLELLAN. Now, getting back to the point that a company would shy away—the reason the company would shy away, I assume, is that—in this particular case I have illustrated—is because it makes a discovery in performing this Government contract that implements or improves its existing process that it has developed at the cost of considerable investment, as you say, then if the Government takes all that is discovered or created under the contract, the company loses to its competitor, as I understand you, what it had invested and developed originally in its own right.

Mr. SHELTON. That is correct.

Senator MCCLELLAN. Is that one reason why they would shy away?

Mr. SHELTON. That is definitely a reason.

Senator MCCLELLAN. I am trying to get it in a concrete, simple way so that maybe I can understand it.

Mr. SHELTON. There is one more point I would like to make. In your original statement you said that if a contractor had itself developed an invention and had taken out a patent, that would not——

Senator MCCLELLAN. He already has an invention, and he has the rights to it. His competitor does not have it. So he is in an advantageous position with respect to his competition as of now. But the contract the contractor is working on for the Government involves the use of this invention, and in the course of doing the work for the Government it discovers a way to improve this invention, to make it more effective, to make it more economical. But it requires a patent—this improvement is patentable.

Then who gets the patent? If the Government takes all, certainly the Government gets that patent, that patent would be an improvment on an existing patent where the contractor is already protected.

Mr. SHELTON. That is right.

Senator MCCLELLAN. But would he lose that protection, then, to the Government and to whomever the Government wanted to make the process available?

Mr. SHELTON. He would lose that in this case—the point I was trying to make is this.

The mere fact that the contractor has a patent does not necessarily protect this patent if he later takes a Government contract.

Senator MCCLELLAN. That's the point I am making. He incurs the risk of losing what he now has protected, that which he developed with his own investment and his own skills—he incurs the risk of losing it if

he happens to make a discovery that would implement or improve it, and has to make it available to the Government.

Mr. SHELTON. Well, if he had completed his invention that he had patented in the sense that he had actually reduced it to practice, them there is nothing in these bills which would say that the Government got any rights under that patent.

But so often——

Senator MCCLELLAN. Not under that original patent—but the new discovery that implements or improves it, which would also be patentable—it would not have a base except for the original invention.

Mr. SHELTON. That is correct.

Senator MCCLELLAN. Who gets the original invention—if the Government gets the new one under its contract, how can the Government use it or anybody else use it unless the contractor has also surrendered his original invention?

Mr. SHELTON. Well, I am trying to explain how the Government can get rights and as a matter of fact title to that original patent. And this would occur in most cases where the research and development work performed by that contractor, and on which his patent is based—if that work had not resulted in an actual reduction to practice. And I mean by that that this work had not been carried on to the point where the contractor had actually built a device embodying that invention and had put it through successful tests which proved that it was operable for its intended purpose.

Now, in that case, if the contractor had not carried the work on that far, if a contractor with this patent took a contract with the Government, with the title clause in it, he would be required to assign that patent to the Government.

Senator MCCLELLAN. Yes, I can see that—I was trying to give an illustration where the patent was already operating, where he had already taken it out and the invention had been perfected so far as making it commercially valuable.

But in performing a Government contract he makes a discovery that makes it even more valuable and improves the original invention. But this discovery also has to be patented. And the original invention is the base.

Now, who gets that original patent? Does the Government acquire that, too?

Mr. SHELTON. No, the Government would not acquire it.

Senator MCCLELLAN. Well, then, that second patent would be valueless if the Government could not use it.

Mr. SHELTON. It would not be valueless after the original patent had expired.

Senator MCCLELLAN. Well, I mean for the period that the contractor was protected under his original patent it would be valueless.

Mr. SHELTON. It would not be valueless if it had utility other than within the scope of the original patent. But if it was just a narrow improvement on a patented invention——

Senator MCCLELLAN. I can understand why a contractor might shy away from a Government contract if the Government wanted research done in a particular field, where the contractor had become somewhat proficient in it—at least had made considerable investment and thought

they were near a breakthrough on it anyhow, and it was going on in an orderly fashion, pursuing the research. But if the Government came in and wanted a hurry-up job done and said, "Here, we will finance you," I can well appreciate that the contractor might shy away and say, "Well, we don't believe we want to do it," because they would lose all the original investment that they had put into it.

In other words, the Government would be getting patent rights for the small profit it may be paying on that one contract.

Mr. SHELTON. That is correct.

Senator MCCLELLAN. And it would not be enough to reimburse the original contractor for the investment it had made in that research.

Is that one illustration now that you have in mind?

Mr. SHELTON. That is correct.

Senator MCCLELLAN. You can give these illustrations much better than I can—I know that. But I am just trying to get it into something where I can understand it. That is, when you say they would shy away.

All right, give us any other reason.

Mr. SHELTON. We have an illustration a little further on.

Senator MCCLELLAN. Well, go ahead and read a while, then.

Mr. SHELTON. No; I think this would be a very good time to bring this up. It is over on page 9.

What we are trying to prove here is that the title policy you might say is a policy of mediocrity in research and development because it encourages the acceptance of contracts by those contractors who do not have a good background in the particular field in which the contract is to be placed, while tending to frighten away those that do have the background.

So this example on page 9 might be interesting. I will read it.

Assume the Government was looking for a company to develop a particular item. A has already performed valuable research and development work in this area at private expense and has a patent on an invention that has not yet been actually reduced to practice. B has had no experience and no patent. Because of its past experience A could do a better job than B and at a lower price. If A takes the contract, it will first actually reduce the invention to practice under the contract and will have to assign the patent to the Government which will make the invention freely available to all for commercial as well as governmental purposes. If A does not take the contract, its exclusive commercial position will be preserved and the existence of the patent may enhance its chances of getting a production contract from the Government after B has developed the item under the Government research and development contract. In any event A can recover just compensation from the Government for B's work and also if the Government production contract goes to another. In this type of situation the policy of the Long bill would definitely discourage the qualified company from taking the contract, but the inexperienced and less qualified company would find it less objectionable.

Senator MCCLELLAN. All right. Go back to page 2.

Mr. SHELTON. We are well aware that some companies are dependent on Government business no matter what Federal patent policy is adopted, but there are many of the Government's most important

suppliers who can choose whether or not to bid on a certain program, and who will forgo responding to a request for proposal or an invitation for bid particularly if there are privately financed programs to protect. If Senator Long's proposals were enacted into law, research and development efforts of a large segment of industry would tend to become compartmentalized into Government and commercial projects for the protection of private rights, and the crossfeeding of ideas between the two would cease. The start of this can already be seen in indsutry today by the formation of Government divisions. If this should become common practice, it would have a seriously adverse effect on the overall Government research and development program and upon the public interest.

On the other hand, the McClellan and Saltonstall bills recognize the need for leaving each Government agency with the authority to give prospective contractors enough of an incentive to engage in Government research and development to attract those who are outstanding in the field because of their own privately established positions. Although these bills establish guidelines for the various agencies, they recognize the old truth that one cannot legislate good judgment and they permit the agencies to deviate from the principle of the guidelines in the presence of special circumstances.

History has many examples of the excellent results which can be achieved when the Government and industry have been permitted to pool their resources in a common effort, neither the contractor nor the Government being forced to give up its rights unjustifiably.

In short, the McClellan and Saltonstall bills take into consideration the very important requirement of the Government agencies, namely, that they offer sufficient incentives to attract industry to enter into contracts on reasonable terms while, at the same time, the interests of the general public are fully protected. The Long bill, on the other hand, in addressing itself to the question of getting the so-called spin-off inventions into commercial use, denies the agencies the flexibility they need to enter into contracts on reasonable terms in order to successfully and expeditiously perform their missions.

While we reject the Long bill, we believe that S. 789 and S. 1809 propose equitable and feasible policies that would largely preserve the incentives of the American patent system and put such incentives to work in the public interest. We could subscribe to the policy of either bill. However, S. 1809 is patterned principally upon the President's Statement on Government Patent Policy dated October 10, 1963, and there is evidence that such a policy will work fairly well. Accordingly, we endorse Senator McClellan's bill, S. 1809, and will not comment specifically on S. 789.

Mr. Chairman, we think that S. 1809 could be improved by modifications which we consider to be relatively minor, and I think I might discuss some of those.

Senator McClellan. Very well.

Mr. Shelton. The bill speaks of the principal or exclusive rights in invention. But it does not attempt to define what is meant by that.

Now, this is true also in the President's patent policy statement, and the administration of that statement results in that expression—the principal or exclusive rights—being interpreted as meaning title.

Now, we do not think this was intended in the bill, although we think the language is probably intended to be broad enough to include title. But there are many situations between a nonexclusive license and title.

We recommend that this term be defined to include these situations.

Incidentally, it is our view that the Government never needs to have title to a patent to adequately protect the Government interest—the public inerest. The purpose is to have the inventions used by the public. And this could be taken care of very adequately by the Government having the right to compel the contractor to grant a license if a qualified applicant so requested, and the contractor were not adequately supplying that particular invention to the public. This is all that would be needed.

Certainly the Government should not, in our opinion, ever utilize the exclusive monopoly right which is afforded by the patent.

The patent is very useful in commercial life, in giving adequate incentives to invest risk capital for getting the invention on the market. But the Government is not a producer of products for the commercial market. The Government does not compete with anybody in this field. So, as far as the Government itself is concerned, having title to the patent is meaningless.

We think those patents which the Government does own should be made freely available to the public.

We realize that it may possibly be that the Government will find itself with title to some patents which are not being used for the very reason that no one is willing to risk what capital needs to be risked to put the invention on the market. In such situations, we think the Government should offer the patent for sale—ask for bids and sell it the same way the Government sells surplus property—so that the patent could then get back into the commercial stream where it can operate in its normal way as an incentive to produce goods.

You will see that our proposed definition of the term "principal or exclusive rights" would mean title, or exclusive license subject to a nonexclusive license in the contractor, to mean an undivided part ownership of the patent with the contractor, it could mean a nonexclusive license with the right to grant sublicenses, or finally a nonexclusive license with the right to compel the granting of licenses to others on reasonable terms.

We would like to see such an amendment made to your bill.

We are concerned also by section 3(b)(2) which speaks of making inventions available to foreign countries in accordance with treaties entered into by the United States. We are afraid that this passage of right to foreign governments may become automatic because of the terms of these treaties, and we are fearful, as Congressman Daddario is, that this might become a real giveaway program for which the United States would get nothing in return.

We would like to see the language deleted "or by a foreign government pursuant to any treaty or other agreement with the Government of the United States."

I would like to make one comment at this point.

We have heard it said that in bargaining for title to patents, the Government is only conducting its business in the same way that indus-

try conducts its own business—on the theory that whenever industry goes to another company for a research and development job, it requires that particular company to assign title to inventions and patents to the contracting company. This is not the general practice of industry. I do not mean to say that industry never does this, but the general practice is that it does not require title. And the reason for this is a very simple one.

In the first place, if you contract with a manufacturing company for them to do some research and development work in their field, and you tell that company any inventions that they make have got to be assigned to you, we know that we will pay through the nose for the assignment of those inventions, because that company is just not going to want to assign these, and it is just not worth that much money.

In other words, the main interest of manufacturing companies is the production and sale of goods. It is to further that interest that they perform research and development work and the profits on such efforts are a secondary consideration. To such companies, the right to retain title to any inventions they might make in the performance of a research and development contract is valued very highly, because there is always a chance, no matter how slight, that an important invention having significant value to them in their business will result if they devote their very best efforts to the work. For this reason, industry would have to pay such companies a great deal more for research and development work with title to patents than for such work without title to patents.

Moreover, because the likelihood of any company making inventions of significant value in the performance of R. & D. is totally unpredictable at the time of contracting and occurs relatively infrequently. industry realizes that in contracting for R. & D. with any company to which title to patents is important, it gets much more for its R. & D. dollar, and better contractors too, if it does not demand title to patents.

So I would say that this statement, that the Government is merely trying to negotiate with business on the same basis that business negotiates with itself, is not a correct statement.

Mr. Chairman, I have kind of skipped around. I have not done much reading of this statement. But it is all in the record.

Senator McCLELLAN. Yes. Your statement may be printed in the record in full.

(The prepared statement of Mr. Shelton follows:)

STATEMENT OF THE AEROSPACE INDUSTRIES ASSOCIATION

My name is Charles L. Shelton. I am director, patent section, of the United Aircraft Corp. but appear today representing the Aerospace Industries Association of America, Inc. (AIA). I have served as chairman of the patent committee of the AIA, and presently am the chairman of the Federal patent policy subcommittee of that committee. My statement before the subcommittee is an expression of the position of the Aerospace Industries Association on the matter of a Federal patent policy.

The membership of the association is composed of the principal manufacturers of aircraft, spacecraft, and missiles, as well as their powerplants, guidance systems, and components. Our members are engaged in commercial markets as well as in contracts with many Government agencies and have had long expereice in the field of research and development. Approximately one-

third of the Nation's industrial scientists and technicians are employed in the aerospace industry. Therefore, we have a deep concern over the enactment of a Federal patent policy and appreciate this opportunity to express our views on S. 789, S. 1809, and S. 1899.

Our association has followed with interest, and participated in, prior hearings of this subcommittee on the matter of the enactment of a Federal patent policy. We are certain that the subcommittee has examined the issues in depth and is well informed on this important subject. Accordingly, our statement is brief.

At the outset we think it would be helpful to highlight the difference in philosophy between S. 1899 introduced by Senator Russell B. Long on the one hand, and S. 1809 and S. 789 introduced by Senator McClellan and Saltonstall respectively on the other.

The Long bill is obviously based on the assumption that a policy of the Government taking title to patents will not interfere materially with procurement by the various Government agencies in making the types of contracts which are necessary to enable them to meet their responsibilities in achieving the missions for which they were created. In this day and age, when technological progress is so vital to the defense and well-being of the country, this is not only a very dangerous assumption to make, but evidence already before this subcommittee as well as the Committee on Science and Astronautics of the House clearly indicates that such an assumption is wholly unjustified.

The establishment of a rigid Government-take-all patent policy such as Senator Long proposes would tend to make industry shy away from Government contracts. We are well aware that some companies are dependent on Government business no matter what Federal patent policy is adopted, but there are many of the Government's most important suppliers who can choose whether or not to bid on a certain program, and who will forgo responding to a request for proposal or an invitation for bid particularly if there are privately financed programs to protect. If Senator Long's proposals were enacted into law, research and development efforts of a large segment of industry would tend to become compartmentalized into Government and commercial projects for the protection of private rights, and the cross feeding of ideas between the two would cease. The start of this can already be seen in industry today by the formation of Government divisions. If this should become common practice, it would have a seriously adverse effect on the overall Government research and development program and upon the public interest.

On the other hand, the McClellan and Saltonstall bills recognize the need for leaving each Government agency with the authority to give prospective contractors enough of an incentive to engage in Government research and development to attract those who are outstanding in the field because of their own provately established positions. Although these bill establish guidelines for the various agencies, they recognize the old truth that one cannot legislate "good judgment" and they permit the agencies to deviate from the principles of the guidelines in the presence of special circumstances.

History has many examples of the excellent results which can be achieved when the Government and industry have been permitted to pool their resources in a common effort, neither the contractor nor the Government being forced to give up its rights unjustifiably.

In short, the McClellan and Saltonstall bills take into consideration the very important requirement of the Government agencies; namely, that they offer sufficient incentives to attract industry to enter into contracts on reasonable terms while, at the same time, the interests of the general public are fully protected. The Long bill, on the other hand, in addressing itself to the question of getting the so-called spin-off inventions into commercial use, denies the agencies the flexibility they need to enter into contracts on reasonable terms in order to successfully and expeditiously perform their missions.

While we reject the Long bill, we believe that S. 789 and S. 1809 propose equitable and feasible policies that would largely preserve the incentives of the American patent system and put such incentives to work in the public interest. We could subscribe to the policy of either bill. However, S. 1809 is patterned principally upon the President's statement on Government patent policy, dated October 10, 1963, and there is evidence that such a policy will work fairly well. Accordingly, we endorse Senator McClellan's bill, S. 1809, and will not comment specifically on S. 789.

S. 1809

As stated above, we endorse S. 1809. However, to clarify, strengthen, and facilitate the administration of the bill, we offer the following proposed changes or amendments:

1. In several places S. 1809 refers to the agency head acquiring for the Government "the principal or exclusive rights" in inventions. This same language also appears in the President's statement on Government patent policy, and certain executive departments have construed it as meaning title in every case. We think the bill intends this expression to be broad enough to include title, but not to be limited thereto. Also, we do not believe that the Government really needs to acquire title to a patent in order to fully protect the public interest. To clarify the meaning of this expression and to provide adequate and flexible guidelines for the various Government agencies in promulgating regulations to the end that they will not speak only of title, we suggest that a new paragraph (i) be added to section 2, after line 13 on page 3, reading as follows:

(i) *The term "the principal or exclusive rights" means, but without limitation thereto, either*

1. *title, or*
2. *exclusive license, subject to section 3(b)(3), or*
3. *an undivided part ownership of the patent with the contractor, or*
4. *a nonexclusive license with the right to grant sublicenses, or*
5. *a nonexclusive license with the right to compel the granting of licenses to others on reasonable terms.*

2. Amend section 2(c) by adding after the word "contract" on line 15 of page 2, *which has as a purpose the conduct of experimental, development, or research work.*

This proposed amendment is to conform the first and second sentences of section 2(c); and to conform section 2(c) with section 3(a).

3. Amend section 3(b)(2), lines 6, 7, and 8 of page 4, by deleting "or by a foreign government pursuant to any treaty or other agreement with the Government of the United States."

Because of provisions in current bilateral agreements between the United States and certain foreign countries, the present language of section 3(b)(2) would automatically convey a license to foreign governments under contractor-originated inventions whether or not the United States receives reciprocal rights from contractors to foreign governments. To our knowledge no foreign country has enacted legislation (of the type proposed in S. 1809) to implement article V of the standard bilateral agreement (study No. 24, Patent and Technical Information Agreements, 86th Cong., 2d sess., pursuant to S. Res. 240, 1960). Hence, any foreign citizen who owns a U.S. patent can assert it against the U.S. Government. We believe that either the U.S. Government or the contractor should receive a quid pro quo for such licenses rather than the Government giving them away as would result from the present language of 3(b)(2).

4. Amend section 3(b)(3) by addiug after the word "invention" on line 12 of page 4, *together with the right to grant sublicenses thereunder to the extent the contractor was legally obligated to do so at the time the contract was awarded.*

This is merely to permit the contractor to honor his existing legal obligations and is wholly in keeping with the Government's objective of working inventions.

5. Amend section 3(b)(8) by inserting after the word "knowingly" on line 12 of page 6, *and with intent to defraud the Government.*

We agree that if a contractor deliberately and for the purpose of defrauding the Government withholds a disclosure, there should be a penalty. Our concern here is that the present language could be construed broadly enough to punish an honest error or a mistake of judgment.

6. Amend section 8(b) by inserting after the word "head" on line 3 of page 15, *shall make all patents acquired under this Act on behalf of the United States freely available to the general public of this country and, in addition* * * *

In lines 3, 4, 5, and 6 strike "an exclusive * * * of the United States" and substitute, *licenses to others under any such patents.*

The foregoing changes to section 8(b) would make this bill consistent with our views expressed below on the subject of the Government having title to patents.

Unfortunately some patented inventions, particularly those requiring a substantial investment to adopt them for public use, may not reach the commercial

market without the exclusive rights granted in a patent. S. 1809 recognizes this and provides for the Government to grant *exclusive* licenses, and in some instances, *royalty-bearing* licenses. The granting of such licenses would require the Government to sue and enjoin, and perhaps collect royalties from, the infringers of such licensed patents.

We believe that the Government should not have the right to sue, or having the right should refrain from using it, any U.S. national for the infringement of a Government-owned patent either to enjoin such infringement or to collect royalties. Should the Government find itself with title to a patent which no one will use in the absence of exclusive patent rights, we suggest that the Government put the patent up for public sale as surplus Federal property. In this way, the patent could be returned to private hands and perform its intended commercial function. However, we recognize there may be instances where the Government might need the right to license its patents to other than U.S. nationals, particularly its foreign patents. Our proposed amendments to section 8(b) are for this purpose.

A copy of S. 1809 marked to indicate our suggested changes is attached.

S. 1899

The Long bill, S. 1899, is an extreme bill which would give title to patents to the Government in all circumstances. Although there are provisions by which the Government may waive all or any part of its rights in such patents to a contractor, they are so complicated procedurally and so hemmed in by restrictions as to be of little practical effect. Thus S. 1899 really proposes a Government-take-all policy. It also proposes the creation of an administrative body to dictate the patent practices of the various Government agencies and to determine how rights under Government-owned patents are to be distributed among the public, in short, it puts Government in the patent business. The bill is harsh in its dealings with Government contractors and leaves no discretion with the various Government agencies to balance equities or adjust special circumstances when negotiating with prospective Government contractors. The severe penalties of a heavy fine and incarceration prescribed by the author of S. 1899 in section 11(d) are alien and repugnant to basic American concepts, and could discourage scientists, technicians, and persons with inventive skills from participating in Government-funded research contracts or programs, thus adversely affecting such efforts.

The Long bill fails to provide a satisfactory solution to the critical question of Government contracting; i.e., "How can the Government get the best research and development job done at the least cost to the taxpayer?" For unless the results achieved by contractors are of top quality and at a reasonable price, the Government's research and development program will be a failure, regardless of the number of inventions to which the Government incidentally takes title.

If the Long bill becomes law, the Government would be powerless to contract with private industry for research or development except on the basis that the Government would take title to all inventions and patents arising from the contract. The company with little or no experience in the field of the contract might well be willing to agree to such a requirement since it would have no established commercial position to protect and the contract would be entered into at no risk to itself. However, the company which has invested substantial funds of its own in research and development and has a well established commercial position would have much to risk if it were to take a Government contract under the rigid requirements of the Long bill. Such a company would be improving npon technology already created at private expense and yet would have to give the Government title not anly to inventions originated in carrying on its work under the contract, but also to inventions which, although previously created at private expense, were first actually reduced to practice in the performance of the contract.

For example, assume the Government was looking for a company to develop a particnlar item. A has already performed valuable research and development work in this area at private expense and has a patent on an invention that has not yet been actually reduced to practice. B has had no experience and no patent. Because of its past experence A could do a better job than B and at a lower price. If A takes the contract, it will first actually reduce the invention to practice under the contract and will have to assign the patent to the Govern-

ment, which will make the invention freely available to all for commercial as well as governmental purposes. If A does not take the contract, its exclusive commercial position will be preserved and the existence of the patent may enhance its chances of getting a production contract from the Government after B has developed the item under the Government research and development contract. In any event, A can recover just compensation from the Government for B's work and also if the Government production contract goes to another. In this type of situation the policy of the Long bill would definitely discourage the qualified company from taking the contract, but the inexperienced and less qualified company would find it less objectionable.

The philosophy implicit in S. 1899 that the incentives of the U.S. patent system should be excluded from Government contracts should and must be rejected.

S. 1047

This subcommittee is also considering S. 1047, introduced by Senator Williams, to amend section 1498 of title 28, United States Code.

The AIA presently opposes any basic change in the principles of section 1498, and therefore cannot support S. 1047. However, we do favor legislation giving patent claimants easier access to the courts in pursuing claims against the United States. For example, a patent claimant could be permitted to bring such in his "home" district, or circuit, or the Court of Claims system could be enlarged to permit trial before a commissioner in the claimant's "home" district.

The Aerospace Industries Association appreciates the opportunity to present its views and, as in the past, stands ready to offer any assistance deemed necessary or desirable by this subcommittee.

Mr. SHELTON. If there are any questions, I would be happy to try to answer them.

Senator MCCLELLAN. Well, I have asked you the principal one.

I had requested the other witnesses who preceded you to submit the proposed amendments, and I see that you have done that in your prepared statement.

Mr. SHELTON. Yes, sir.

Senator MCCLELLAN. These are the amendments here that you would recommend.

Mr. SHELTON. Yes, sir.

Senator MCCLELLAN. And you spell them out and have prepared them in the language you think appropriate.

Mr. SHELTON. That is correct, sir.

Senator MCCLELLAN. Very good. Thank you very much.

Senator Scott, any questions?

Senator SCOTT. No questions.

Senator MCCLELLAN. Well, thank you, sir.

Mr. SHELTON. Thank you.

Senator MCCLELLAN. Mr. Quigley, will you come around again, please.

STATEMENT OF JAMES M. QUIGLEY, ASSISTANT SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; ACCOMPANIED BY MANUEL B. HILLER—Resumed

Senator SCOTT. I appreciate your standing by to enable me to get back.

I had a few questions I wanted to ask.

I understand from time to time the NIH grantees have invented new chemical compounds having a potential value as a new drug. That is right; is it not?

Mr. QUIGLEY. Senator, I certainly have no reason to say otherwise. I am sure this is probably the case.

Senator SCOTT. What does the Department do in cases of that kind, where the grantees have invented these potentially useful drugs, if a great deal of additional development proves to be necessary in order to establish the usefulness of such a potential new drug and make it available to the medical profession? Do you have a policy there for further development of what you might call the fallout in relation to the work done by NIH grantees?

Mr. QUIGLEY. Senator, I think the basic requirement under the Department's policy is that any grantee who receives a research grant from NIH, or any other agency within the Department, is required, as part of the grant agreement, to report to NIH any patentable inventions that are discovered, reduced to practice, during the course of the research project. Thereafter there is a judgment that has to be made, in this case by the Surgeon General, as to what is the next step to be taken. The decision might very well be that because of the nature of the discovery and because of the research and development work that remains to be done, that it would be in the public interest to advise that researcher to go ahead, get the patent in his own name, and make a determination to leave all rights to the grantee institution under section 8.2(b) of the Department regulations, subject to certain safeguards, such as those provided for in the President's statement, and permit the grantee to issue exclusive or nonexclusive licenses to pharmaceutical companies where necessary to the development of the invention.

Senator SCOTT. He could then be given this period of exclusivity in marketing the product.

Mr. QUIGLEY. Could be. This is a decision that the Surgeon General would have to make on the basis of the facts and the information revealed by the grantees' disclosure.

Senator SCOTT. Now, the Department of Health, Education, and Welfare adopted its present patent regulations I think in 1955. Do you have or can you furnish us information as to how many times such exclusive rights have been given since the promulgation of these regulations?

Mr. QUIGLEY. I do not have it, but certainly we can and will furnish for the record a report along those lines.

Senator SCOTT. In giving us that information, would you be good enough to give us a brief summary of the case, and the general terms on which exclusive rights were assigned?

Mr. QUIGLEY. We will be happy to supply whatever information we have, Senator.

Senator SCOTT. Thank you.

(The information referred to follows:)

At the hearings before the Senate Subcommittee on Patents, Trademarks, and Copyrights held on July 6, 1965, Senator Scott requested that Mr. Quigley furnish to him information as to how many times exclusive rights were given under an 8.2(b) determination, briefly summarizing each case as well as the general terms on which exclusive rights were assigned and what restrictions were imposed, if any.

Excluive rights were given under 8.2(b) determinations in the following six cases:

1. On March 31, 1953, the invention entitled "Synthetic Antigens for Use in the Detection of Cancer," developed by Dr. Penn who was supported, in part, by a

PHS grant (one of five sources of support), was assigned to the University of California under its agreement with the Public Health Service in order that it may issue an exclnsive license for development of the invention. It issued an exclusive license for 5 years to Lederle Corp. This invention was covered by 10 patent applications under which a license was executed to the Government in 1958. The university subsequently assigned all of its rights to the inventor, Dr. Penn, which assignment, in the opinion of the Public Health Service, was in violation of its 1953 agreement with the nniversity and it institutional agreement which postdated the 8.2(b) determination by 2 years (institutional agreement was entered into March 21, 1955). After considerable correspondence it was determined that one application was still pending in 1962. The University of California subsequently admitted its error in abandoning to the inventor these inventions which they considered worthless. Since the inventor had left the country and was then in India, there was little that could be done to rectify the error. Dr. Penn had licensed the California Corp. for Biochemical Research on an exclusive hasis for the life of the patent. There is no information in our file with regard to either the commercial development, if any, of the drug, or its effectiveness.

2. On September 26, 1955, an invention "Low Noise Amplifiers for Use in X-Ray Screen Intensifiers of the Television Type System for the Translation of Intelligence at Low Signal to Noise Ratios" was made at Johns Hopkins University, with some support from a PHS grant, by Dr. Russel H. Morgan and Ralph E. Sturm. The circumstances in this case were unique:

(1) The inventors had been working on this invention over a long period of time while pursuing graduate and postgraduate work, contributing much of their own funds prior to PHS support.

(2) Although sizable contributions were also made by the university, the university did not wish to administer the invention and felt that equity called for assignment to the inventors.

(3) Patenting and exclusivity were necessary to bring this complex scientific discovery to the market. Attempts to interest several commercial organizations in marketing this invention, useful in hospitals and other medical agencies, were unsuccessful.

(4) Additional expensive developmental work was required on this complex electronic device which would be undertaken only by someone assured of long-term exclusivity.

A determination was made by the Surgeon General on September 26, 1955, and amended on November 18, 1955, permitting the inventors to retain rights to the invention covered by two patent applications and to sell or license the patent applications to a commercial corporation which in this case was Bendix Aviation Corp., subject to conditions that may be imposed by the Department of Health, Education, and Welfare. The Government reserved a license (nonexclusive, irrevocable, and royalty-free for all governmental purposes). It approved the agreement between the Bendix Corp. and the inventors which included amount of royalties to be charged. The Government required that Bendix Aviation Corp., after 10 years from April 5, 1955, make the invention available through nonexclusive licensing of other manufacturers in the fields of medicine and public health, the royalties not to exceed 5 percent. Bendix agreed to give priority to development in these fields. If, after development of the invention to the point of utility and satisfactory quality, Bendix could not meet the demand, in any field, it would be required to nonexclusively license other qualified manufacturers at royalties not to exceed 5 percent. No royalties were to be included in the price of any sales to the Government by Bendix or by any assignee or licensee.

3. On September 8, 1959, a determination was made to assign an invention entitled "Air Pollution Testing Instrument for Measuring Pollution in Gases" invented by Addams, Koppe, and Dana under an air pollution contract with Washington State University to the contractor for development and administration. It was proposed that the college would give a 5-year exclusive license to an interested, reliable manufacturer under terms which "would insure the continued and rapid production of a satisfactory product). At the termination of the 5-year period licenses would be "available to all manufacturers on a nonexclusive royalty licensing basis." Subsequently, the college concluded that patenting would be uneconomical and the invention became uupatentable as a result of its prior publication. A supplemental determination was written reflecting the situation.

4. On October 1, 1959, an invention entitled "Microfluoroscope" was assigned to Stanford University. It was invented by Dr. Howard Pattee, principal investigator, under partial support from a PHS grant to the university. The Government reserved the usual license for governmental purposes. Principal support to the invention was derived from the American Cancer Society which waived its right to the invention provided Stanford University applied for a patent and the university made arrangements to insure quality control production in sufficient quantity to meet demand. Since the market for the invention was limited, the determination of the Surgeon General authorized the university, to issue an exclusive license. The determination provided that if the university elected not to file patent application, publication of the results made in the October 24, 1958, issue of Science would satisfy the public interest. Neither the university nor the inventor elected to file patent application and no exclusive license was issued. We do not have knowledge regarding the commercial development of the "Microfluoroscope."

5. On December 16, 1959, the invention entitled "Co-enzyme Q, a New Type Quinone and Processes of its Preparation" invented by Green, Crane, and Lester under PHS grant support, was assigned to the University of Wisconsin. The terms and conditions of the determination were found to be too stringent for the proposed licensee, Merck & Co., which had agreed to develop the invention for the market. The objectionable condition related to the requirement that improvements to the invention which would be made during the exclusive license period by the licensee at its own expense must be effectively dedicated to the public at the end of the exclusive license period, namely 10 years from the date the patent application was filed. This invention was not developed and was assigned to the U.S. Government in January 1965.

6. On October 2, 1964, an invention entitled "Restoration of Blood to Biochemical Normalcy by Treatment with Ion Exchange Resins," invented by Drs. Thomas F. Nealon, John H. Gibbon, and Jerome L. Sandler under a PHS grant to Jefferson Medical College and by Dr. Robert Kunin, employee of Rohm & Haas Co., of Philadelphia, was assigned by the inventors to Jefferson Medical College and to Rohm & Haas Co. PHS made an 8.2(h) determination permitting the assignment to Jefferson Medical College in order that it may exclusively license a private corporation as an incentive to its investment of funds to make this invention commercially available.

The invention was not given high evaluation, except by the grantee. The terms and conditions imposed by the determination caused a proposed exclusive licensee, a commercial drug manufacturer, to withdraw. Efforts have not been abandoned to obtain an exclusive licensee. The terms and conditions of the determination reflected, in part, the applications of sections 1 (e) through (h) as well as a provision that the university must not abandon its ownership without first offering to assign the invention to the U.S. Government.

There are currently three requests pending for exclusive licenses on employee inventions. Since these inventions are assigned to the Government and the authority of the Government to issue exclusive licenses on its inventions is doubtful at the present time no action has been taken. Additionally, there are currently pending at NIH 35 requests from grantees for 8.2(b) determinations.

Senator SCOTT. How does HEW handle patent right questions when an investigator who has been given an NIH grant, for example, develops it receiving financial support from other non-Government organizations, such as the Cancer Society, the Heart Fund, the Lasker Foundation, perhaps the investigator's own medical school or university? I know you do have those cases. How do you work that out?

Mr. QUIGLEY. Here again, Senator, the basic requirement the grantee must meet is to report on any patentable inventions that he comes up with during the course of his research under the NIH grant. Thereafter the Surgeon General must make a determination of the facts as to what is the best and most appropriate, the fairest and most equitable way to dispose of these patent rights. It may be that the NIH contribution was 5 or 10 percent of the total effort, and that much of the money came from the Cancer Society or the medical school or a

private foundation, in which case it would be unfair and inequitable for the Surgeon General to exercise the Government's right.

Senator SCOTT. That would indicate, then, that HEW believes these other groups, if they help to finance the cost of an invention, would have the right to share in the patent.

Mr. QUIGLEY. Very definitely, Senator. This is not on policy now, but as I indicated, our regulations in this area are under review.

Senator SCOTT. Do you have any information, even roughly, as to how many NIH grantees also receive financial support from non-Government sources?

Mr. QUIGLEY. I do not know that we have any such figures. If we have, we would be happy to supply it for the record.

In my own judgment, I think it would be a substantial number, because I think some of the better researchers are likely to attract support from a variety of sources.

(The information referred to follows:)

We have tabulated the information reported in question 6–B–1 of the Public Health Service application form 398 from the 3,467 applications reviewed by study sections in the June cycle. Two exclusions were made: support from the "own institution" of the investigator and support from Federal agencies. The data, therefore, reflect the proportion of investigators who have research support from others and than his own employing institution or the Federal Government.

Principal investigators with "outside" support

Number of "other" sources	Principal investigators	
	Number	Percent
0	2,659	76.7
1	603	17.4
2	142	4.1
3 or more	63	1.8
Total	3,467	100.0

Senator SCOTT. Now, I understand that NIH in the grant application that each investigator must fill out asks for detail and specific information—"All other research support." The investigator is asked to state the title of his research project, the amount, and the amount of time he is spending on the project. Now, this is question 6–B on the grant application.

If you have been obtaining this information from all the NIH grantees, could you not run this information through one of the Department's computers and give us an answer to that?

Mr. QUIGLEY. Probably we could. Offhand I know of no reason why we could not.

Senator SCOTT. I do not know much about computers, but I am prepared to assume they can do almost anything.

Mr. QUIGLEY. I think we will move forward on that assumption. If we prove to be wrong, we will be back to say it could not be done, for whatever reason.

Senator SCOTT. I think it would be helpful—to determine the extent of multiple sponsorship of research in the medical field, measure

the significance of problems that may exist in equitable distribution of patent rights.

I was noting a statement of Mr. Shelton's—and I will read what attracted my eye. On page 8 he discusses the Long bill and states that the so-called fallout inventions which Senator Long's bill would propose, in effect, to turn over to the Government may be overlooking the question of how can the Government get the best research and development done at the least cost to the taxpayer.

I am reading from the bottom of page 8—

> If the Long bill with its take-all policy becomes law, the Government would be powerless to contract with private industry for research or development except on the basis that the Government would take title to all inventions and patents arising from the contract. The company with little or no experience in the field of the contract might well be willing to agree to such a requirement, since it would have no established commercial position to protect and the contract would be entered into at no risk to itself. However, the company which has invested substantial funds of its own in research and development and has a well-established commercial position would have much to risk if it were to take a Government contract under the rigid requirements of the Long bill. Such a company would be improving upon technology already created at private expense and yet would have to give the Government title not only to inventions originated in carrying on its work under the contract, but also to inventions which, although previously created at private expense, were first actually reduced to practice in the performance of the contract.

Now, what are your views on that?

Mr. QUIGLEY. Well, Senator, I am not so sure I understand the Long bill in that fashion. Assuming this is the correct interpretation of it—from your point of view, from the point of view of our Department this, as I indicated in my general statement to the chairman—we deal largely with nonprofit organizations. We are dealing with foundations, with universities, with medical schools—and we conduct very little of our research under contract with private industry. In other words, our research largely is research—it is not research and development in the way that the Department of Defense and the space agency is involved.

Senator SCOTT. In other words, it might be more proper to direct this sort of question at someone from the Defense Department, for example.

Mr. QUIGLEY. We frankly do not get deeply involved with the type of question posed here. Clearly my own reaction is that an industry to whom the Government would turn for support and assistance in developing a particular process—fairness and equity would dictate that as part of the price that industry is going to pay is not to sacrifice any patent rights it might have.

Senator SCOTT. In other words, if private industry has researched and developed a useful product and has never applied it, it is standing there at the starting line, and the first time used is in the Government contract—from then on under the Long bill the Government might be able to declare that it was entitled to the fruits of this previous labor by establishing it had never been used, never been marketed, never had a record of production. That is what concerns me about that specific aspect of it.

Mr. QUIGLEY. And I think rightly so. It does not strike me as the fair thing to do. As I say, it does not particularly involve our Department and its mode of operating.

Senator SCOTT. You and I have been engaged in many perilous operations over the years, and I want to thank you very much, Mr. Secretary.

Mr. QUIGLEY. Thank you, Senator. We will supply for the record the information you have requested. If for some reason or other we cannot run the 18,000-some grant applications through the computer and come up with that answer, we will report that fact to you.

Senator SCOTT. All right. Thank you. And thank you, Mr. Chairman.

Senator MCCLELLAN. All right. Thank you very kindly. Our next witness is Mr. Morton. Mr. Morton, you may identify yourself, please, sir.

Your statement will be printed in the record and you may highlight it if you wish. You represent the American Patent Law Association?

STATEMENT OF W. BROWN MORTON, JR., PRESIDENT, AMERICAN PATENT LAW ASSOCIATION

Mr. MORTON. Yes, Mr. Chairman, I am president of the American Patent Law Association at the present time.

Senator MCCLELLAN. Very good.

Mr. MORTON. I have over the years devoted some attention to this subject. I have reviewed the statement. It correctly expresses the long-considered policy of the association.

I am pleased to see that it meets the chairman's suggestion of specific suggestions for amendment to the bill. It has specific suggestions embodied in it, Mr. Chairman, for language changes in S. 1809 already in the statement.

Senator MCCLELLAN. Very well.

Mr. MORTON. I think to highlight our position I will refer to what the statement says on page 3 in the next to the last paragraph.

It seems to us that a great deal of the discussion of this subject has turned on whether the Government gets what it pays for. It obviously is entitled to get what it pays for. It seems to us the Government, by the policy personified by the Long bill, and various Long amendments to specific instances of Government research legislation, is insisting on getting more than what it pays for. Perhaps that is what Senator Scott has in mind with the reference to fallout inventions.

Let me give you an example, if I may, that has occurred to me of what I have in mind.

Let us suppose that the Government wants a radio set specially designed to function well under the damp conditions of the jungles of Vietnam. It applies to a contractor to jungleize a radio. The contractor puts his best men on it. Under the criteria laid down ordinarily in these Long bills, for lack of a more generic term, the contractor, if the invention is made during the course of the work done on the contract—has to turn over title to the Government.

Senator MCCLELLAN. Now, the fallout, so to speak.

Mr. MORTON. That is right. What I call a windfall. It seems to me that the Government is insisting on acquiring title to windfalls, with the necessary effect of requiring a contractor, if he is prudent, not to put the most fertile minds on the small contracts. The Government is asking to get a hundred thousand dollar talent for a $30,000 price—because the criteria have been so stated that inventions made during the course of work, though they may be well outside the intent or purpose of the contract, would go to the Government.

To follow my analogy through, let us suppose that the Western Electric Co. or Bell Labs had happened to put on jungleizing a radio the inventor of the transistor when he happened to make that invention. It is ridiculous to me to suggest that the Government is entitled to the entire right, title, and interest in the transistor because they were paying for a relatively minor bit of research and development.

Now, it seems to us, therefore, as set out in our statement, that if the Government contracts to have an invention made or to have research done in a defined field, that it is certainly entitled to own that invention. But to say that it is entitled to more does not seem correct.

A further difficulty we have is that the Government insists that in acquiring title to an invention it should, Mr. Chairman, acquire title to the right to protect that invention by patent.

Now, our association has never had explained to us a reason why the Government requires the right to exclude others from practicing inventions under the provisions of title 35. It is an entirely different thing from the Government acquiring title to an invention.

If I may say so, there is no reason for inventive property, creative property, to be immune from the ordinary requirements of eminent domain any more than there is for a man's farmstead. But the Government takes a farmstead to use as an artillery range, and not to go into the farming business. If the Government has reason to acquire title to an invention, it is because there is some governmental purpose, not commercial purpose.

Senator MCCLELLAN. But if the Government takes it in fee and makes a target range out of it, it has to pay farm prices to get it, and it should get everything, shouldn't it?

Mr. MORTON. Yes, sir; it acquires it, but I believe the policy has been for many years that when the Government no longer requires it for an artillery range, the Government does not go in the farming business—it sells it back.

Senator MCCLELLAN. Puts it back on the market.

Mr. MORTON. We have here the difference between the Government acquiring title to the cancer cure in order to give it away to the people who have cancer—no one can complain about that. But for the Government to acquire a man's invention because it needs it for this purpose and then sets his competitor up under an exclusive license does not make much sense to me.

So it is our position that if exclusive rights created under title 35, United States Code, are to continue to exist in an invention, they should exist initially in the inventor and in his assignees. This is in no way to derogate from the right of the Government to acquire an invention, as it may acquire any other property, and to use that for a

governmental purpose. But we see a fundamental distinction which we feel has been overlooked by many people in this field between acquiring an invention and acquiring and exercising the exclusive rights in a patent on an invention.

Now, generally speaking, Government research is not and should not be intended to produce inventions having commercial application. It is intended to produce inventions, largely inventions which would not be made except for Government intervention—that is, they are threshold inventions, or to use a term——

Senator McCLELLAN. Well, that would be true as in the Defense Department, possibly. But that would not be true in the medical field, would it?

Mr. MORTON. If I may say, I think it would, sir. It seems to me that in the field, for example, of improved bandages, we can relax and let the commercial enterprises take care of that. In the field of a cancer cure, where breakthrough inventions are necessary, no doubt Government funds are justly expended.

Senator McCLELLAN. We have a rollcall vote. Do you have more that you wish to tell us?

Mr. MORTON. Only this. We feel that the compulsory license aspects of the revisions we have suggested in S. 1809 could well be analogized to the military draft.

It is noticeable, I am sure, to the Senate as well as to the rest of us, that the existence of the draft tremendously promotes volunteering. We think that the existence of the compulsory license prvoisions, even though they seem a little rigid in their application, will largely eliminate the necessity of proceedings under them, that there will be a free exploitation of inventions made by virtue of the adoption of these provisions without the necessity of going through all that litigation.

Senator McCLELLAN. Thank you very much.

(The prepared statement of Mr. Morton follows:)

STATEMENT ON BEHALF OF THE AMERICAN PATENT LAW ASSOCIATION

The position of the American Patent Law Association with respect to Government patent policy is set forth in the following resolution adopted by the board of managers of the association in the spring of 1964:

"Whereas it is the position of the American Patent Law Association that progress of the useful arts is best promoted when inventors are made secure 'in the exclusive right to their * * * discoveries,' because the protection of such exclusive rights affords a vital incentive to private enterprise to assume the economic risks involved in developing new products, in introducing them to the public, and in promoting their use; and

"Whereas it is the conviction of the American Patent Law Association that Government authority cannot and should not undertake the introduction and exploitation of new products in the public marketplace in competition with private enterprise;

"Whereas the American Patent Law Association is duly appreciative of the positive steps taken during 1963 to solve the complex problems leading to a uniform Government patent policy as embodied in the President's statement of Government patent policy (of October 10, 1963), the McClellan bill, S. 1290, the Saltonstall bill, S. 1623, the Toll bill, H.R. 4482, and the Daddario bill, H.R. 471, and has made an intensive study of the statement and the several legislative proposals: now, therefore, be it

"*Resolved*, That it is the policy of this association that where the Government of the United States seeks to avail itself of the skill, resourcefulness, and creative ability of private enterprise, and enters into research and develop-

ment contracts to that end, it should not normally require of the contractors any rights in inventions resulting from the contracts which are greater than the grant to the Government of a nonexclusive, noncancellable and royalty-free license to employ such inventions (and no others) solely for governmental purposes. The Government should acquire title only when, after full hearing, it is determined that, in a specific case, compelling needs of national defense or public safety will be better served by dedication of all rights in the patented invention to the people of the United States than by leaving with the contractor the exclusive right to benefit from promoting the invention in all nongovernmenal fields;

"That, except where the Government takes title to a patent, no further impairment of the patentee's exclusive right, other than the licensing for governmental use, should be imposed save only upon the institution of a proceeding by an interested private developer, who shows by convincing evidence that the patentee, without justifiable excuse, has failed to exploit the invention in nongovernmental fields within a reasonable period following the issuance of the patent, and has refused a license to complainant upon reasonable terms, and who likewise shows that the complainant himself is able to and will so exploit the invention if a license is granted. The tribunal having jurisdiction of such proceeding may, after full hearing, order the patentee to grant a nontransferable license to the complainant upon such terms as it determines to be fair and just;

"That the enactment of legislation to implement the views expressed herein is of major importance to stimulate research and development for national defense; to clarify governmental policy; and to insure that such policy will impose no greater limitation on the exclusive rights of creative enterprise than is indispensable to the attainment of a proper and essential Government purpose; and be it further

"*Resolved*, That (1) the several legislative proposals introduced in the 88th Congress and (2) the President's statement of Government patent policy (of October 10, 1963) are commendable; but, to the extent that they fall short of the policy of this association, they do not receive our endorsement."

Of the bills now pending before the Senate, S. 1809 most closely adheres to that policy and is therefor endorsed by the APLA as the basis for a sound and equitable law governing the patent policy of the various Federal agencies. However, to the extent that S. 1809 differs from the stated position of the APLA, it is necessary to withhold the unqualified endorsement of the association. The APLA takes this opportunity to make positive recommendations for modifications in certain provisions of S. 1809 which, if adopted, would result in a bill to which unqualified approval can be given.

The most important change suggested is directed to section 8(b) of S. 1809 which is contrary to the APLA position that "the Government should acquire title only when—compelling needs of national defense or public safety will be better served by dedicating all rights in the patented invention to the people of the United States." All of the criteria set forth in section 4(a) of S. 1809 are directed to conditions under which it is considered inequitable to leave patent rights with the contractor. Under what circumstances then can the Government, after taking title, justify the grant of exclusive or even nonexclusive licenses to the same or other segments of private industry? Such licensing by the Government is a direct repudiation of the reasons for taking title to inventions.

It is submitted that to be consistent section 8(b) must set forth that "inventions to which any agency has taken title shall be dedicated to the citizens of the United States and may be used by them without acquiring a license and without paying a royalty."

APLA approves in principle section 3(b)(5), but believes that the burden of obtaining a compulsory license should be placed on the prospective licensee. This would be more clearly defined if section 3(b)(5) were written as follows:

> "(5) Provide, in the case of issuance to the contractor of a patent for the invention, appropriate means whereby the agency head, upon institution of a proceeding by an interested complainant, may require the contractor to grant to such complainant a nonexclusive, nontransferable license on reasonable terms, after affording the opportunity of a hearing to the contractor; provided such complainant shows that—
>
> "(A) The contractor, without justifiable excuse, has failed to exploit the invention in a nongovernmental field within three years following the issuance of said patent;

"(B) The contractor has refused to license complainant on reasonable terms; and

"(C) Complainant is able to and will exploit the invention if a license is granted."

The clause we have suggested eliminates the necessity for administrative policing of all patents evolving from the R. & D. funds of each agency which would be time consuming and expensive. However, it does insure that a competent individual or firm can obtain a license if the contractor fails to exploit commercially inventions covered by such patents.

As a practical matter, the inclusion of the statement required by section 3(b)(7) will put private parties on notice as to the availability of a license if the patent owner does not exploit the invention, thus putting pressure on the patent owner to exploit the invention to prevent the issuance of a compulsory license.

Section 4(a) is also approved in principle, but the particular wording contains ambiguities which should be cleared up before the bill is enacted. It is suggested that the following language be used:

"Section 4(a). The agency head may require, at the time of entering the contract, that he be given the right to acquire, on behalf of the United States, an interest greater than the nonexclusive license specified in section 3(b)(2) in inventions if—

"(1) The purpose of the contract is to produce one or more end items, the use of which is or will be required by law or governmental regulation in furtherance of the public health, or safety, and the invention covers such an end item; or

"(2) The purpose of the contract is for the contractor to operate a Government-owned research or production facility, and the invention is especially adapted for use in that facility or in a related facility; or

"(3) The purpose of the contract is research, developmental, or experimental activity in a field of science or technology in which the Government is the sole developer or has provided substantially all the funds for research, developmental, or experimental activity in such field, and the invention is especially adapted for use in such field; or

"(4) The purpose of the contract is research, developmental, or experimental activity in a field of science or technology that is new, without any significant commercial or private history, and probably would not have been developed in the foreseeable future without Government financing, and the invention is useful only in such field.

"(b) Whenever the provisions of section 4(a) indicate that the agency head may acquire an interest greater than the nonexclusive license specified in section 3(b)(2), he shall acquire such greater interest unless he determines, after examination of the facts of the particular case, that special circumstances indicate that the contractor should retain rights in the invention greater than the nonexclusive license specified in section 4(c), including rights in foreign patents, subject to the interest reserved to the United States in section 3(b)(2), and that the public interest would not suffer as a result of the contractor retaining such greater rights."

There are several minor differences in wording in the foregoing and two changes of some importance. In section 4(a)(1) the reference to "commercial use by the public" has been deleted since it is believed that that term is so broad and comprehensive that it could be construed to cover substantially all inventions, a result obviously not intended by the Presidential memorandum in which the language first appeared.

In addition the phrase in section 4(a)(3) referring to the acquisition of exclusive rights has been deleted as superfluous.

A new paragraph 4(b) has been added more clearly to delineate the procedure under the unnumbered paragraph appearing in section (4) of S. 1809 immediately after paragraph (a)(4).

Section (4)(h) is approved without change.

Section (4)(c) is not endorsed by APLA. In view of the preceding language in sections 3 and 4, it is believed that all the parameters involving patent rights are so clearly delineated that section (4)(c) is superfluous. It can have two bad effects: first, to provide an easy way to avoid making a determination under section (4)(a) and (4)(b); second, to increase the ultimate burden on the Gov-

ernment of having to make a plurality of decisions which could and should have been made as a single determination at the inception of the contract.

Section 5 is endorsed by APLA.

Section 6 is endorsed in principle, except that it would be preferred that judicial review be before the District Court for the District of Columbia or the Court of Customs and Patent Appeals. Traditionally, patent matters have gone before either of the above tribunals. It is realized that the particular review required is directed to the matter of title and not to patentable merit and that the procedure in appeals from the Patent Office is an exception to the general rules for appeal from administrative decisions. However, the question of ownership of an invention posed by the provisions of S. 1809 is closely analogous to the question of originality often arising in interference proceedings in the Patent Office and it could cause confusion if different courts had jurisdiction over like questions arising in an application involved in both situations.

Section 7 is also endorsed with a minor exception. It is believed that the words "if he concludes that such an invention may contain patentable subject matter" are redundant in view of the definition of invention in section 2 and may, if left in, give rise to an implication that the agency may acquire exclusive rights in unpatentable subject matter. Since the entire purpose of the bill is directed toward a Government patent policy, any implication relating to unpatentable matter should be avoided. Such material would come within the purview of the "data" clauses of Government contracts.

The first sentence of section 8(a) is superfluous since no law or Patent Office rule exists to prevent the filing of a patent application by the agency heads providing it is done in the name of the inventor. In addition, this sentence contains the same latent ambiguity shown in section 7 with respect to inventions.

The second sentence of section 8(a) is believed to raise an unnecessary constitutional problem in requiring patents to be issued to the agency head per se instead of to the inventor or his assignee. The sentence is also superfluous since assignments from inventors or mesne assignments from the contractor may, where appropriate, be compelled by the agency head. The agency head is further protected by 35 U.S.C. 118. If either of these existing procedures is followed, the record made in the Patent Office will result in a patent that on its face will disclose both the inventor and the fact that the Government has title.

With respect to the broad controversy between proponents of the "title" theory and those of the "license" theory, APLA believes that the statement of policy set forth in the beginning of this presentation is as clear and concise a representation of its position as can be made. This subcommittee has heard many articulate witnesses on both sides over the past 4 years. Included among those witnesses was W. Brown Morton, Jr., now president of the APLA. It is hoped that further argument will prove unnecessary and that the positive suggestions set forth here will be of value to the subcommittee in reporting a bill acceptable to APLA that will also commend itself to the Congress.

AMERICAN PATENT LAW ASSOCIATION,
Washington, D.C., July 8, 1965.

Senator JOHN L. MCCLELLAN,
U.S. Senate,
New Senate Office Building,
Washington, D.C.

DEAR SENATOR MCCLELLAN: I should like to express my thanks personally and on behalf of the association for the opportunity afforded me of testifying in support of the association point of view concerning S. 1809. The thoughtful and informed attention given the witnesses appearing before your subcommittee does much to renew my sometimes wavering faith in the soundness of our legislative process.

While I had completed at least a statement of the essential points I wished to stress in support of the association position, since my elaboration of a point with respect to the perhaps overstressed "cancer cure" hypothetical situation was cut a little short by a rollcall, I am taking this opportunity to carry the matter a little further.

You will recall that in my oral testimony I stressed the importance of distinguishing at all times between the situations in which the Government could plainly justify taking title to an invention, including taking title to any patent rights covering, or potentially covering, the invention and the actual ownership and exercise by the Government of right to exclude others stemming from those patents. I had pointed out that certainly it could not be contended that an invention or any rights thereto were immune from the operation of eminent domain, any more than a man's farm is, but I stressed that it was an essential of our political and social system that the exercise of eminent domain be for truly governmental purposes and not simply a strong-arm method of setting the Government up in a commercial enterprise.

Certainly if the National Institutes of Health, for example, were to contract for research intended to produce a cancer cure, it might logically require the dedication of the invention of such a cure, if made during that research, to the free use of the public. Let us suppose that the state of the art, as it may, leads one to surmise that cancer is the result of some virus action. Let us suppose further that one or two of our drug companies have, with respect of virus regulating drugs in other than cancer-producing areas, a substantial background of past experience and patents. Certainly it would be good sense for NIH to spend its research dollars, in part at least, in support of cancer virus investigations, in these well-staffed and well-prepared virus laboratories. Does it follow that all inventions may flow from that research in the areas of non-cancer-causing virus control, which are incidentally made, should also be dedicated to the public because the laboratories had received unquestioned assistance from NIH? I think clearly not.

Now to come directly to the point, let us suppose that because of NIH policy insisting upon such rights beyond the cancer program, these drug companies refused the NIH money but nevertheless, in the course of their normal work, a "windfall" invention is made, with all private funds, of a cancer cure.

If the expenditure of NIH funds for the discovery and public dedication of a cancer cure was justified as a proper governmental activity, does it not necessarily follow that the Government would be justified in taking over the privately invented cancer cure under the power of eminent domain, paying, of course, just compensation therefor? Would anyone assert that although the cancer cure might properly be taken from private hands, that the Government had any justification for taking ordinary inventions made simultaneously in the private program which resulted in the cancer cure?

We come back, therefore, to the situation that, as the association has repeatedly said, the patent system is premised upon the proposition that it affords the best means of promoting the progress of the useful arts in a private economy, just as does the private ownership of farms best promote agriculture in such an economy. Arguments which truly relate to the propriety of Government acquisition of private property by eminent domain do not belong in, and should not confuse the development of, a sound policy and we believe a private patent policy for procuring the exploitation of inventions arising in Government research in the commercial area.

I have taken the liberty of sending a copy of this letter directly to Senator Scott in view of the interest he exhibited at the hearing.

Respectfully,

W. BROWN MORTON, JR., *President.*

Senator MCCLELLAN. The committee will recess until 9:30 in the morning.

We hope to conclude with what we have scheduled before noon. If we can get through 30 or 40 minutes before noon, that much the better.

(Whereupon, at 3:20 p.m. the subcommittee was recessed, to reconvene at 9:30 a.m., Wednesday, July 7, 1965.)

GOVERNMENT PATENT POLICY

WEDNESDAY, JULY 7, 1965

U.S. SENATE,
SUBCOMMITTEE ON PATENTS,
TRADEMARKS, AND COPYRIGHTS OF THE
COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to recess, at 9:30 a.m., in room 3302, New Senate Office Building, Senator John L. McClellan (chairman of the subcommittee) presiding.

Present: Senators McClellan (presiding) and Burdick.

Also present: Thomas C. Brennan, chief counsel, Edd N. Williams, Jr., assistant counsel, and Stephen G. Haaser, chief clerk, Subcommittee on Patents, Trademarks, and Copyrights; Horace L. Flurry, representing Senator Hart.

Senator MCCLELLAN (presiding). The subcommittee will come to order.

Who is our first witness for today?

Mr. BRENNAN. Dr. Charles Price, president of the American Chemical Society.

Senator MCCLELLAN. Come around please, Doctor.

Will you identify yourself for the record?

I notice you have an associate with you. Will you identify him also?

STATEMENT OF DR. CHARLES C. PRICE, PRESIDENT, AMERICAN CHEMICAL SOCIETY; ACCOMPANIED BY B. R. STANERSON, EXECUTIVE SECRETARY, AMERICAN CHEMICAL SOCIETY

Dr. PRICE. I am Charles Price. I am chairman of the department of chemistry at the University of Pennsylvania. I am appearing here today in my capacity as president of the American Chemical Society.

With me here is Dr. B. R. Stanerson, who is the executive secretary of the American Chemical Society.

Senator MCCLELLAN. Very well, gentlemen. You are welcome. We are glad to have your advice and views regarding the pending legislation.

Dr. PRICE. We are very pleased to be able to be with you.

We have submitted to you a written statement which I would like to summarize and comment on.

Senator MCCLELLAN. All right. It may be printed in the record in full and you may summarize it.

Dr. PRICE. I would like to start by mentioning that our society was founded in 1876, and it is the largest membership organization devoted to a single science in the entire world. It now operates on an annual budget of $17 million. It was incorporated in 1937 by an act of Congress of the United States under Public Law 358 and signed into law by President Roosevelt.

Our interest in presenting views on the subject before the committee today might be made clear by quoting the purposes of the society from our charter. These are, "that the objects of the incorportion shall be to encourage in the broadest and most liberal manner the advancement of chemistry in all its branches; the promotion of research in chemical science and industry; the improvement of the qualifications and usefulness of chemists through high standards of professional ethics, education, and attainments; the increase and diffusion of chemical knowledge; and by its meetings, professional contacts, reports, papers, discussions, and publications, to promote scientific interests and inquiry, thereby fostering public welfare and education, aiding the development of our country's industries, and adding to the material prosperity and happiness of our people."

This is a quotation from the incorporation.

I personally support this mission of the American Chemical Society to help chemistry serve the American people and improve the general welfare.

I am sure that the general objectives of everyone participating in these hearings are undoubtedly similar, whether they are speaking for themselves or representing large organizations.

I think all of us want the United States to utilize its discoveries for the greatest benefit of its people.

But there are obviously honest differences of opinion as to the best way to accomplish this general objective. And we in the society have reviewed the proposed legislation which is before the subcommittee, and we would like to comment a little later specifically about S. 1809, sponsored by Senator McClellan; S. 1899, introduced by Senator Long; and S. 789, introduced by Senator Saltonstall.

We might say to begin with that we find the first two of these generally acceptable, but do not find that introduced by Senator Long acceptable in our view.

I would like to just say a word or two in the introduction about the interest of chemists in patents.

It seems to me from what has been said at these hearings and elsewhere that there are certain misunderstandings about the main purpose and significance of a patent. I would like to just interject that patents are of great interest to chemists. There are more chemical patents every year than there are any other single branch—I think some 22 percent of the patents are issued for chemical processes or products.

As the Constitution states, the purpose of the patents system is to "promote the progress of science and the useful arts." This is accomplished by encouraging the creation of useful innovations, by providing an environment of limited protection to the first to create new ideas, so that the inventor is encouraged to develop the bare idea to a

useful product and to disclose it to the public, and to have it manufactured and sold.

A patentable technical development is, by definition, one which is creative, new, and useful.

Inventions actually represent a small fraction of the total results of research and development. Of that $15 billion which the Government helps with in the area of research and development, only a small fraction actually results in patented inventions.

Much of the basic scientific work which is produced is not patentable, but is made available by publication in scientific journals, such as the many publications by the American Chemical Society.

I might just indicate, for example, that in Chemical Abstracts, which is one of the major publications of the society, which abstracts all scientific publications, both journals and patents, there are many more scientific papers published every year than there are scientific patents, even in the area of chemistry.

Before an invention is made, a certain amount of research and development usually precedes it. In some cases, the inventor performed his own research, developed his invention, applied for his own patent. And to some degree this is still the practice.

However, research and development has gotten so costly, particularly in modern scientific areas, that the individual inventor is not able to carry on this kind of work and turns for financial support for his work to such institutions as universities, research foundations, industry, or Government laboratories.

Now, the traditional pattern has been for the potential inventor to enter into an agreement on the assignment of the patent issued to the inventor but financed by an employer. This is true even of a college professor like myself in some instances, and it is certainly true of inventors who work for other institutions.

There conventionally is no difficulty about such agreements when all the financial support of developing an invention comes from one source—any one of those previously mentioned. As might be expected, differences of opinion do occur when research and development are shared by more than one source. This is the cause of the society's concern over the proposed legislation on Federal patent policy and its impact on the utilization of scientific discovery for the benefit of the public.

Now, in order for the United States to maintain its preeminence in scientific and technological developments, Congress, in our opinion, properly has approved large expenditures for research and development in recent years. This program has been of such magnitude that Government agencies and their employees alone could not do the entire job. It has been necessary to ask academic institutions, research foundations, industry, and newly created mission-oriented organizations to assist. The question of who is entitled to patent rights resulting from such programs is indeed complex, so complex that we believe a flexible system of handling cases should be provided for in any legislation. We feel that the rigidity called for by S. 1899 would not result in the greatest usefulness and benefit to the general public.

To illustrate the need for flexibility and the need to consider cases separately, one need only think of the wide variety of situations which can and do exist. For instance, if Federal money is used to build a completely new staff which will work on a Government-sponsored project, the rights to patentable discoveries obviously should probably reside with the Government. On the other hand, if such funds are directed toward a project whose personnel each had averaged 10 years of experience with the firm contracted to do the job, patentable results would not necessarily obviously become the property of the Government since the scientists and engineers doing the work must have used some of the know-how they had built up through their experience. Some consideration must be given to the employer who has been supporting and developing an efficient staff through the years before taking on the Government-supported project. In such cases it seems appropriate for each Federal agency to negotiate the best arrangement for all concerned as has been the practice in the recent past under the Kennedy patent policy of October 1963.

There are great differences in financing research leading to inventions. This might be represented at one extreme by the almost total Government support of, say, a large electrical company's missile and space laboratory, and at the other extreme, by a small grant to help a university or foundation research program. This raises the question of the difference in the mode of utilization of any consequent discoveries. Only the Government will purchase the results of research on the better space vehicle for the foreseeable future. But if my research on polymers, supported in part by Federal funds, produces a better foam rubber, or a better insulating plastic, this will be bought largely by private citizens from commercial firms, and then only if they are convinced of its merit over existing products. But in order to find out whether my better foam rubber will be practical and will be accepted by the public may require investment of many years and millions of dollars.

I can cite one example in history—the Talon fastener, which took many, many years of vigorous effort before the public was convinced that they needed a zipper in place of buttons.

In my own personal research during the war, my group developed a new procedure for the synthesis of the antimalarial drug, chloroquin, which I think remains today the best and most widely used drug for the treatment of malaria. Our synthesis was far more efficient and superior to the German synthesis. And through some Government contract funds, one company did some development work on trying to develop this procedure for making this drug. But under the terms of the program, the Government owned the patent and the patent would be dedicated to the public. The ultimate decision by this company was that they could not afford under these circumstances to risk several million dollars to build a plant, to prove that this was a better process, if anyone else could then step in and utilize the process. So for 20 years we have paid more for chloroquin because the old, inefficient German process is still used for its production.

In the case of my research on polypropylene-oxide rubber, this was done on university programs where the patent rights could be assigned to a company, and in this case the company did invest a great deal of

money in developing these discoveries to the stage where a new foam rubber was produced which has displaced almost all of the old foam rubber and which is now also being explored very vigorously for such purposes as tire rubber.

But these developments take a great deal of capital investment, and there must be some incentive for this investment. It is, in our opinion, one of the important reasons for the constitutional rights granted patentees—to provide this incentive, to take the idea from the laboratory and find out whether it can be made in practical economical form, and a form acceptable and salable and useful to the American people.

I think it is important to emphasize that the recovery of this kind of investment, and perhaps even a reasonable profit on it, can only be made if the public finds the product useful and is willing to buy it.

Now, I would like to make a few comments on the pending legislation.

First, I would like to say that it seems evident to us from considerations of the philosophy of the patents, and the foregoing disclosure or discussion of procedure of developing useful products, that there are two major public benefits stemming from patents. There are private benefits, of course, to the inventor. But there are two major public benefits that stem from the patent law.

One is the stimulation of the disclosure of new scientific and technical information, which is an exceedingly important benefit, public benefit, from the patent law.

The second major public benefit is providing incentive for the frequently massive investment necessary to convert an invention, a piece of paper that is issued by the patent office, into a product available for the public to buy and use.

Now, it is the second of these purposes which in our opinion would be seriously undermined and controverted by the basic philosophy inherent in S. 1899, the Long bill. In fact, I might interject it seems to me that the philosophy of public dedication of patents makes sense only in a socialistic society where the Government would manufacture and sell the products to the public directly. Under these circumstances, I could see where Government ownership of patents would make sense.

But in our free enterprise society, it seems to me not to be a sensible way to make an invention into a useful product that people can buy.

Now, we would like to comment further on section 4(a)(2) of S. 1809, the McClellan bill, where in fact we believe that the same undesirable purpose might accrue to the area of public health, welfare, and safety and therefore urge deletion of this principle in this particular area.

If incentive for investment necessary to make inventions available to the public is necessary in other areas—in a better paint or a better fiber or a better rubber—it should certainly be available to stimulate development in such vital areas as health, welfare, and safety.

So we believe that there is no reason to exclude this very important area from the benefit of the incentive provided by the patent law.

The society would also like to comment on section 6 of Senator Saltonstall's bill, S. 789. This section states that the contractor's rights in an invention under section 3(e) may be voided by the Government

if, inter alia, the invention is not, or is not about to be, placed in commercial use.

We agree that there should be a provision to make certain that inventions are used, if they are useful to the public. While provision is made for obtaining an extension of time, the 3 years allowed is considerably short of the interval commonly required for the development of chemical processes and products.

So, as I say, while this general principle seems reasonable, we believe that significantly more time should be allowed the contractor to evaluate fully the commercial potential of an invention and something of the order of 5 to 7 years would seem reasonable to us, rather than the 3 years provided in Senator Saltonstall's bill.

In summary, the society vigorously opposes the basic principle of S. 1899 and supports the basic approach taken by S. 789 and S. 1809, on these very important matters of Government patent policy.

We express our appreciation for the opportunity to present our views. If there is anything we can do further to assist the committee in its investigation, we would be delighted to do so.

Thank you very much.

(The full statement of Dr. Price follows:)

STATEMENT BY THE AMERICAN CHEMICAL SOCIETY

Mr. Chairman, distinguished members of the subcommittee, my name is Charles C. Price. I am the chairman of the department of chemistry at the University of Pennsylvania in Philadelphia, Pa., and president of the American Chemical Society. I appear before you today in the latter capacity. The society is an organization founded in 1876. It is the largest membership organization devoted to a single science in the entire world. Its annual budget exceeds $17 million. Incidentally and importantly, it should be noted that the society was chartered by the Congress of the United States under Public Law 358, 75th Congress, chapter 762, 1st session, and signed into law by President Roosevelt on August 25, 1937.

Our interest in presenting the views of the society on legislation to establish a Federal patent policy is based primarily on our charter, paragraph 2 of which states as follows:

"SEC. 2. That the objects of the incorporation shall be to encourage in the broadest and most liberal manner the advancement of chemistry in all its branches; the promotion of research in chemical science and industry; the improvement of the qualifications and usefulness of chemists through high standards of professional ethics, education, and attainments; the increase and diffusion of chemical knowledge; and by its meetings, professional contacts, reports, papers, discussions, and publications, to promote scientific interests and inquiry, thereby fostering public welfare and education, aiding the development of our country's industries, and adding to the material prosperity and happiness of our people."

GENERAL OBJECTIVES

The general objectives of everyone participating in these hearings are undoubtedly similar whether they are speaking for themselves or representing large organizations. Everyone wants the United States to utilize its discoveries for the greatest benefit of its people. But, there are honest differences of opinion as to the best way to accomplish this general objective. The society has reviewed the proposed legislation and will have some comments to make on each bill under consideration; namely, S. 1809 by Senator McClellan, S. 1899 by Senator Long, and S. 789 by Senator Saltonstall. We find the first two of these generally acceptable, but not that introduced by Mr. Long.

From what has been said at these hearings and elsewhere, it appears that there are certain misunderstandings about the main purpose and significance of a patent. As the Constitution states, the purpose of the patent system is to "promote the progress of science and the useful arts." This is accomplished by encouraging the creation of useful innovations, by providing an environment of limited protection to the first to create a new idea, so that the inventor is encouraged to develop the bare idea to a useful product and to disclose it to the public.

A patentable technical development is, by definition, one which is creative, new, and useful. Such patentable developments, let's call them inventions, represent a small fraction of the results of research and development. They do, however, represent a creative advance in the useful arts.

If the creative advance is useful, it can and should be patented. If it is basic scientific theory, it is not patentable but should, of course, be made available promptly by publication in a scientific journal.

If you will forgive me for citing personal experience, I should like to point out that in my own case I have my name on about 225 scientific publications but only on a dozen patents. This illustrates that most of the results of research and development, while of great value in the long run, are not immediately patentable.

THE CONVENTIONAL PRELUDE TO A CHEMICAL PATENT

A patentable idea almost invariably is preceded by a certain amount of research and development. In some cases, especially in years past, the inventor performed his own research, developed his invention, and applied for his own patent. This is still done to some degree. However, certain types of research and development are now so costly that the individual is not able to carry on the kind of work he would like to do, and is capable of doing, which might lead to inventions. Such inventors turn to others for financial aid and assistance. Conventionally, these are academic institutions, research foundations, industry, or the Government. A traditional pattern has been for the potential inventor to enter into an agreement on the assignment of a patent issued to the inventor but financed by the employer. There, conventionally, is no difficulty about such agreements when all the financial support of developing an invention comes from one source such as those previously mentioned. As might be expected, differences of opinion do occur when research and development are shared by more than one source. This is the cause of the society's present concern over the proposed legislation on Federal patent policy.

THE NEED FOR AND IMPLICATIONS OF GOVERNMENT SUPPORTED RESEARCH AND DEVELOPMENT

In order for the United States to maintain its preeminence in scientific and technological developments, Congress properly has approved large expenditures for research and development in recent years. This program has been of such magnitude that Government agencies and their employees alone could not do the entire job. It has been necessary to ask academic institutions, research foundations, industry, and newly created mission oriented organizations to assist. The question of who is entitled to patent rights resulting from such programs is indeed complex, so complex that we believe a flexible system of handling cases should be provided for in any legislation. We feel that the rigidity called for by S. 1899 would not result in the greatest usefulness and benefit to the general public.

To illustrate the need for flexibility and the need to consider cases separately, one need only think of the wide variety of situations which can and do exist. For instance, if Federal money is used to build a completely new staff which will work on a Government-sponsored project, the rights to patentable discoveries obviously should probably reside with the Government. On the other hand, if such funds are directed toward a project whose personnel each had averaged 10 years of experience with the firm contracted to do the job, patentable results

would not necessarily obviously become the property of the Government since the scientists and engineers doing the work must have used some of the know-how they had built up though their experience. Some consideration must be given to the employer who has been supporting and developing an efficient staff through the years before taking on the Government-supported project. In such cases it seems appropriate for each Federal agency to negotiate the best arrangement for all concerned as has been the practice in the recent past under the Kennedy patent policy of October 1963.

There are great differences in financing research leading to inventions. This might be represented at one extreme by the almost total Government support of, say, a large electrical company's missile and space laboratory, and at the other extreme by a small grant to help a university or foundation research program. This raises the question of the difference in the mode of utilization of any consequent discoveries. Only the Government will purchase the results of research on the better space vehicle for the foreseeable future. But if my research on polymers, supported in part by Federal funds, produces a better foam rubber or a better insulating plastic, this will be bought largely by private citizens from commercial firms, and then only if they are convinced of its merit over existing products. But in order to find out whether my better foam rubber will be practical and will be accepted by the public may require investment of many years and millions of dollars. Some incentive for this large investment is necessary, one of the important reasons, the society believes, for the constitutional rights granted to patentees. It is important to emphasize that a profit is made on the investment of research and development funds only if the public finds the product useful and buys it. For example, I have been told that during the past decade a major company invested $10 million in a new product only to have a competitor produce a superior one, thereby making this expenditure virtually worthless.

COMMENTS ON THE PENDING LEGISLATION

As is evident from the foregoing, the American Chemical Society believes that there are two major public benefits stemming from patents: (1) The stimulation of disclosure of new scientific and technical information; and (2) providing incentive for the frequently massive investment necessary to convert an invention into a product available to the public.

The second of these purposes would be seriously undermined and controverted by the basic philosophy inherent in S. 1899 (Long hill).

Furthermore, we believe that section 4(a)2 of S. 1809 (McClellan), in fact, would serve the same undesirable purpose for the area of "public health, welfare, and safety" and therefore urge deletion of this principle. If incentive for investment necessary to make inventions available to the public is necessary in other areas, it should certainly be available to stimulate development in such vital areas as health, welfare, and safety.

The society also would like to comment on section 6 of Senator Saltonstall's bill, S. 789. This section states that the contractor's rights in an invention under section 3(e) may be voided by the Government if, inter alia, the invention is not, or is not about to be, placed in commercial use. While provision is made for obtaining an extension of time, the 3 years allowed is considerably short of the interval commonly required for the development of chemical processes and products. The general principle evident in this portion of S. 789 seems reasonable to the society, but it believes that significantly more time should be allowed the contractor in which to evaluate fully the commercial potential of an invention. As a guide, an interval of 5 to 7 years is not unreasonable in such situations.

In summary, the society vigorously opposes the basic principle of S. 1899 and supports the basic approach taken by S. 789 and S. 1809.

We thank you for the opportunity to present our views, and assure you of the society's willingness to cooperate with the committee as it continues to investigate the vital topic of Federal patent policy.

Senator McClellan. Just two questions.

On page 4 of your written statement you say:

We feel that the rigidity called for by S. 1899 would not result in the greatest usefulness and benefit to the general public.

Why?

Dr. PRICE. We believe that the incentive to make use of patents would provide for the development, expenditure for plants, investment in the distribution of a product that would be useful to the general public—this is an investment which requires an incentive. And the Long bill provides some——

Senator MCCLELLAN. Would you not get incentive if every manufacturer, every competitor in that particular field could get the use of it free? Would that not be incentive? They could all go out and invest if they wanted to.

Dr. PRICE. That would not be an incentive to develop the invention. I think the point here is that after you have made an invention there is much yet to do. In the summer of 1949, at the University of Notre Dame, with one lad working for 3 months in the laboratory, we made the first sample of polyprophylene oxide rubber. It was 10 years and a few million dollars later, before that was developed to the point——

Senator MCCLELLAN. Was that patented at the time that you discovered it?

Dr. PRICE. Yes sir; we received a patent, in my name, on the basis of the work——

Senator MCCLELLAN. In whose name?

Dr. PRICE. In my name, assigned to the University of Notre Dame, on the basis of the work that was done that summer. That was the basis of our patent.

Senator MCCLELLAN. You got a patent on the original product with 3 months' development.

Dr. PRICE. That is correct.

Senator MCCLELLAN. Then what happened?

Dr. PRICE. It required nearly 7 or 8 years, and I would guess a million dollars or so of investment in development money.

Senator MCCLELLAN. What do you mean by development? You got a patent here. Why do you not go out and make it?

Dr. PRICE. Well, we made a little lump of rubber. We did not make even a foam out of it. It took a lot of further investigation, scientific and technical investigation——

Senator MCCLELLAN. You mean further experimentation?

Dr. PRICE. That is correct; yes, sir.

Senator MCCLELLAN. Processing?

Dr. PRICE. That is correct.

Senator MCCLELLAN. Examining, testing and developing?

Dr. PRICE. To find out what was the best way to make use of this material.

Senator MCCLELLAN. Now, suppose that patent had been free to everybody—Government owned—here it is, to make this kind of rubber, here is a patent on it, everybody can use it that wants to. What would happen? Is that your point—nobody would do it?

Dr. PRICE. Nobody would invest this money in this. In fact, it took a lot of persuasion on my part to make sure the company kept working on this. There are discouraging aspects of every invention. The poor guy that invented the Talon zipper had a terrible time——

Senator MCCLELLAN. Invented what?

Dr. PRICE. The Talon zipper.

Senator MCCLELLAN. Oh.

Dr. PRICE. You cannot get along without it now, Senator. But it took 10 years to convince people——

Senator MCCLELLAN. What type of a terrible time did he have?

Dr. PRICE. It took a long time to convince people that this was not a dangerous weapon but a useful invention. And literally this man had a terrible time to convince people.

Senator MCCLELLAN. That is a very vivid and convincing illustration in my mind.

Dr. PRICE. But this happens for all kinds of discoveries—it is a very rare scientific discovery that is made for which everybody says "Ah, this is just what we were waiting for." For example, many kinds of rubber were available in 1949 so it took lots of convincing that our rubber was going to turn out to be a much better product.

Senator MCCLELLAN. That is one illustration. Can you give another?

Dr. PRICE. Well, I think my chloroquin antimalarial drug is another illustration on the negative side. I am firmly convinced that the process we had developed, which was, in this case, actually taken through a development stage at Government expense, was clearly more efficient and more economical as a procedure for making this compound than the existing one. Yet it was not reduced to practice. The money to invest in a plant——

Senator MCCLELLAN. Would you hold your answer a minute? I have somebody on the telephone I must speak to.

I am sorry. Go right ahead.

Dr. PRICE. As to this rigidity of the Long bill, it seems to us there are very great differences in how an invention might be made useful to the public. There are some—for example, if you have the cure for the common cold—that everybody will want to buy it immediately. But there are many other inventions which prove to be extremely useful, but which when first discovered are not obviously useful, and it takes a lot of faith, a lot of conviction, and a lot of investment of effort before it can be proven that these inventions will be useful to the people. And we believe there ought to be some flexibility to provide these incentives in a variety of different situations.

We think that the Long bill is a little too rigid in not providing enough incentive for some of these situations.

Senator MCCLELLAN. Now, one other question.

You may have already answered this. The answer you have just given may have covered this.

You said on page 5:

> As is evident from the foregoing, the American Chemical Society believes that there are two major public benefits stemming from patents.

Then, No. 2:

> Providing incentive for the frequently massive investment necessary to convert an invention into a product available to the public.

And you say:

> The second of these proposals would be seriously undermined and controverted by the basic philosophy inherent in S. 1899.

Did your previous answer cover that?

Dr. PRICE. I think, essentially——

Senator MCCLELLAN. Did not your previous answer cover that?

Dr. PRICE. I think, essentially, it did cover this point, in that it takes a lot to develop an invention that may be made for an investment that might represent a few thousand dollars. It is something that is created in a man's mind, as a result of a little work and a little thought and a little inspiration. An invention is a very cheap thing to accomplish. It is development and manufacturing process and the advertising to prove its value to the public which is expensive. And it is the lack of investment that may block conversion of the bright idea of an invention into a product that somebody can buy in the drugstore shelf or the department store shelf or the hardware store. It is this investment that we are talking about. I think people are going to have the ideas. That will continue, whether we have the Long philosophy or a different one. It is the incentive to make these available, the development of these things from an invention to something you can buy.

Senator MCCLELLAN. That is substantially the same answer.

Dr. PRICE. Yes; I think it is essentially the same.

Senator MCCLELLAN. Now, I do see here that you want section 4(a) (2) of S. 1809 stricken—you think that it would be desirable to delete it. Do you think that there should be no difference in policy whatsoever with respect to health, medicine, and so forth?

Dr. PRICE. Yes, sir; I feel that very strongly.

Senator MCCLELLAN. There should be no difference in the Federal policy with respect to this?

Dr. PRICE. Not on this basis. There may be on the basis of the amount of the investment the Government makes in the discovery and invention. The Government is making very substantial investments in health research, for example. If the Government provides most of the support——

Senator MCCLELLAN. Well, of course, the purpose—now, the Government may be making an investment in some mechanical something, or some atomic weapon, an airplane or something, from which it expects to derive an advantage primarily—it is not for public use, but primarily for the Government in building our Defense Establishment and so forth. That to me is a bit different from the Government making substantial investments in medical discoveries and in the development of that for the overall service of the public health and so forth. I think there is some difference in it.

Now, you may comment.

Dr. PRICE. I think maybe I can try to answer your question in this way, Senator.

Senator MCCLELLAN. Well, I just mean there is a little difference. If the Federal Government goes out here and provides money to universities and institutions and laboratories to develop a product here to benefit the health of the people of the Nation, that is an area where I think the Government might very well take the patent and let the product be available to all manufacturers.

I am going to give further thought to it, but I think there is a difference there.

Dr. PRICE. There certainly is an extremely important reason for substantial Government interest in public health. I think this is the justification for the very substantial amounts of money——

Senator McClellan. The difference I am interested in here is where the Government goes out for the specific purpose and provides research funds in order to develop drugs that are beneficial to health. Very well. The Government finances research to develop a better airplane or something like that, and in the course of that it gets the product it wants, but there is a byproduct or a fallout product of a discovery or an invention—and in those instances I think the Government could very well let private enterprise have it, take it, and develop it and get it on the market if it has a civilian use or a general consumer use.

But when the Government specifically finances the experimentation and the development of drugs to effectuate a cure of disease, I think there is a little difference—it comes in a little different category.

Dr. Price. Well, the Government finances research, which leads to the discovery of a better cure of some disease, and this is the invention. Now, somebody wants to buy this thing from a drugstore shelf. The question is, How do we go from the discovery to the product which you and I can buy on the drugstore shelf?

Now, in many cases, in drugs as well as in the new rubber or a new plastic—or any other product, there is a question whether this drug will prove to be better, and there is a vast investment necessary—I am a consultant for the Eli Lilly Co., and I see the immense expenditures it takes to take a new drug that you have discovered that shows some beneficial possibilities in animal tests, to find out whether that drug is going to be useful in human beings—this again requires a vast investment. And it seems to me that you need to provide an incentive for that investment just as you need to provide an incentive for the investment to develop other new products for the public.

Now, I think the Government has a very great responsibility to regulate the use of drugs. But I think that there is need, and I think it is important to consider this—I can be wrong, of course, Senator—but you asked my opinion. In my opinion as a chemist, there is just as much need for an incentive to develop a new drug as there is incentive to develop a new rubber.

Senator McClellan. I do not know any of us who could not be wrong. Very well.

Senator Burdick.

Senator Burdick. One of the things that puzzles me about your testimony is that you speak of incentives. Yet the Talon fastener that you refer to, most anything else, comes out of the human mind—that is where it comes from. You are perfectly willing to deny to a man who has spent a lifetime in science any patent rights at all for the work that he accomplishes for working on a Government contract, are you not?

Dr. Price. I am afraid that I do not understand.

Senator Burdick. All right. Company A hires a scientist who has been working in your university for all his life. He is put on a project X. There he makes a discovery. That man gets no patents rights for his work. He is the one that should be stimulated—he is the one that should have the incentives. Is that correct?

Dr. Price. I understand. Yes. I think what you are saying is that when a man goes to work for a company he no longer privately

benefits directly from the invention. But the company may. He may indirectly.

Now, I agree with you. We are not talking here about the private benefits that come from patents.

Senator BURDICK. But I am, though. Why do you want to deny him any patent rights?

Dr. PRICE. I do not wish to deny him. He has chosen to do his inventive work for a company which provides him with the facilities to do this job in exchange for a salary which will probably be augmented if he makes useful inventions, although not directly by a royalty.

Senator BURDICK. Is not this comparable to the Government contract? You give company A a contract, plus 7 percent, to do this job. Is it not the same thing?

Dr. PRICE. Well, I think the basic point that I want to make is that I do not feel that we are going to suffer from a lack of inventions. People are inventive or they are not. If they want to do these things. I would be doing scientific research whether it was useful or not but I like to see it used. In order to see the discoveries I make used, there has to be an incentive for the development part; not the invention itself.

Senator BURDICK. We are talking about patent rights now. Here is a man, the human mind where these things spring out of—here is the man, the scientist, who has spent his life, he has expertise, he has all the knowledge. He goes into a company laboratory, on a project and he finds something, he discovers something. He is the man that should be stimulated. But he gets no patent rights. Yet the company, by the same token, who makes a contract to the Government insists upon patent rights, or you think that the company should have it. Why in one instance do you deny it to the man who makes the actual discovery but give to the company who hires him?

Dr. PRICE. Well, I think this relates to the different functions of the patent. There are functions of the patent which are a stimulus to invention itself, and these are the rewards to the patentee, to the patent holder. I appreciate these. I spent the last 2 weeks racing my yacht to Newport and sailing it back, and this would not have been possible if it had not been for the private benefits that come from a foam rubber patent. So I am not saying these are not useful and helpful and worthwhile.

But my feeling is that the main function of the Government, your responsibility, is the public benefits that come. Why should there be a patent if it is only to the private interests of Professor Price? There is no reason.

Senator BURDICK. Or the private interests of company A.

Dr. PRICE. Or company A, right.

Senator BURDICK. With Government money.

Dr. PRICE. If it is only that, there would be no use in worrying about this as a matter of public policy. So it is the public benefits of the patents that it seems to me are crucial. As I say, I think these are two. One is to encourage publication. If there was no patent law, discoveries would be kept as company secrets and we would not have the encouragement for the disclosure of the scientific informa-

tion that is carried out in the Du Pont Co., in the General Electric Co., in Hercules Power, in Lilly, and so on, that is available because of the patent laws.

So one is this disclosure of scientific information. And this is a great satisfaction, incidentally, for the scientists. We like to see what we have done, see the light of day. And I can assure you that the publication of the work as a patent or as a paper which is made possible by the patent law is a public benefit, but also a private satisfaction to the inventor.

Second, the other public benefit is this business which I have emphasized so much, the incentive to get the investment into development—take the bare invention and make it into a product. And I think these are the public benefits that are important, and it is the vast investment of Government funds in research and development that now make this a very important public policy decision, as to how the use should be made of these patent rights.

Senator BURDICK. If the Government retains the patents, there is a wide-open field for the public to develop that patent; is there not?

Dr. PRICE. If the Government owned the patent?

Senator BURDICK. Yes. Everybody has a right to it.

Dr. PRICE. Everybody has the right to it, but nobody has any incentive to invest in its development if it is not obvious that this is a major breakthrough. There will certainly be some patents, I agree—there will be some patents like, we could say, the cure for the common cold. If you could find a way to cure this, every drug company would make it, and every drug company would want to have it in its line of products, and if it was available as a Government patent, they would do it whether it was exclusive or not.

But for many, many products this is just simply not the case. It is not obvious that this is going to be better until it is out and tried.

Senator BURDICK. Well, certainly the public will have a better opportunity to develop a patent if they know about it than if they do not know about it and cannot develop it, if it is controlled by somebody.

Dr. PRICE. Everybody knows about a patent the minute it is published.

Senator BURDICK. They do not have the right to develop it.

Dr. PRICE. They do not have the right to utilize it unless they get a license to do so.

Senator BURDICK. I must respectfully disagree with you, sir. I think if the patent is available to the public, the development possibilities are greater than if they are hemmed in some way.

Dr. PRICE. I think the concern I have is that the public will not and cannot spend $5 million or $10 million to take the invention and make a product out of it.

Senator BURDICK. Some smart entrepreneur will do it, a businessman.

Dr. PRICE. But he will have to prove it with a $10 million investment. If somebody else can then come in after it is proven, and after he has developed it, and make it for a fraction of that, it does not make sense to me.

Senator BURDICK. Just a moment. There is $5 billion to $15 billion involved here. The taxpayers of the United States have some money

in this development, too, you know. We are just talking about the portion that the Federal Government is financing.

Dr. PRICE. Well, I think I did indicate, Senator, that there certainly is a vast difference in some circumstances, such as defense and space. The Government not only provides the funds to develop it but is the consumer. I have absolutely no quarrel with the view that the Government should have a royalty-free license under such circumstances. We do not differ with this—for inventions which the Government has financed in part or in whole.

Senator BURDICK. I understand that.

Dr. PRICE. It is only the private citizen's use of these——

Senator BURDICK. Let us summarize this.

Your position is that individual scientists, the worker in the laboratory, should not have any patent rights for his discoveries. The faculty, the college professors, the scientists in the colleges and the universities should not have any patent rights. But you think that a company like company "A" should have it in some cases.

Dr. PRICE. I do not think that is quite the way I would like to put it. Let me put it this way.

I can say this very definitely for myself, as a professor.

I my opinion, if I make an invention in my laboratory, the only way that this could conceivably be used is if I could find a company that could take this invention and develop it from the little bit we have done, which is enough to get the patent, to a process, an economical process which can be used to sell a product.

Now, if I do not have the ability to go to company "A" and say, "Here is my patent; I assign it to you for some kind of royalty arrangement," or if I am an employee, that I assigned it for the salary that has been paid to me—"You can now take this patent of mine and invest the necessary effort to find out whether it will be useful"—if I do not have that kind of ability to take it to some organization that can invest the $5 million, it will never be used.

Senator BURDICK. By the same token, you do not have any patent rights, you do not have the opportunity to go and find some investment capital.

Dr. PRICE. As the inventor I do have the patent rights.

Senator BURDICK. Under these Government research contracts, the college professor, the college scientist does not get the patent rights to have that opportunity.

Dr. PRICE. He certainly would not under Senator Long's bill.

Senator BURDICK. I am just trying to get your philosophy. You are willing to deny the patent to the worker in the laboratory, the college professor on the college campus, but not to the company.

Dr. PRICE. No, I am afraid——

Senator BURDICK. Am I wrong?

Dr. PRICE. I am not making myself clear.

Senator BURDICK. If the University of Notre Dame has a research contract——

Dr. PRICE. Or Pennsylvania.

Senator BURDICK. Does not the Government retain the patent rights on the work that is done?

Dr. PRICE. No, sir; only under the NIH policy, which I vigorously disagree with. In other agencies they will assign—in fact under a Quartermaster grant, we did develop a very interesting new synthetic plastic, polyxylenol. We are now in interference with a small concern by the name of General Electric as to who is going to get the patent rights on this. They published it a year after we did. But we do not yet know who will get the patent.

But under the Quartermaster, we made an agreement that the Government would have a royalty-free right to use an invention that was made. But we had the right to exploit the private commercial development of this material. The University of Pennsylvania has in fact taken my patent, which I assigned to the University of Pennsylvania, and taken it to a company to see if we can exploit this invention.

Senator BURDICK. Was that developed under Government research?

Dr. PRICE. Yes, sir, under the Quartermaster Corps. I think it is only the NIH where we have no rights residing with the inventor.

No, I like to see the rights reside with the inventor, by all means. This is what I am arguing for. So he can take his invention and bargain with somebody to make use of it.

Senator BURDICK. I am not arguing—I am just pointing out the inconsistency of the company getting it and denying it to the people who do the work.

Dr. PRICE. I think the inconsistency is not there, because I do believe that the whole philosophy of the patent law is that the invention goes to the inventor. He is the one who applies for it and he gets the patent rights.

What he does with it to see that it is made use of differs according to the situation.

In my case, as a professor, I can bargain with it a little bit to see who can make use of it. If I am already working for a company, I have signed an agreement that the inventions I make will automatically be assigned by me to the company in exchange for my salary and other rewards.

Senator BURDICK. Now, you say you are a consultant to Eli Lilly & Co. Suppose that company "A" makes a contract with company "B"—this is purely private—and company "A" has asked "B" to do a research project for them—maybe on a subcontract basis or some other basis. What is the usual practice? Does A or B have the patent rights of any discoveries made there?

Dr. PRICE. Well, I think this is usually a matter of a great deal of concern by the lawyers who write the contract.

Senator BURDICK. I am asking you the practice.

Dr. PRICE. I would think that the practice usually is that the company that provides the money would usually get the rights to develop this.

Senator BURDICK. That has been the testimony before this committee—that A would retain the patent rights.

Dr. PRICE. And if the Government was going to develop and sell the patented inventions, I say the philosophy might be that the Government should have the rights to the patents it finances. But I do not think it will ever develop and sell them under our present economic system.

Senator BURDICK. That is where we differ. In other words, private industry A retains the patents—the Government is involved with taxpayers funds—A should not retain the patents—right? Is that your testimony?

Dr. PRICE. Well, I do not want to be quite that flat about it, because it does go all the way from a situation where the Government is financing 100 percent, such as new aircraft development, like the supersonic transport, where the Government is really doing the job and is only using a private organization as an arm to do it.

To my own situation, where I get a grant that supports a little bit of my work, or some other institution gets a small grant that helps it in part to do a job—these represent very great extremes in how much the Government puts in to making this invention.

So I think you have to think a lot about the differences in each particular case. And this is why we argue for flexibility—that there are such differences represented in the different kinds of research and development that the Government supports that it is not sensible to set a rigid policy which might prevent and preclude the use of some kinds of inventions for the public benefit.

Senator BURDICK. Well, the hour is short. I wish you would read section 9 of S. 1899, pages 20 and 21. You would find flexibility in the Long bill.

Dr. PRICE. I realize that he tried to provide for this kind of situation. But he provided for it in the sense that you have to make requests for what I think ought to be inherent rights granted by the Constitution to an inventor.

Senator BURDICK. Thank you.

Senator MCCLELLAN. All right. Thank you very much.

Dr. PRICE. Thank you.

Mr. BRENNAN. The next witness is George E. Wakerlin, American Heart Association.

Senator MCCLELLAN. All right, Doctor, you may proceed. I see you have a prepared statement. Do you wish to read it? I notice it is brief.

Dr. WAKERLIN. Yes, sir, Mr. Chairman.

STATEMENT OF DR. GEORGE E. WAKERLIN, MEDICAL DIRECTOR, AMERICAN HEART ASSOCIATION

Dr. WAKERLIN. May I state I am the medical director of the American Heart Association, and as you know we are a voluntary health agency. We have affiliate heart associations in all 50 States and some 236 chapters distributed over the country. We have 35,000 physician and other health profession members, and 40,000 lay members.

Our budget for the present fiscal year is approximately $30 million, all contributed voluntarily by the public.

As you know, we are interested in research support, in professional education, and in public education, and community programs particularly related to the cardiovascular field.

If I may, then, Mr. Chairman, I will read this brief statement.

Senator MCCLELLAN. Very well.

Dr. WAKERLIN. The American Heart Association deeply appreciates the opportunity you have extended to us to voice our views on the disposition of invention rights in connection with discoveries arising from research activities jointly supported by Government and private funds.

We of the American Heart Association are fully cognizant of the committee's need to arrive at some general patent legislation to protect the public, as represented by the Government's research investment, while also protecting the rights of private organizations. We also realize that such general legislation must be designed to apply to scientific discoveries in such diverse fields as space and defense as well as to scientific discoveries in the field of health in which we have our prime interest.

Nevertheless, in appearing before you we would hope to make you aware of certain technical problems peculiar to medical research which we are sponsoring in the public interest.

Scientific research activities performed in universities and institutions often receive joint and contemporaneous support from commingled funds from two or more sources. Indeed, the U.S. Public Health Service, on many occasions and in the public interest, has encouraged support of research from the private sectors of the economy of this Nation and discouraged exclusive reliance upon Government-financed support. While we heartily agree with this concept, its fulfillment frequently creates a difficult problem. The Public Health Service in its regulations requires that its research grantees agree to transfer to it ownership rights of all inventions. Similarly, the American Heart Association asks its grantees to agree to the assignment of invention rights to it. This at times creates a dilemma for the researcher. And yet only a small fraction of 1 percent of research projects leads to patentable discoveries.

It is no answer that the difficulty may be left to litigation; neither is it a satisfactory solution that the scientists be limited to acceptance of research support from only a single source. It would be infinitely better to provide a method for the equitable disposition of proprietary rights in any discoveries, since the Public Health Service and the American Heart Association both have the benefit of the public as their prime objective.

Assuming that the voluntary health agency has made a substantial investment of public-contributed funds, it should be within the discretion of such agency to achieve fullest public benefit by encouraging all possible development of such discoveries. It follows that there might be instances in which it might be advantageous to the agency and the public to achieve necessary development and application through recourse to financial and specialized manpower resources of a commercial organization. To assure this benefit, it might be necessary to offer the commercial organization leadtime—a reasonable number of years of exclusive license from the date of public introduction of the product—to recoup its developmental investment. The voluntary health agencies believe this to be a practical policy, for the alternative might be to use their own funds to contract commercially for this service on a cost-plus basis. This, in the end, might prove to be considerably more costly to the public.

In consideration of this point of view, it is our hope that any patent regulation bill reported on by this committee will empower the Department of Health, Education, and Welfare to enter into an agreement with publicly supported health organizations for the equitable disposition of proprietary interests in discoveries arising out of research projects in which both were grantors.

Thank you.

Senator McCLELLAN. In the last paragraph of your statement, what you would like to have is the Department of Health, Education, and Welfare authorized to grant exclusive license to any discovery made, where they have financed the research?

Dr. WAKERLIN. The "they" means who, Mr. Chairman?

Senator McCLELLAN. The Federal Government or the Department of Health, Education, and Welfare—where they advance funds for research.

If I understand this, you want the right reserved to that Department to make an agreement with publically supported health organizations for equitable disposition or for proprietary interests in discoveries "arising out of research projects in which both were grantors." In other words, to negotiate or work out an arrangement that would be satisfactory to both.

Dr. WAKERLIN. Yes; that is right.

Senator McCLELLAN. In other words, leaving the discretion in the Department. That is what it amounts to.

Dr. WAKERLIN. That is correct.

Senator McCLELLAN. As to how it will contract for or about proprietary rights where it provides all or some of the research funds.

Dr. WAKERLIN. For example, if it should happen, which is not too common, that the American Heart Association contributed a major part of the research support for a given project which resulted in a particular discovery, and the Department of Health, Education, and Welfare, or more specifically the National Heart Institute contributed a minor part, the negotiations might result in the patent right being assigned to the American Heart Association, which would administer it in the public benefit, of course.

Senator McCLELLAN. In that respect, now, here is our difficulty, as I see it.

It is impossible to write a statute with a formula in it that would cover each specific case or discovery or arrangement without leaving some discretion in the agency of Government involved. I do not know how we can do it, except to make a completely rigid Government take all, or that you set up guidelines whereby under those circumstances the Government may grant an exclusive license or grant the proprietary rights—but even where you set up guidelines—a great measure of discretion must be reposed in the Government agency involved, as I see it.

I do not know how you can write a rigid formula that would be applicable to each case. I just do not know how you can do it.

Dr. WAKERLIN. Mr. Chairman, we do not seek a rigid formula.

Senator McCLELLAN. I know you do not. But I am saying while it would be desirable if it could be done, just to spell everything out in the statute, in the law itself, I do not believe it can be done.

The further we go into this inquiry and study the subject, it seems to me as though it develops that it is just impossible to write a formula that would be applicable, that could say yes or no in each case. You have to leave a measure of discretion.

Dr. WAKERLIN. That I would agree with, sir. This is what the American Heart Association is asking be written into the legislation.

Senator MCCLELLAN. That is the way I interpreted the last paragraph of your statement—that you want some latitude, some discretion left in the Department of Health, Education, and Welfare.

Dr. WAKERLIN. I might say that we have always found negotiations on other matters with the National Heart Institute and other portions of the Public Health Service and the Department of Health, Education, and Welfare most satisfactory, most congenial.

Senator MCCLELLAN. In other words, you have had pleasant relations so far.

Dr. WAKERLIN. All through the years, sir.

Senator MCCLELLAN. You want to have it left that way.

Dr. WAKERLIN. That is correct.

Senator MCCLELLAN. That is what you are hoping for.

Dr. WAKERLIN. Indeed, yes.

Senator MCCLELLAN. Very well.

Senator BURDICK. Your funds are derived from Federal sources and private sources?

Dr. WAKERLIN. Our funds are derived from publicly contributed moneys, sir. In other words, we have a Heart Fund campaign which goes through the month of February, and certain contributions come in throughout the year. There are on occasion educational or community programs in the cardiovascular field where the National Heart Institute or the heart disease control program of the Public Health Service may contribute to the program and we contribute also. In that way, there is a certain amount of working together in terms of funds.

Occasionally the American Heart Association—this is exceptional—may for a specific project, where it seems more desirable for one reason or another to have the funds expended by the American Heart Association, on behalf of Government—has arranged for a grant from an agency of the Public Health Service. Thus, several years ago, the American Heart Association administered a travel grant from the National Heart Institute which enabled selected medical scientists to attend an important scientific meeting in Europe.

Senator BURDICK. Can you give me any breakdown of what percentage of the funds come from voluntary contributions, what percentage of the funds come from Public Health Service, what percentage of your funds come from private industry?

Dr. WAKERLIN. Money from the Public Health Service, sir, would be a fraction of 1 percent, and in some years it would be nothing. We receive contributions from industry—I cannot give you the exact percent. We have only one complaint about this, and that is we would like to have more funds contributed to us by industry.

The major part of our funds come from individual citizens and in small amounts.

Senator BURDICK. Would it be a fair statement to say that a major-
7 of your funds come from contributions of citizens?

Dr. WAKERLIN. Yes, a very distinct majority, approaching 95 percent. Indeed, approximately $10 million was raised on Heart Sunday last February by door-to-door solicitation.

Senator BURDICK. And notwithstanding the fact that close to 95 percent of the funds come from the public by way of dollar donations $5 donations, and maybe 5 percent from private industry, you would like to grant this exclusive license to them for discoveries?

Dr. WAKERLIN. Only if this were necessary in order to be certain that a particular discovery was properly made available to the public. In other words, if the American Heart Association—on negotiation with the Department of Health, Education, and Welfare—did receive proprietary rights, the association would administer the patent in the public interest, and if that required giving leadtime to a commercial organization, we hope we might have the right to grant an exclusive license for a limited period of time in order to make appropriate development of the discovery possible.

For example, although penicillin was discovered in 1929, it became available only a good many years later when efforts were made to develop it, including pilot plant operation and then large-scale production. This required large sums of money and adequate facilities which are frequently available only to commercial organizations.

There might be other patents which would not require this kind of leadtime or exclusive license.

Senator BURDICK. Well, I share the chairman's concern to write a section in this law to do the things you want to do, with all the safeguards you would want, is a very difficult assignment.

Dr. WAKERLIN. Well, I think that if the chairman's suggestion is adopted, that Department of Health, Education, and Welfare officials are given authority to negotiate with voluntary health agencies who are in the research support field when the appropriate occasion arises—this would take care of the matter.

Senator BURDICK. I have a little concern for the people of the United States who put their dimes and nickels in there, too.

Dr. WAKERLIN. We do, too, sir. They are our lifeblood.

Senator BURDICK. That constitutes almost 95 percent of your contributions you say.

Dr. WAKERLIN. Yes sir.

Senator BURDICK. That is all.

Senator MCCLELLAN. Thank you very much.

Mr. BRENNAN. Mr. Howard I Forman, president of the Philadelphia Patent Law Association.

Senator MCCLELLAN. Very well, Mr. Forman.

I note you have a prepared statement. It is of some length. Would you be willing to file it and let it be printed in the record and highlight it for us?

Mr. FORMAN. Yes, sir. I will not refer to the statement as such today.

Senator MCCLELLAN. Beg pardon?

Mr. FORMAN. I would appreciate having my formal written statement filed in the record.

Senator MCCLELLAN. It may be received and published in the record in full.

(The prepared statement of Mr. Forman follows:)

STATEMENT BY HOWARD I. FORMAN

My name is Howard I. Forman. I am from Philadelphia, Pa., and my principal occupation is that of a patent attorney.

I appear today in a dual capacity: (1) as president of the Philadelphia Patent Law Association; and (2) as a private citizen who, as a taxpayer and a longtime student and critic of our Government's patent policies, is vitally concerned with the effects which the bills under consideration may have upon the public welfare if enacted into law.

With respect to my first capacity, I presume no statement of my qualifications is needed. As to my second role, I would like to briefly state my qualifications in an effort to establish justification for my claim to speak solely with the public interest in mind. I feel this is important because of a tendency of some persons in public life to belittle the views on Government patent policy matters of spokesmen who come from segments of industry or the patent profession, particularly if they happen to make their livelihood by serviug industrial organizations not normally classified as small businesses.

I have been engaged in the practice of patent law for over 20 years, the past 9 in the employ of a corporate chemical manufacturer whose only Government contract in that period has been the operation of a small research laboratory for the Army. Prior to my present position my entire working experience, covering a span of 23 years, has been as a Government employee, as a clerk, as a chemist, and as a patent attorney. In 7 of the past 9 years I have been a lecturer in political science and public administration at Temple University, in which two fields I have had conferred upon me, the earned degrrees of master of arts and doctor of philosophy by the University of Pennsylvania over 10 years ago.

My doctoral dissertation, incidentally, has been published as a book entitled "Patents—Their Ownership and Administration by the United States Government." It was based on my experiences while serving as consultant to the first Chairman of the Government Patents Board in 1950. Since then I have had published at least seven major articles, in law reviews, textbooks, or encyclopedias, on the subject of Government patent policy. A list of those publications is appended hereto. I am also the author of one other book and editor of two books dealing generally with patent law and practice, and author of approximately two dozen more law review articles on patents and related matters.

My views on Government patent policy, incident to which I have long exhorted the Congress to adopt a number of the proposals which have been incorporated in the bills under consideration, are a matter of public record. They appear not only in the publications on the attached list, but also in the records of the hearings on Government patent policy held before this same subcommittee (re S. 1084 and S. 1176) on May 31, 1961, and the hearings before Subcommittee No. 3 of the Committee on the Judiciary of the House of Representatives, on March 3, 1958, re House Joint Resolution 454 regarding the rights in inventions made by Government employees.

I submit that, in view of my background of government, university, and industry experience, with the past 15 years having been extensively devoted to studying, writing and lecturing on Government patent policy, my personal comments and suggestions which follow deserve to be considered on their merits and only on their merits. I do not feel beholden to any industrial organization or professional association, be it my employer or any group in which I hold membership, to express views or recommendations which necessarily coincide with theirs. In stating my personal views I speak only for myself, and disclaim speaking for any other person or organization with whom or with which I may happen to be or have been affiliated.

Reverting to my first capacity, I now wish to make a statement as president of the Philadelphia Patent Law Association, an organization of patent attorneys and agents whose active members reside or are employed in the eastern half of Pennsylvania, all of Delaware, and roughly the southern half of New Jersey. On behalf of that association's board of governors, it is my privilege to report on the following action which was taken at a meeting held in Philadelphia on May 27, 1965. This action, incidentally, followed a careful study and report of the four above-mentioned bills by the association's special subcommittee on Government patent policy.

PHILADELPHIA PATENT LAW ASSOCIATION,
BOARD OF GOVERNORS.

We believe that the progress of the useful arts is most effectively advanced when private enterprise is made secure in the exclusive right to what it has created. We believe that the machinery of government is ill adapted to the economic and effective exploitation of inventions in the civil field, and should not, on principle, compete with private enterprise, nor favor one enterprise as against another.

We believe, in short, that patent protection is an essential element of industrial progress, and that governmental ownership of patent rights leads to stagnation, because government, as such, is not in a position to enforce the protection which is a patent is intended to afford.

With these principles in mind, we earnestly commend the terms of Senate bill 1047, which would bring to an end the unauthorized taking of patent rights by government, except when national security requires.

With these principles in mind, we also earnestly commend the provisions of Senate bills 789 and 1809, but not in the precise form presently proposed. Rather, we very greatly hope that these two measures might be consolidated and then streamlined, in accordance with the accompanying recommendations of our committee on Government patent policy. If such a consolidation could be effected, the resulting system would be flexible enough to permit accommodation to widely varying circumstances.

On the other hand it is our view that S. 1899 is unduly rigid in its terms, and that it would provide a less effective means for stimulating real advancement, since it would increase the number of instances in which the patent would be owned by government, and would therefore afford no real protection to a licensee.

We authorize and request our president, Howard I. Forman, to present to the Senate Judiciary Committee, Subcommittee on Patents and Trademarks, the views expressed above and the specific recommendations of our committee on Government patent policy.

The foregoing statement was adopted by the board of governors, at a meeting held on Thursday, May 27, 1965.

WILSON OBERDORFER, *Secretary.*

PHILADELPHIA PATENT LAW ASSOCIATION,
COMMITTEE ON GOVERNMENT PATENT POLICY.

Your committee on Government patent policy offers the following recommendations:

S. 1047 (Williams, N.J.). This bill requires the Government to acquire a license before using a patented invention unless the Secretary of Defense certifies that the national security requires its use. We urge the board to favor the prompt enactment of this much needed legislation; in the hope that it will stop the wholesale emasculation of privately owned patent rights which has become a national scandal.

S. 789 (Saltonstall); S. 1809 (McClellan) and S. 1899 (Long) are all directed to the handling of patent rights in inventions made under R. & D. contracts. We shall compare their more important provisions in what follows:

We think that section 3 of S. 789, which provides that the Government shall always receive the free and nonexclusive right to use any invention made with the use of Government funds but shall take no greater right except under specified circumstances, is less likely to lead to unnecessary restrictions on creative industries than section 4 of S. 1809, which provides for the taking of broader rights (including title) unless certain specified circumstances justify exceptions.

We think that section 7 of S. 789, which calls for renegotiation only when subsequent and unforeseen events requires it, is sounder in principle than those provisions of section 4 of S. 1809 which require renegotiation every time an invention is made. The taking of greater rights under S. 1809 should be conditioned upon a finding that the public interest will be better served by such taking, in addition to the finding presently required, that the Government has the right to take.

We see no prospect of commercial exploitation of a patented invention owned by Government unless the Government grants an exclusive license, as provided by section 8 of S. 1809, but such a license is of little value unless it is implemented by the right to sue infringers. It seems anomalous to us that the Gov-

ernment should bring suit against one of its citizens for using a patent right which belongs to all citizens, or that it should gain the same result by indirection, by giving the licensee the right to bring such suit. For these reasons we urge that any legislation framed on this subject should be so drawn as to reduce to a minimum the situations in which Government takes title. For this reason, we favor the approach employed in S. 789, which leaves title with the enterprise that created the invention, but requires the patentee to license another if he fails to exploit the invention in nongovernmental fields within a reasonable time.

We respectfully suggest that section 11 of S. 789 be made the subject matter of a separate bill. That section deals with awards for inventive contributions, rather than with the subject of patent rights.

It is our hope that the desirable features of these bills can be consolidated into a practical, effective, and uniform system for the allocation of patent rights in inventions made under Government contract.

We are apprehensive that the very broad direction given in section 4 of S. 1899 might lead to a "Government take all" policy, which would discourage rather than promote invention. The waiver provisions of section 10 of S. 1899 are so stringent as to fully justify that apprehension. Nor do we see any need, at tremendous cost, to duplicate the information-gathering functions of the Patent Office and the Library of Congress, as contemplated by section 7 of S. 1899. We commend, however, the concept of a single authority to make policy determinations for all agencies, and the concept of giving the Board of Interference Examiners the duty to decide whether an invention was or was not "made" during the terms of contract and did or did not fall within its scope.

We add three very earnest recommendations as to terminology.

1. The expression "the conception or first actual reduction to practice" (sec. 2(g) of S. 1809) is one which often works a wholly needless hardship. Patent rights of incalculable value have been decided, in thousands of interferences, on a reduction to practice which was purely constructive; namely, the filing date of the application. We strongly urge that the word "actual" be deleted from this phrase.

2. The expression "at all tiers thereunder" in section 3 of S. 789 is potentially extremely mischievous and should be deleted. This could require the man who digs the foundations for a research facility to secure an invention agreement from the laborers on his staff.

3. Unless there is to be a fundamental change in our patent system, it is only the inventor who may apply for a patent. The wording of section 12 in S. 789, of section 7 in S. 1809 or of section 6 of S. 1899 should be revised to avoid any inference that the applicant for a patent can be anyone other than the inventor.

We urge the board to approve and adopt this report, in principle, so that our views may be presented with your sponsorship at the hearing to be held June 1 and 2 on all four of these bills.

Respectfully submitted.

ANDREW R. KLEIN, *Chairman.*

The above report on the action of the Philadelphia Patent Law Association concludes my statement on behalf of that organization. The balance of this statement will constitute views which I express purely as an individual.

I wish to congratulate each of the four Senators who have respectively sponsored the above-mentioned bills. Each of them has proposed a bill which prescribes a uniform, National Government patent policy. Such uniformity is highly desirable and long overdue. A uniform policy will go a long way toward creating order out of a situation which has been in a chaotic state for some 85 years.

While I do not believe that any of the four bills in itself contains provisions all of which will best serve the public interest, I do believe that some of them contain provisions which should be enacted into law at the earliest possible time. Actually, I am convinced that the public interest would best be served if a bill similar to H.R. 4482, which Congressman Toll introduced in the 88th Congress, were adopted. Such a bill would do more to promote the progress of the arts and sciences than any of the bills here under consideration, and would annually save the taxpayers many millions of dollars in administrative expenses which will be incurred if S. 789, S. 1809, or S. 1899 is adopted. Moreover, the Toll bill would also dispose of the problem concerning rights to inventions made by

Government employees, which will not be dealt with upon enactment of the bills now being considered by the Senate Patents Subcommittee. Until that problem is disposed of by statute, a truly uniform, national policy regarding rights to all inventions arising out of Government-subsidized research will not be achieved.

I recognize, however, that the political climate today is such that a bill like that of Congressman Toll's has little chance of being enacted. Accordingly, to be as constructive as possible, I would like to make the following general and specific recommendations with regard to the bills here under consideration.

First, as to S. 1047, I wish to urge its adoption in order to eliminate an inequity of long-standing that has unnecessarily caused great hardships to owners of patents on inventions made without any governmental assistance. Recognizing that there are times and circumstances when the Government must have the right to make use of even privately held patented inventions for purposes of national defense, it is unconscionable to permit the promiscuous use of the Government's right of eminent domain in cases where other measures may be taken which would not jeopardize the Nation's defenses. This bill will rectify that situation without any dilution of the Government's right to use whatever inventions are deemed essential to the defense effort. I have only one minor suggestion regarding the wording of the bill, and that is to change "a patent" to—an unexpired patent—on page 1, line 8. I believe the reason for this change should be self-evident.

Of the three remaining bills, I believe that S. 1809 comes closest to representing the kind of Government patent policy we should have. It contains many desirable provisions which parallel provisions set forth in the memorandum and statement on Government patent policy which former President John F. Kennedy promulgated on October 10, 1963. It adequately covers the situations which S. 1899 purports to take care of in the public interest, but does so with some of the flexibility that experience with administration of the Kennedy directive has shown to be preferred by Government administrators and contractors alike. A number of provisions in S. 789 deserve to be given serious consideration, and I will point out those which I feel would improve S. 1809. At the same time I will indicate those provisions in both S. 789 and S. 1809 which I believe should be revised or eliminated.

Referring now to S. 1809, the first item that should be amended is the definition of "made" in section 2(g). I am well aware of the origin of the concept and the reasons for not exempting inventions that have been constructively reduced to practice, but I have never been persuaded as to the merits thereof. If an invention has been conceived and legally completed before the contract was awarded, why penalize the contractor who chooses to give the Government the benefit of the invention in the solution of a research problem? To require otherwise might tempt contractors to avoid use of precontractual inventions not yet actually reduced to practice, in the performance of their contracts, particularly if the inventions appear to have important commercial significance. In the long run the public will be the loser by failing to get the benefit of the best possible solutions to research problems which may be known and available to the contractor.

The second item meriting amendment is the language in section 3(b)(5) on page 5, lines 5, 7, and 8. In line 5, before "after" insert "but only"; in line 7, replace "that" by "to determine whether"; and replace "not" by "unjustifiably failed to"; and in line 8, change "erted" to "ert". I note that section 3(b)(5)(a) provides for the issuance of licenses by the agency head to third parties if the contractor fails to bring the invention to the point of practical application. Such compulsory working requirements are in the public interest and I highly approve of them. However, it is noted that the terms and conditions of such licenses may vary from agency to agency and even from case to case within an agency. This may not be desirable. In fact, this possibility and other factors in the provisions of S. 1809 make me urge that there be included in that bill a provision like that of section 14 in S. 789 under which the Secretary of Commerce shall promulgate Government-wide regulations which can be supplemented for internal administration by each other Government agency. Such a provision will help to make the proposed uniform Government patent policy truly uniform.

The third item in S. 1809 which should be changed involves section 4. Actually, there are several points here which merit reconsideration. The concept of deferring the determinations called for in 4(b) at lines 7 and 8 of page 8, and in 4(c) at lines 19 and 20 of page 8, is fundamentally bad in principle

and will cause tremendous administrative difficulties. In fact, practically all the administrative and judicial procedures provided for in section 5 are believed to be unnecessary. They are fraught with serious problems and will cause great expense which could be avoided if the deferral of the determinations as now called for were to be eliminated. Such deferrals will constitute bad law in that they violate some elementary contract principles; namely, that the contracting parties should agree and get into their written contract as many of the conditions of the agreement as can be foreseen at the time the contract is negotiated. The settlement of the patent rights question at the time of negotiation should present no real difficulty, and will save all parties from embarrassing and troublesome arguments afterward.

If it is deemed desirable to have a provision whereby the Government could claim title to a particular invention which arose out of performance of a contract, as a result of new, unusual and compelling factors not visualized when the contract was executed, instead of the deferred determinations of section 4 it would be better to include the provisions of section 7(a) in S. 789.

If section 4 is retained, subsection (a)(2), should be revised as it is too broad and ambiguous. At most it should be limited to the production of items which may be required by Government law or regulation. Subsection (a)(3) also should be revised, if not eliminated, as I do not see how it will be possible to determine whether the acquisition of exclusive rights at the time of contracting might confer a dominant position on a contractor, when no invention has as yet been made which might establish such an advantage in the contractor.

If section 5 is retained, the fourth item meriting consideration involves two changes. In 5(a)(2)(C), at line 7 on page 10, change "question" to "questions", and after "whether" insert "(1)"; and at line 9 on page 10, change the period to a comma and thereafter insert "and (2) such action will best serve the public interest.". In 5(b), at line 16 on page 10, before "the" insert "and that such action will best serve the public interest,". I believe these changes will require no explanation.

The fifth item involves section 6(b). At line 11 on page 12, after "if" insert "shown to the satisfaction of the court to be".

The sixth item involves section 7. At line 22 on page 13, reference is made to the filing of patent applications by the "contractor". Since contractors normally cannot file applications, perhaps this word should be changed to "inventor".

The final section is S. 1809 on which I would like to comment as my seventh item is section 8 which deals with the administration of patent rights acquired by the United States. Before doing so, let me point out that I believe it to be basically unsound and unnecessary for the United States to acquire title to inventions of its contractors or its employees, and that a far better policy would be that provided for in the aforesaid Toll bill, H.R. 4282 (88th Cong.). That bill would leave title in the Government's contractors or employees, subject only to compulsory working provisions. However, being reconciled to the apparent inevitableness of a statute which will call for the Government's acquisition of title to many patents, I am in that event strongly in favor of sound provisions for vigorous administration of those rights with the primary objective of maximizing utilization of all inventions to which they pertain. By the same token, I am strongly opposed to the concept of dedication of such rights as provided for in section 3(a), lines 9–17 on page 5, of S. 789. Dedication may tend to destroy the opportunities affordable by exclusive licensing of Government-owned patent rights for promoting the utilization of inventions.

The provision in section 8 for the granting of exclusive, as well as nonexclusive, licenses is good. It is consistent with the basic precepts of the American patent system; namely, that the granting of the right to exclude others from the practice of a patented invention, for a limited period of time, may be the essential inducement for the investment of resources generally required to convert inventions into useful and acceptable products and processes. The authority vested in the agency head to request, and the Attorney General to take, the necessary action to protect and preserve the rights acquired by the Government is good. It should settle for all time the question whether the Government should and whether it has the right to sue for infringement of patents which it owns. The constitutionality of such a provision undoubtedly will be questioned, even challenged, but in my judgment it will be upheld as a proper Government function.

Although section 8(b) broadly applies to the following situation, I recommend that consideration be given to adding an additional proviso along the lines of

section 5(c) in S. 789. Then it would be mandatory upon the agency head to grant an exclusive license to the contractor responsible for making the invention if, within 3 years after title to it was acquired by the Government, no third party actually made use of the invention. I also favor adding to section 8(b) the provision of section 6 in S. 789 dealing with the voidability of the rights left with the contractor. This would put extra teeth into the provision now covered by section 3(b)(5)(a), and may have to be reconciled therewith. But the principle is good and should be adopted; it has many of the advantages of the compulsory working requirements of the aforementioned Toll bill, H.R. 4282 (88th Cong.).

Another provision of S. 789 which I favor adding to. S. 1809, either to section 8(b) or at some other suitable place in the latter bill, is the essence of the former bill's section 3 (e) and (f). Those sections permit the agency head to waive, in certain situations, any rights the Government otherwise might have to acquire title. They make for flexibility which may lead to greater utilization of the inventions in question.

S. 789 has a secton 9 which should also be considered for addition to S. 1809. That section adds to the rights and remedies conferred by 28 U.S.C. 1498 the right of a patent owner to have his claim for infringement by or for the Government determined by the head of the appropriate department or agency. Such a provision not only would alleviate the jam in the Court of Claims caused by suits over such claims, but along with the passage of S. 1047 should resolve many of the issues that have in recent years led to decisions by the Comptroller General of the United States which have caused anguish not only among Government contractors but Government administrative authorities as well.

In concluding, I will first revert to the suggestion made above that the essence of section 14 of S. 789 should be incorporated in S. 1809. This is the provision which would, in effect, establish a central administrative agency to carry out the provisions of the bill. Alternatively, a separate agency for that purpose, along the lines of that proposed in S. 1899, should be established. The important objective, regardless of how it is achieved, is to provide for uniform rules, uniform procedures, and uniform interpretations so that persons dealing with different departments or agencies, or branches thereof, will not find unpredictably different results from case to case. Hopefully, a body of published uniform principles, practices, procedures and decisions will in time become available so that an orderly process of administration will be the happy result. This will also help in the event judicial review of such administrative actions should become necessary.

As a final observaiton, I note that section 9 of S. 1809 requires semiannual reports to the Congress, a requirement which also appears in S. 789 and S. 1899. This is good. However, I would strongly recommend that there be added to the information which those reports are to contain factual data on the actual cost of every phase involved in the administration of the laws governing the new national patent policy. This will be important if the Congress is to be able to assess the true value of those laws in the future, weighing the cost of their administration against the possible losses to the taxpayer in terms of the Government's patent rights which allegedly are being given away today in the absence of such laws.

It is my understanding that the present average cost to the taxpayer, per patent application filed by the Government, has been conservatively estimated to be approximately $2,000. This is a direct cost which does not include overhead, but is presumed to cover such functions as liaison between the patent advisor and the inventor, followup of the contract to obtain invention reports, searches in the Patent Office, drafting of drawings, preparation, and prosecution of the application. In 1964 the total number of inventions made by Government contractors and employees was 11,000 according to reports understood to have been received by the Patent Advisory Panel of the Federal Council for Science and Technology. At $2,000 per case—and note that S. 1899, for example, calls for the filing of applications on all patentable inventions arising out of Government-subsidized research—this would cost the taxpayers at least $22 million per year. Promotion of the inventions to maximize their utilization involves more speculative costs. However, there may be a clue in the experience which NASA has had recently. It is understood that NASA devoted approximately $3½ million for such purposes in 1964, and NASA then had some 1,500 inventions available for public use. At that rate, promotion of the Government-

wide total of inventions might run about another $22 million or a total annual cost for the overall operation of the Government's patent policy program of about $44 million.

These costs will be bound to rise tremendously if the new policy brings about the acquisition by the Government of title to many more thousands of inventions each year, as is to be expected. As a taxpayer, I think that in view of these estimates it would be highly desirable for the Congress to obtain accurate reports on the actual costs each year, so that a realistic reappraisal of the value of any law resulting from the bills here under consideration can then be made.

APPENDIX

STATEMENTS BY HOWARD I. FORMAN

Following is a list of publications by Howard I. Forman, B.S. (chemistry), LL.B., M.A., Ph. D., dealing with the subject of Government Patent Policy:

1. "Government Ownership of Patents and the Administration Thereof" (27 Temp. L. Q. 31 (1954)).
2. "Patents—Their Ownership and Administration by the U.S. Government (Central Book Co., New Yorfi 1957).
3. "Federal Employee Invention Rights—What Kind of Legislation?" (40 J. Pat. Off. Society 468 (July 1958)).
4. "Wanted: A Definitive Government Patent Policy, (3 PTC J. Res. & Ed. 399 (winter, 1959), reprinted in Forman, ed., Patents, Research and Management, 509 (Central Book Co., New York, 1961)).
5. "Forgive My Enemies for They Know Not What They Do," (44 J. Pat. Off. Society 274 (1962)).
6. "Impact of Government Patent Policies on the Economy and the American Patent System, "(Patent Procurement and Exploitation, 181 (Bureau of National Affairs, Washington, D.C., 1963)).
7. "Government Ownership and Administration of Patents," (Calvert, ed., "The Encyclopaedia of Patent Practice and Management," 360 (Reinhold Publishing Corp., New York, 1964)).
8. "President's Statement of Government Patent Policy: A Springboard for Legislative Action," (25 Fed. B. J. 4 (winter, 1965)).

STATEMENT OF HOWARD I. FORMAN, PRESIDENT, THE PHILADELPHIA PATENT LAW ASSOCIATION

Mr. FORMAN. My formal written statement more completely identifies my background of experience. But briefly today I would like to say I am a patent attorney and political scientist living and practicing in Philadelphia. I appear here today in a dual capacity—first as president of the Philadelphia Patent Law Association and secondly as a private individual.

The formal written statement which, Mr. Chairman, you have agreed to have incorporated in the record, contains a statement by the board of governors of our association regarding S. 789, S. 1047, S. 1809, and S. 1899, together with the report and recommendations concerning those bills by our association's committee on Government patent policy.

To conserve time I will read only a portion of the statement of the board of governors.

They "earnestly commend the terms of Senate bill 1047 which would bring to an end the unauthorized taking of patent rights by the Government except when national security requires."

They "also earnestly commend the provisions of Senate bill 789 and 1809, but not in the precise form presently proposed."

Rather, "they very greatly hope that these two measures might be consolidated and then streamlined in accordance with the accompanying recommendations of our committee on Government patent policy.

If such a consolidation could be effected, the resulting system would be flexible enough to permit accommodation to widely varying circumstances.

"On the other hand, it is our view that S. 1899 is unduly rigid in its terms, and that it would provide a less effective means for stimulating real advancement, since it would increase the number of instances in which the patent would be owned by the Government and would therefore afford no real protection to a licensee."

That is the end of that formal statement.

The rest will consist purely of my personal views.

In my formal statement I indicated at some length and in some detail my reasons for favoring adoption of S. 1047 and for believing that, of the three remaining bills, S. 1809 comes closest to representing the kind of Government policy we should have.

I made some specific suggestions for amending S. 1809 in some instances by adopting provisions set forth in S. 789. But I will not go into them now, for I trust that the subcommittee and its technical staff will glean them from the written statement and can best weigh the merits of the respective suggestions upon making such a review.

Mr. Chairman, only a few weeks ago, on June 18 to be specific, I delivered a talk entitled "Government Patent Policy in the United States" at the Ninth Annual Public Conference of The George Washington University Patent, Trademark, and Copyright Research Institute. I sent copies of that talk to you, Senator McClellan, to Senator Burdick, to Senator Hart, and to your subcommittee's chief counsel, Mr. Brennan. I requested then, and I would like to request now that that paper be incorporated as a part of my testimony before this subcommittee and I hope you will consider this favorably.

Senator McClellan. It may be received and published in the record.

(The document referred to follows:)

GOVERNMENT PATENT POLICY IN THE UNITED STATES

(By Howard I. Forman)

Presented on June 18, 1965 at the Ninth Annual Public Conference, The Patent, Trademark, Copyright Research Institute, The George Washington University, Washington, D.C.

NOTE.—The views herein expressed are entirely and solely the responsibility of the author, and they do not necessarily reflect the views of his employer or of any other organization with which he has been or many currently be associated.

Mr. Chairman, distinguished guests, ladies and gentlemen: The 175th anniversary we are celebrating today is of the act of 1790 which established the U.S. patent system. It is interesting to note that it was almost 75 years after that notable beginning, on June 8, 1864, to be exact, when a law was enacted which authorized the Government to take title to patents as an incident to certain infringement suits. Perhaps that date could be considered the beginning of all the ruckus we hear today about Government patent policy, in which case it's now over 100 years and still not settled.

Actually, I prefer to consider the act of 1883 as the starting point, for it was in that year that Congress decided to authorize the executive branch to obtain patents on inventions of its employees, without charging the applicants any fee for filing the application, in return for a nonexclusive, royalty-free license to the United States. In that event, the abortive attempts to establish a uniform Federal patent policy only go back a little over 80 years. During most of that time each Government agency established its own practices and procedures, some with and some without any stated policy. Although many

bills or resolutions have been introduced in Congress seeking to establish a uniform patent policy for all Government departments and agencies, none has been passed to date.

I will not attempt to explain the reasons why so many bills have been introduced, why only a few were passed which established patent policies for a few agencies, and why we have been between 80 and 100 years in the process of arriving at a uniform Government patent policy. At least 2,000 printed pages of such explanations have been published to try to tell this story, and that's just counting the 3-volume, 1,000-page report of the U.S. Attorney General which appeared in 1947, my own book published in 1957 and 7 law review articles I have written since then which altogether totaled some 600 pages, the 100 or so pages of the dozen monographs published by the Senate Patents Subcommittee in the past 10 years, the more than 200 pages which have been devoted to the subject by the journal of the George Washington University's Patent, Trademark, and Copyright Research Institute, and some 100 pages of symposia in the Federal Bar Journal. I just don't have the time this morning to discuss the facts represented by all that material.

In view of the relatively short time I have in which to cover so much ground, I'd like to get right down to cases and review the situation as it exists today. Nothing could be more timely for, at this very moment, Congress appears much closer than it ever has been to the brink of passing some sort of uniform Government patent policy legislation. I'd like to try and boil down the issues for you, consider some of the suggested solutions, and perhaps make a point or two of my own.

Our Government currently is spending at the rate of $15 billion per year on research and development. As an incidence of this work thousands of inventions are expected to be made and in fact are being made. Some of these inventions may have great potential of various kinds. Apart from their being useful in solving actual problems which the Government has in connection with its conduct of the Nation's defenses, development of our agriculture, aud the improvement of our general health and welfare, the inventions may be important to the public in many other ways.

With the aid of these inventions the people may reap a whole harvest of new and better things with which to improve their way of life if some of those inventions are developed for commercial utilization. New plants may he built, new industries may spring up, employment may be given to countless thousands, and many more derivative benefits may result from these new developments. Assuming that this will be doue by private interests rather thau by the Government, entrepeneurs who invest in the development of these new products, who build the plants, hire and manage the people, and purchase the equipment for them to use, will also stand a good chance of profiting on their investment if their efforts prove successful.

There is one slight catch to all this, however. Inventions are peculiar things in that their very newness almost always connotes a sense of incompleteness or imperfection, like diamonds in the rough. Rarely are new inventions so simple and so complete that, with very little morey or effort, they can be rapidly readied for the market and quickly meet with commercial acceptance. More often than not, the inventions will have to undergo extensive developmental or product engineering, and this postinventive developmental phase may take tens and hundreds of thousands of dollars, perhaps even many millions of dollars.

This might not be a bothersome problem if each such investment carried with it some assurance of success. But the developments frequently may not turn out as expected; the products may uot "catch on" with the public, etc. The expenditures in such cases may be so prohibitive as to discourage many people from such undertakings unless there was someway of guaranteeing a reasonable chance of success. At the very least, the guarantee should provide that when the new products or processes are fully perfected the one who took all the risks would have a period of time withiu which to try and recoup his investment, or at least a reasonable share thereof, before having to face the merciless onslaught of open-market competition from imitators who, having made no such expenditures for research and development, generally can sell at much lower prices. As a rule, the only way such assurances can be given is under the operation of our patent system. If the inventions are patentable, and if a prospective developer can be given the right to exclude others from practicing the invention for a limited period of time, the risks can be balanced against the thus enhanced prospects of investment recoupment, and the would-be entrepreneur can be more readily convinced to apply his capital, skills, and energies to such a development.

If we are interested in having as many of such inventions developed for commercial utilization as we possibly can, commonsense would seem to suggest that in those cases where the grant of such exclusive rights is a prerequisite to inducing entrepreneurs to tackle the developments we should try our best to make such grants available to them. If this were considered to be in the public interest there would, of course, still be certain other problems to consider. One is who should own the patent rights at the outset: The Government? The Government contractors? The Government employees? If it is the Government, the next problem is to determine the basis on which the Government should grant rights under those patents to a potential developer of the inventions in question. Such a determination can cause many political problems. Allegations of favoritism will be among the milder forms of criticism, and more such unpleasantries will be bound to occur. On the other hand, if it is decided to leave title with the Government's employees or contractors other questions must arise. Mainly they will concern the equities involved in the Government's forfeiture of claims to potentially valuable rights which, at first blush, would appear to belong to the Government (and hence to the taxpayers) since the inventions arose out of research and development which were at least in part paid for out of public funds.

Until very recently, in considering the complex problems involved in determining a satisfactory Government patent policy, few people gave much thought to the inventions themselves. The inventions were just pawns in a political chess game. Almost no one seemed to care whether it was important, in the public interest, that as many as possible of the inventions in question should be developed for commercial utilization. Certain minority, but outspoken, factions in both the executive and legislative branches of the Government have demanded that it should take title to the inventions on the theory that Federal funds paid for the research from which the inventions were spawned, and the Government therefore should be entitled to receive all the fruits thereof, including full rights to all the inventions. In brief, they have said, the taxpayer should not be made to pay twice for the same inventions, once in the form of public funds for research and development contracts or salaries, and again in the form of royalties when the inventions are sold or licensed to a commercial operator.

What would happen to the inventions themselves after the Government took title? Several alternatives have been suggested. One is that the inventions should be placed in the public domain by publication and dedication. Another is that the Government would take out patents on the inventions and then license anyone on a nonexclusive basis, with or without a relatively modest royalty. Only recently has it been suggested that in some select cases the Government might find it desirable to license on an exclusive basis, again with or without the payment of a royalty, with the definite requirement that the licensee give evidence that it has brought the invention to the point of commercial acceptance in a stipulated period of time, or else forfeit the license. In some special few instances it has been proposed that the Government might undertake to manufacture important inventions itself, rather than chance their going undeveloped because private interests did not find them sufficiently attractive or too hazardous to tackle on their own.

Note that in all of these suggestions a principal objective is the utilization of the inventions. They differ from each other only in their methods of accomplishment. In effect, under one extreme the inventions would be completely outside the patent system, with no inducement to manufacturers in the form of advantages inherent in the right to operate on an exclusive basis for a limited period of time. At the other extreme, the inventions would be subjected to the protection afforded by the patent system, and the promoters of the inventions would have the help of a headstart over their competitors.

I do not mean to suggest that only inventions which are covered by patents, and which are exclusively licensed, will attract manufacturers and developers. There are, of course, numerous instances where the potential market is so enormous, the required investment for development relatively so small, and the risks of failure so limited, that many entrepreneurs will be attracted to practice inventions without the benefit of any exclusive rights. But the chances obviously are much greater that, if given some headstart or leadtime as can be done by exclusive patent rights, in many situations inventions will be manufactured which otherwise might remain completely unattractive to would-be manufacturers. I don't have to illustrate this point for you by examples. Just ask yourselves the question: Wouldn't you be more inclined to invest $10,000, or $100,000, or $1 million in the development of a new invention if you felt that you would have a fair chance to fight off imitators who are intent on pricing you out of the market

by copying your invention as soon as it is introduced into commerce? Wouldn't you feel it is only reasonable to have some protection against such imitators until you had gotten back some of your investment, and perhaps had "sold" the public on the merits of your invention before some cheap imitators might sour the consumer by putting out copies of your invention that won't work or last very long?

Yesterday, Dr. Hershey told how the Du Pont Co. felt about the importance of having a sound patent position before investing $1 million or sometimes $50 to $60 million in a new development. If a company of Du Pont's resources and preeminince in its field finds it must rely on patents, it should be obvious that a small concern or independent inventor needs that protection far more.

Some years ago the late Circuit Court Judge Jerome Frank, in commenting upon the then current abuses of the American patent system and the need for legislative reform to eliminate the opportunity for misusing patents, stated: "* * * but we must be careful not to throw out the baby with the bath water."

Likening the patent system or patents to a baby calls to mind the Biblical story of King Solomon who was obliged to decide which of two wailing women, both of whom claimed to be the mother of an infant child, was the real mother. You'll recall he declared that, since he found it impossible to determine to whom the child rightfully belonged, he would be cut in two and give each woman a half. One of the women said that would be satisfactory to her, but the other said, "Oh no, my king, give her the child." Solomon then realized that the latter was the real mother, for she preferred to give up the child rather than permit it to be slain, and he awarded the child to her. In a similar way the controversy over who should own rights to inventions and patents arising out of Government-supported research and development makes one wonder if we don't need a modern-day Solomon to pull the same sort of stunt all over again.

Too many people in Government circles are concerning themselves with the possibility of "giveaways" of patent rights to Government contractors. Believing that they are protecting the public interest, they are claiming that the public is the true "mother" or owner of the child (the "child" in this case being the patent rights arising out of Government contracts), and they want to cut up the child and hand over parts of it to as many people who want to claim a share. How much better to help the child grow to maturity, and to let the real "mother"—the public—share in the benefits of such fully developed children who can then make contributions of their own to the benefit of mankind.

According to the National Science Foundation, the Government now is putting up about 70 percent of all funds expended annually for research and development in this country. For the sake of discussion, let us assume that the proportion of dollars spent for research can be roughly correlated with the number of patentable inventions which arise out of the research. Let us further assume, in order to keep the numbers small enough for easy contemplation, that every year the total number of patentable inventions made in this country is 1,000. This would mean that each year approximately 700 out of 1,000 patentable inventions would be subject to whatever decisions are made with regard to the Government's patent policy. You can surely see that the way we handle those inventions will become mighty important to the progress and future of this country when you consider that the products of the inventive genius of this country are not unlimited. They are national assets which must be conserved and nurtured just like our timber reserves and our farmlands. We cannot afford to let them become decayed or eroded through lack of use. We must try and utilize as many of them as we possibly can.

Those of you who have been intimately involved, or for other reasons have followed the great debates over Government patent policy in the past decade, probably are wondering why I haven't as yet said a word about the relative merits of the propositions that the Government should or should not take title to the inventions in question. Quite frankly, I have left that issue for last because it's the more complex one to deal with, and the one which is far more difficult to resolve to everyone's satisfaction. It's the issue that invariably brings up heated arguments, generally charged with emotionalism and not quite as much lucidity. What's more, in my humble judgment, it's the least important factor to consider from the public interest point of view. If we could all agree that, from the viewpoint of the Nation's welfare, it is more important to figure out how to maximize the utilization of the inventions than it is to worry about who should own the rights to them, I believe we would agree much more readily and

universally as to who should own title to the inventions, and whether any conditions should be attached to such ownership.

The sophisticates among you in this field of Government patent policy know the arguments which have been advanced by the Governments' contractors as to why they should be allowed to keep title. The main one is that the contractors usually sought by the Government are those who have had a good deal of background know-how in a given area of technology. They probably have had years of experience, and have plants, facilities, personnel, all of which were assembled with private investment. As a rule, they can be expected to solve the Government's research problems with the best possible solutions, in the shortest period of time, and therefore with the least possible cost to the Government. Inventions which may arise out of their contractual operations can be expected to be the product of their background know-how as well as of any advance in the art, or foreground developments, which they may chance to make in the course of working on the Government's assigned problems.

It will generally be impossible to determine how much of the background and how much of the foreground developmental efforts went into the making of the inventions. Whether considered in terms of cash, personnel time, facilities, or know-how, if the amount of investment by either the Government or the contractor is to be the basis for determining the respective equities in the inventions, the baby-dividing decision that King Solomon had to make becomes a single one by comparison. Obivously every contract situation will be different from every other one, and the equities may range from zero percent investment of background developments by the contractors in some instances, to perhaps 90 percent or more in others.

Apart from the obvious problems inherent in attempting to balance such nebulous equities, there are numerous other problems to be considered which I have time only to mention briefly. For example, the incentive of the contractors to report all inventions willingly and fully is bound to be less when the contractor does not keep title to them. If the Government takes title, there still is the job of evaluating the inventions, patenting them, deciding whether or not to license them, who to license, how to license, etc. Finding extremely hard to get patent and other technical personnel to review the contract records to make certain all inventions are reported, to evaluate them, to prepare and prosecute applications covering them will be a serious problem.

The cost of doing all this is a factor which should be given serious consideration. It has been suggested that to leave the rights to inventions with contractors is to give away benefits that belong to all the taxpayers. No one will be able to place a dollar value on that alleged giveaway, because no one can ever tell what the intrinsic value of such inventions are when they have not yet been developed for the marketplace, and the costs of such development and the ultimate price which the consumer is willing to pay for them have yet to be determined. But one can estimate with some reasonable accuracy just how much the taxpayer will pay in actual cash if the Government proceeds to take title to all inventions arising out of its contracts.

I have been advised that some Government agencies calculate their present average cost of evaluating, filing, and prosecuting a patent application to be $2,000. This is a direct cost which does not include overhead, but is presumed to cover such functions as liaison between the patent adviser and the inventor, followup of the contracts to obtain invention reports, searches in the Patent Office, drafting of drawings, preparation and prosecution of the application. In 1964 there were 11,000 inventions made by Government contractors and employees, according to the Patent Advisory Panel of the Federal Council for Science and Technology. At $2,000 per case, this would amount to some $22 million per year.

If promotion of these inventions to maximize their utilization is undertaken, the costs will increase by at least that same amount. In 1964 the National Aeronautics and Space Administration devoted some $3½ million to promote some 1,500 inventions available for public use. At that rate, promotion of the Government-wide total of patents would run to $22 million. Thus the total bill, under the current practices of most Government agencies according to which title is taken only in a relatively small percentage of cases, would be over $44 million. If the legislation now pending on Congress should cause a sharp increase in the number of cases to which title is taken by the Government, probably amounting to many more thousands of inventions, the taxpayer will be paying on the order of perhaps $100 million or more each year for these programs.

Compared with such real, measurable expenditures, the so-called giveaways of nebulous patent rights might turn out to be so-called "chicken feed" by comparison. Iu a statement which I submitted to the Senate Patents Subcommitee 2 weeks ago, I suggesed that if any bill is to be enacted which plans to take title to many inventions and patents, as has been proposed, it would be desirable to have that law require an annual report to the Congress of each and every cost of administering that program. Then, in years to come, Congress can have some factual data on which to decide to continne or terminate the program.

Now, for some final and concrete observations. After a decade or so in which the whole matter has been gathering momentum in the Congress, the issue of a Government-wide, uniform national patent policy appears finally to have reached the decisionmaking point. Three bills in the 89th Congress at the present time are the focal points of this attention. Two of them are so close together in principle, namely Senator Saltonstall's S. 789 and Senator McClellan's S. 1809, they may be considered as representing the same general approach to the problem. The other one, S. 1899, introduced by Senator Long, of Louisiana, represents quite a different approach.

The McClellan and Saltonstall bills rather closely parallel a memo and statement on Government patent policy which former President John F. Kennedy issued on October 10, 1963. That directive, incidentally, currently is being followed by all Government departments and agencies which are not by statnte bound to follow some other patent policy. These two bills, and the executive branch directive, incidentally, seem to be winning support and indorsement from most of the industrial and patent bar groups which testified at Senate Patent Subcommittee hearings held earlier this month. In essence, all three tend to leave title with Government contractors except in certain specified situations, e.g., where the field of research is a new one to the contractor and the Government has made or is making substantially all the financial investment involved, where the research is in the public health or welfare areas, where the contract is to develop or improve things intended for use by the general public, or where the contractor is to operate a Government-owned facility. Provisions are made for compelling the contractors who are permitted to retain title to bring the inventions to the point of practical application. Failure to do so may result in the voiding of rights given to the contractors or their being obliged to grant licenses to others to practice the inventions. Thus, by either compulsory working or compulsory licensing provisions, the present Kennedy directive and the proposed McClellan and Saltonstall bills are aimed at promoting utilization of the inventions to which the Government does not claim title. As to those inventions whose title is claimed by the Government, either exclusive or nonexclusive licenses may be granted under specified circumstances.

The Kennedy, McClellan, and Saltonstall approaches to the problem of settlement of the Government patent policy controversy are as close to being in the true public interest as any bill or regulation can be, and yet stand a reasonable chance of being enacted into law in the present political climate. Their only drawback is that, in attempting to resolve the so-called equities between the Government and the contractors, instead of providing for Solomons they are establishing Shylocks. In those cases where the Government's procurement officers are going to have to determine when to take title and when not they will be plagued to the awful responsibility of exacting just one pound of patent "flesh," no more and no less. Of course, if a contractor feels he has been made to bleed there are provisions for administrative or judicial review, and this might solve such problems in the best Shakespearean traditions.

The Long bill is essentially a title-in-the-Government approach, with practically no exceptions. Senator Long, unfortunately, has been completely sold on the notion that leaving any patent rights with contractors is sheer folly. For years he could only see them getting richer and bigger and stronger, as they are permitted to accumulate patent rights on inventions arising out of Government's contracts, and he decried the fact that this tends to make them more aud more monopolistic. Only recently has he given consideration to the utilization of inventions which the Government would acquire by his cnrrent legislative proposal, and provision is made for licensing them, with or without royalties, under such terms as would be established by the administrator of any agency newly established for the purpose. In the long run, it is submitted, this type of

legislation will not be in the true public interest for it will do far less to promote the utilization of inventions than will the McClellan, Saltonstall, and Kennedy approaches that encourage the original inventors or assignee-contractors to develop the inventions which their expertise helped to originate.

Although I do not believe that Senator Long's approach is in the public interest, I do believe that Senator Long has done this Nation a great service by carrying on a relentless and effective campaign to enact legislation which will embody his concepts of a uniform Government patent policy. Without his efforts there undoubtedly would not have been created the issues which spurred President Kennedy to issue his directive. His piecemeal legislative efforts, by which he has succeeded in tacking on Government patent-rights-title-taking-amendments to several bills that have become law in the past few years, undoubtedly will prod the Senate to acting on whatever bills on the subject of a Government-wide uniform patent policy Senator McClellan's Subcommittee on Patents and its parent Judiciary Committee reports to the full Senate. At the same time, credit must be given to Senator McClellan for his painstaking efforts in resisting the hurried and harried piecemeal legislative approach, and his patient sifting of testimony and evidence in the quest of an acceptable Government-wide law. In this effort, of course, he is being aided by the considered interest and support of a number of members of his subcommittee. Only 2 weeks ago, incidentally, Senator McClellan successfully led a battle on the Senate floor to prevent adoption of Senator Long's amendment in connection with a vital NASA appropriations bill. In the course of that debate, by the way, several Senators vowed to do their utmost to promote the passage of a uniform Federal patent policy bill this year.

My one lament at the moment is that all the legislative proposals which purport to establish a uniform patent policy for the Government have omitted any reference to patent rights on inventions made by Government employees. They are currently being administered by the Patent Office pursuant to an executive order, in a more or less secretive manner, and apparently will continue to be so unless Congress does something about them too. If maximizing utilization of inventions arising out of Government-sponsored research is to be an objective of any legislation in the interest of giving the public the advantages of as many as possible of the inventions developed under the inducement of the benefits of the patent system, shouldn't this also apply to inventions of Government employees? Certainly, a truly uniform, national policy regarding rights to all inventions arising out of Government-subsidized research will not be achieved until the problem of those inventions is also disposed of by statute. Those inventions should not be treated like unwanted orphans; they are just as much a part of our national assets as inventions made by Government contractors.

In concluding, I will observe that it must be apparent that this whole area of Government patent policy is a difficult matter. It is confusing to people who cannot consider it from a broad philosophical outlook such as I have outlined for you this morning. I will cite one instance of such confusion that arises when almost any aspect of this subject is discussed. On April 8, I was privileged to serve as moderator of the symposium which opened the 175th anniversary of the patent system at the Sheraton-Park, here, in Washington. One of the three distinguished persons who spoke that morning was an internationally known labor leader whom I greatly admire and respect for his tremendous achievements in many fields of human relations and public welfare. In discussing our patent system he pointed to many of its faults which prevent inventors as a whole from obtaining greater rewards for the products of their "blood, sweat, and tears." He had my complete sympathy there. But then he went on to indorse Senator Long's view that, in the field of Government contracts for research and development, inventions and patents obtained at public expense are being given away with little regard for the economic and social consequences. His recommendation was that all patents developed at public expense should be put in the public domain. What he failed to appreciate, of course, was that if this were done there would then be no way of getting for the inventors a share of the profits or other proceeds which he was advocating they should have. In other words, he was suggesting that we should kill the goose that lays the very golden eggs which he wanted to have shared. Or was he in favor of cutting up the child because he was unhappy with the manner in which its "mother" was being determined? Shades of King Solomon, or should I say Senator McClellan?

Mr. FORMAN. I believe that the prepared statement which I submitted prior to June 1 and the talk I just referred to amply set forth my general views on Federal patent policy and my specific views on the bills you are considering here today.

I would like now to dwell only on the main reasons why I believe legislation of the kind embodied in S. 1809 comes closer to being in the public interest than any of the others, and why S. 1899 is the furthest of the three bills from being in the public interest.

The proponents of legislation represented by S. 1899 make these three principal claims:

1. The public should not have to pay a second time through royalties or higher prices for inventions which arose out of research and development which was at least in part paid for out of Government funds.

2. Numerous Government-originated unpatented technological advancements have been used by industry. Hence, the argument that a patent is a necessary inducement to development of inventions for commerce by industry is invalid.

3. Leaving patents in the hands of Government contractors only tends to increase the size and wealth of large corporations making them more monopolistic, more and more culpable of antitrust violations, and more likely to adversely affect small business.

My answer to these claims follows:

I believe that if the public could be given the whole story, without the headline hunting labels such as "Billion-dollar giveaways," the average person would agree with me.

With respect to the first point—in the long run this country and all of its people stand to benefit far more if more and more inventions are utilized—that is, made available for use by everyone—than if they are allowed to lie fallow because no one wanted to take the risks of investing in their development.

I, for one, would gladly pay an extra premium in royalties or higher prices in order to get the benefit of a new laborsaving device or possibly a lifesaving invention, or something which increased my standard of living. I would much rather get those benefits even if my taxes did help pay for the inventions than to run the risk of not having them at all.

Gentlemen, would you object to such so-called double payments if they resulted in the development of a cure for cancer or even if it just doubled the mileage you could get on a gallon of gasoline in your automobile, especially when you realize that under our patent system, after a stated number of years the invention will be in the public domain.

I know I would certainly not object at all.

I would like to point out an illustration I have repeated many times before many groups to show what I think is the real issue here, or at least one of the major issues.

Our technological inventive ability in this country is necessarily limited. There are only so many inventions that can be made in a given year. For simplicity's sake, I like to consider this in simple round numbers.

We can make, let's say, a maximum of 1,000 patentable inventions in a year, 70 percent——

Senator McCLELLAN. What do you mean make a thousand inventions? Who knows how many inventions may come this year and how many next?

Mr. FORMAN. We do not know, Senator, of course. This is merely a simplified hypothetical illustration to explain a point.

Senator McCLELLAN. All right.

Mr. FORMAN. Let us say that in any given year only 1,000 inventions are made in this country. They constitute the total productivity of the inventive genius of the entire Nation. These inventions are national assests. What we do with them may determine the country's future. They certainly will determine the progress of the country, and maybe even determine the existence of the country itself.

Now, if 70 percent of all the money spent in the United States for research and development goes into Government contracts—and if we roughly correlate this in terms of numbers of inventions—this could mean that the future benefits to our Nation from 70 percent or 700 out of the thousand inventions are going to be resolved when you settle this question of Government patent policy.

Now, how many of those 700 inventions can we afford to let go down the drain because no one wishes to undertake their development? We never know but that one of those inventions might be the cure for cancer; or it might be the means for the causing establishment of a new industry; or it might be the answer to some national defense requirement. Because we never know it is important that we do whatever we can to develop every one of those inventions that we can possibly utilize—and not just be satisfied with a "paper" invention.

With regard to point two, of course, patents are not necessary inducements for the development of all inventions. Industry constantly brings to the marketplace relatively simple, unpatentable inventions for which there is much demand. When there is very little investment required, there is no great worry about competitive risks and no concern over the likelihood of imitators coming out with cheap imitations after an expensive investment has been made in research and development by someone else.

Now, if the Government wishes to finance all the risk taking research and development work in its own laboratories, as when the Department of Agriculture makes a new plasticizer out of an epoxidized oil, or develops a new dialdhyde starch, it is a simple problem to find manufacturers for those kind of products. Such situations only prove how important it is for the manufacturer who has to invest his own money to develop an invention to have it protected by patents.

There are always people who are ready to imitate after the developmental risks are no longer a factor.

The real difficulty is in finding manufacturers who will undertake to develop an invention when the research and development is expensive and the risks of success are extremely great.

Now, I would like to cite an actual case history which I not only know about—I was actually involved in the negotiations which I shall

describe. I filed the full case history with the chief counsel for this subcommittee.

This involved an invention which concerns the saving of life. It had to do with extending the shelf life of blood bank blood. This is the blood that the Red Cross and other agencies gather and then put on a shelf. It goes bad in 21 days under normal circumstances. You normally cannot prolong its useful life as whole blood.

In the case of open heart surgery, in the case of situations where you are trying to get blood to the far corners of the world, 21 days often is not enough. It is important if you can extend the life of that blood by another week, another month, or longer, because blood is a commodity you just cannot get any time you want it.

Now, the Jefferson Medical College of Philadelphia had some surgeons who were interested in trying to develop a way of extending that blood life, they received some grants from NIH, and they tried to do this job. They found themselves at an impasse. They could not solve the problem. They had come up to a point and they found out that they were not getting over the hump.

They went looking for somebody outside, an expert who could help them. They found such a man, an experienced ion exchange chemist known the world over. He happened to be there in Philadelphia working for the company where I happen to be employed. He was asked if he would help. His services were volunteered gratuitously and many thousands of dollars of his time and materials were given to the institution. Eventually, the problem was solved, an invention happened to be made, and the invention has proved to be patentable. The question is—Will this invention get out into the public? Will this invention be developed for use by people all over the country? It has worked in the laboratory, and the technical people have reached the point where they think and know it will be useful for saving human lives. But there are considerable risks in the development. Nobody can guarantee that this invention, when tried out in mass production, is going to work successfully.

The Jefferson Medical College and our company, both of which have had no background, incidentally, in developing this type of invention, went looking for somebody who had the experience and the interest. We found only five laboratories in the country, five commercial companies, that had the required background of experience. They all decided it was too great a risk to get into. Only one of them decided to take the chance and that was Baxter Laboratories, of Morton Grove, Ill.

Senator McCLELLAN. Well, now, they have the exclusive right to it?

Mr. FORMAN. No, sir—I have not come to that. If I may, I will bring it out in just a moment.

Senator McCLELLAN. All right. I will be patient.

Mr. FORMAN. Baxter said they were interested, but they made some computations and figured it would take a million and a half dollars to bring it from the point where it was at Jefferson Laboratories to the point where they could put it in the hands of physicians and surgeons throughout the country.

They asked what the patent situation was. We went down to NIH to try to straighten this question out, because under the grant Jeffer-

son could keep the rights, provided they had a patent policy of their own whereby they would exploit the patented inventions. This is the general policy in connection with such grants.

But when it was pointed out that our company, because of its employee, had also been a participant, a joint inventor here, the question was raised, Would we yield our rights, or how else should the situation be handled? They did not know because they apparently had never dealt with that kind of situation, and there was no provision in the Department of Health, Education, and Welfare regulations which covered it.

We had some discussions with the Surgeon General and finally it was pointed out that, under the October 10, 1963, memo and statement of the President on Government patent policy—which stresses the desirability of utilizing all inventions in the public interest at every possible opportunity—it was for the good of all, in the public interest, to get this invention out of the laboratory and do everything that could be done to make it available to the public. They agreed—they said all right, finally—"We will agree to permit Jefferson to grant a 5-year exclusive period to develop this invention—5 years from the time that the Food and Drug Administration and the Division of Biological Standards approve this invention for public use." This much time, it had been estimated by Baxter, would give them a chance to recoup about 30 percent of that million-and-a-half-dollar investment. They figured that they would take their chances on recouping the rest of the investment and making a profit on it in the nonexclusive period after the exclusive period expired, relying on their "leadtime" to put them in a competitive position.

Incidentally, I ought to point out that the grant was for about $15,000 and our company invested about an equal amount, $10,000 or $15,000 at that point—or a total of about $30,000. As Dr. Price pointed out earlier this morning, relatively small sums generally are needed to make a given invention. But, as in this case, a million and a half dollars would be required to reduce that invention to the point where it could be used by the public.

Baxter agreed to accept the license with the 5-year exclusive period.

Then the Department of Health, Education, and Welfare decided that this was not sufficient. They said—it is all right to give a 5-year exclusive and then say it will be opened up nonexclusively to any other manufacturer who wants to make this later—"But suppose, Baxter, you use some of your background inventions that you had before you start work on this development, or suppose you use some new ideas that you make in the course of investing your $1½ million—these inventions might be desirable or necessary to the production of the end product of your development that is acceptable for the commercial market. Without these added ideas, what good will a nonexclusive license be to a potential second or third producer after your exclusive period ends? We would like you to yield those rights to the public, too."

Well, this was asking Baxter to give up its commercial birthright. It may have spent many millions before on some of the ideas that they had in their own research department. Besides the $1½ million they were planning to spend to reduce the invention to a practical embodi-

ment was their own money. Why should they share rights to inventions which may be made through research done entirely at their own expense?

Well, after 2 years of arguing up and back, Baxter finally said they could not afford to take the risk under the supplemental conditions imposed by the Department of Health, Education, and Welfare and they withdrew.

I might point out that this example well illustrates how important it is to give developers of inventions the inducement of protection against cutthroat competition for at least a limited period of time in order to get people to take on the development of inventions which involve great risks as to the chances of success.

Senator McClellan. Now, if I understand you, in that instance—what was the name of the company?

Mr. Forman. Baxter Laboratories.

Senator McClellan. They finally agreed that they would undertake it for a 5-year exclusive right?

Mr. Forman. Yes, sir.

Senator McClellan. But then the question arose if there were any, I would call them, byproduct inventions, fallout inventions or discoveries, who would get those? And the Public Health Service wanted—the Surgeon General—wanted Baxter to agree that the Government should have those.

Mr. Forman. No, sir. They wanted the equivalent of that, but technically it worked out a little differently. They merely wanted Baxter to agree that it would provide nonexclusive licenses to anyone who decided later to make the final development, the final invention.

Senator McClellan. And they were never able to get an agreement?

Mr. Forman. That is right.

Senator McClellan. Now, what has happened? Is the product being used now?

Mr. Forman. Not yet.

Senator McClellan. Oh, is it still not on the market?

Mr. Forman. It is not on the market, but we expect that it will be, and for this reason.

Our own company, having gone as far as it had with its gratuitous contributions to the making of the invention, and fortuitously having acquired a small pharmaceutical manufacturing company—just prior to Baxter's withdrawal—decided that it would try to carry on the work for a while rather than let it die, and this work has actually been going on there ever since.

But we went back to the Surgeon General to explain the situation, and he very cooperatively reconsidered the problem. We pointed out that, like Baxter, we could not afford to invest that kind of money since this is a very perilous type of invention, and there can be no guarantee it is going to work or that it will be accepted by the medical profession when it is placed on the market, and they withdrew the supplemental requirements that they had imposed the year before.

Senator McClellan. On Baxter?

Mr. Forman. Yes, sir. And the way it now stands, it is merely on the basis that the invention will be maintained exclusively jointly by the company and Jefferson for 5 years. After that it is open to the public; anybody who wants to can use it.

Senator McCLELLAN. How much is it going to cost you to develop it?

Mr. FORMAN. It won't cost less than $1½ million the way it looks, because from the investment already made, and what is predicted, it will easily run that amount, probably more.

Senator McCLELLAN. How many years is it going to take to perfect it?

Mr. FORMAN. I cannot predict that. Our scientists are unable to tell us yet. We hope within the next year or two, but we cannot say.

Senator McCLELLAN. You don't know how soon you can get the product perfected?

Mr. FORMAN. No, sir; I do not know that, sir.

Senator McCLELLAN. Well, in the meantime, are lives being lost, by reason of that invention not being available?

Mr. FORMAN. Well, it is hard to predict whether lives or how many lives are being lost. But you have to think of it in these terms. Each open heart surgery may use 10 or a dozen pints of blood. It is not easy to get live donors for a particular operation when needed by the surgeon. It would be a great boon if he could have blood on the shelf for several months. The same thing would happen, for example, if we were going to ship blood to Vietnam. It would quite possibly go bad before they could use it on the battlefield.

Senator McCLELLAN. In other words, it is very beneficial, or will be very beneficial, in the health field if this process can be developed to where blood can be preserved for a much longer period of time than it can be now; is that correct?

Mr. FORMAN. Yes, sir.

Senator McCLELLAN. This is a current illustration in this field.

Mr. FORMAN. This is so current, this is happening today. The agreement was completed last December.

Senator McCLELLAN. Now, if I understand you correctly, you did offer this to all companies in that field, all the laboratories.

Mr. FORMAN. Jefferson did. They tried and found only five that said that they could do it, but only one actually volunteered to try.

Senator McCLELLAN. Well, of course, I would regard this as a kind of an extreme case, would you not? This is not just an ordinary situation.

Mr. FORMAN. It is hard to answer that question, Senator. I do not know what you mean by extreme.

Senator McCLELLAN. Well, maybe that is not the proper word. You would not encounter the same problem ordinarily in the processing of a new drug or a new technique in medicine, would you? Or would you? I don't know.

Mr. FORMAN. As long as there is a great risk, and the probability of failure is great, you are going to find fewer and few companies wishing to invest money, time, and personnel in developments of that type.

Senator McCLELLAN. All right. Proceed with your statement.

Mr. FORMAN. With regard to that third point I made, about the position taken by the proponents of S. 1899, this is my answer.

If there is a legitimate danger to our society in concentrating too much wealth and too many opportunities to get wealthier in the hands of a limited number of corporations, the answer may lie in the Government's finding ways and means to give out its contracts to

as many other parties as possible. But once the contractors are selected, preventing companies from obtaining patent rights out of Government contracts may not solve anything. Such a policy may only deprive the Government of worthwhile contractors or may result in contractors devoting their second best personnel to work on Government projects while reserving their best people to work on their own commercial projects so that they could keep title to inventions arising out of them and thereby get some protection for their investment.

Now, I understand from being here previously that the subcommittee would like to have examples of contractors who have refused to take contracts because of this principle. I know how difficult it is to produce examples like this, although we privately hear about them all the time by people representing one company or another.

I did, however, go back into the records of the Mitchell subcommittee, which in August to December 1959 had hearings with regard to proposed amendments to the patent provisions of the Space Act. At that time one of the Congressmen who was sitting on the committee asked specifically for documentation to prove that particular point. The man he asked, who happened to represent the American Patent Law Association, did come back some time later with letters submitted by five companies, and these can be found referred to in the printed report to those hearings for Public Law 85–568, page 412. The five companies were the Electric Storage Battery Co. of Philadelphia, the National Research Corp. of Cambridge, Mass., Corning Glassworks of Corning, N.Y., AMP, Inc., of Harrisburg, and Bowmar Instruments Co. of Fort Wayne, Ind. All five said that because of the title-taking clauses they would not accept NASA contracts—I think most of them had to do with the then new Project Mercury.

If we want to know why it is so difficult to get companies to stand up and be counted as they did, perhaps the reason is that the same Congressman, upon receiving these letters, wrote back to the presidents of those companies and said, "This is your position as it has been represented to us, but surely there must be some mistake—this would make it appear to us as if you are not interested in cooperating with the Government of the United States on this important project."

Each of these companies wrote back and reaffirmed their position in no uncertain terms. But, nevertheless, this news did get around the country like wildfire, and I think because of it, as much as anything else, Senator, many companies that might otherwise come forward have refrained from doing this because they fear such intimidation and possibly reprisals in the form of being blacklisted from working on future contracts with the Government.

Now, gentlemen, it appears to me that this last point is the crux of the entire platform upon which Senator Long stood when he introduced S. 1899. All the other points are merely subsidiary or corollary to his concern over the possibility that retention of patent right by Government contractors will permit them to get a stranglehold on our economy.

As Senator Long said on May 4, 1965, in introducing S. 1899—and here I quote two brief paragraphs from page 9027 of the Congressional Record for that day—he said:

> Mr. President, this is not merely an economic problem. This concerns our liberty and freedom to the extent that, through the granting of monopolies, areas of our economic life are barred to many of our citizens—to that extent is our freedom abridged.
>
> Scientific and technological research conducted or financed by the U.S. Government represents a vast national resource, which could equal or surpass in actual or potential value the public domain open to settlement in the last century. Because the control of patent rights and inventions resulting from such activities means the control of the fruits of this resource, it is the function of the Government to make the results of research available for use by the entire American public which has made this research possible.

I agree 100 percent with this last portion of the statement by Senator Long. It is the function of the Government to make the fruits of any research, which has been subsidized even only partially by Government funds, to the public at large. The real issue is how is this to be done so as to do the most good for the most people.

Should it be done under the time-tested operation of the American patent system, with its inducements for private investment of capital and labor? Should it be done by the Government itself through its own building and operation of plants, followed by market distribution, and so forth? Or should it be done by the Government's free dissemination to everyone of the rights to practice the inventions?

If there is any doubt in Senator Long's ultimate objective, regardless of anything in S. 1899 which may appear to the contrary, this doubt is eliminated by his embracing the philosophy spelled out by his assistant, Mr. Benjamin Gordon, in the article which was reprinted in the Congressional Record following the printing of S. 1899 at pages 9031 to 9033.

In his final paragraph concluding the article, which was devoted to a comparison of "Government Patent Policy and the New Mercantilism," in which Mr. Gordon sees in the policy of leaving title with Government contractors a strong similarity to the mercantilism of the Middle Ages, he says:

> If this comparison elicits the reply that the national interest requires monopoly grants as a necessary stimulation of enterprise, the question arises whether the price we are paying is far too heavy, even if the means could secure the end, for involved is the sacrifice of the citizen's economic freedom.

Now, this philosophy of Mr. Gordon, which Senator Long has apparently endorsed, indicates a belief that the operation of our economy under our patent system is not in the public interest.

Senator BURDICK. Is that an article by Mr. Gordon?

Mr. FORMAN. That is the concluding paragraph of the article by Mr. Gordon; yes, sir.

Senator BURDICK. It appears in the Congressional Record?

Mr. FORMAN. Yes, sir.

Senator BURDICK. What is the date of that?

Mr. FORMAN. May 4.

Now, gentlemen, with 70 percent of all the R. & D. funds now being financed by the Government, such a belief by the proponents of S. 1899 would seem to be an important first step in the elimination of our patent system altogether.

This, gentlemen, I submit is the behind-the-scenes real threat of that bill. It would be the beginning of the end of a system designed to induce people to invest labor and money to make risky inventions worth while.

As the Senate Subcommittee on Patents, I think this threat should be kept in your minds when you review the merit of all the bills under consideration.

It does not matter to me what manner or means are employed to conserve and promote the utilization of our inventive productivity. That productivity is limited. It is one of our greatest national assets. What matters is that every worthwhile invention should be given every possible chance of being developed for use by the people, all the people.

In conclusion, let me point out that I speak not for the patent system, not for the patent profession, not for industry, not for any segment of these. I speak only as a citizen who has for almost 20 years studied and critically observed the developments in the field of Government patent policy, and who is seriously concerned over the possibility that a good deal of our limited inventive productivity will become wasted if not developed under the inducements offered to all the people under the patent system.

This is what will happen under a law like S. 1899 which will tend to take title to most of the inventions made in the United States and put them in the public domain where interest in developing them will lag if not fade into insignificance.

It will not happen under S. 1809 because that bill will tend to leave title with the contractor in a maximum number of situations—that is, I might say, a maximum number consistent with today's political opposition caused by the "patent giveaway" theorists.

S. 1809 tends to assure maximum utilization of the invention by means of compulsory working and/or compulsory licensing requirements. This is good. In exercising those prerogatives, the Government will exercise its true and proper functions. As a contributor to the development of the inventions, the Government is in partnership with the contractor. As a partner, it has certain rights. In this case, it is not to share in cash profits, but in seeing that the other partner puts the inventions to the widest possible use so that the public will benefit thereby. That is the Government's right and obligation. That compulsion is as far as the Government ought to go in promoting utilization of the inventions in most cases.

S. 1809 is not perfect, it needs amendments. I have proposed some in my formal written statement. Others have been suggested by those who have testified before me. Nevertheless, I see in S. 1809 the basis for legislation which comes closest to being the most sensible, workable compromise that has a reasonable chance today of being acceptable to the Congress and also to all who are critical of the general philosophy, as well as the specific provisions of S. 1899.

Gentlemen, S. 1809 is in the true public interest. S. 1899 is not.

Thank you very much for this opportunity today to speak.

Senator McCLELLAN. Thank you, sir.

Senator Burdick?

Senator BURDICK. Of course, Mr. Forman, you understand that you are merely giving your opinion—that if the Government retained title to these patents they would lie fallow. That is just an opinion of yours.

Mr. FORMAN. Yes, sir. Of course, it is always an opinion until we have a chance to demonstrate that it becomes a fact.

Senator BURDICK. You and I know that the Patent Office is full of patents owned by private individuals that are lying fallow. The whole thing is to get together an economic package that is worth while producing.

Mr. FORMAN. That is correct, Senator. And that is why I urge upon you, sir, and upon your colleagues, that you have got the greatest opportunity and, I might say, the greatest obligation under the Constitution, to do something about it. With all these inventions coming out of Government research, as long as you have got this policy written in S. 1809, whereby the Government will keep a watchful eye under compulsory working or licensing requirements, and make sure that the inventions are put to use by the contractor who retains title—you have done all you should want to do in order to get them into use.

Senator BURDICK. You have no assurance that because title is in the name of a private person the invention is going to be put to work.

Mr. FORMAN. You are absolutely right. But you will have that assurance if you let the contractor keep title subject to the restriction that, if he does not put them into commercial use, he will lose the right to keep title. The chances are that the contractor in many cases will work the invention if he knows that the Government will take them and give them to somebody else, or compel him to grant licenses to another party.

Senator BURDICK. What period do you recommend for that?

Mr. FORMAN. I have recommended a 5-year period.

Senator BURDICK. This is something new.

Mr. FORMAN. Well, it is not exactly new. It has been written about, it has been proposed. This has actually been going on in many countries around the world. Compulsory working and compulsory licensing are not new. They would be new to the United States.

Senator BURDICK. In other words, your suggestion will be that, in these Government contracts, where the equities will justify it, to permit the individual contractor to have title, but if he did not exploit it in 5 years, it would revert to the public.

Mr. FORMAN. That is right. It would either revert directly back; that is, it would be placed in the public domain, or maybe some arrangement might be made whereby the Government would say, "Let's find somebody else who is interested in working it." That is all I am pleading for. Get the invention into public use.

Senator BURDICK. One of the things that bothers me, when you gave this example about this blood rejuvenator, whatever it was, that even though that private patent might have been issued in the name of a private company, there is no particular assurance that the $2 million would be spent by them, either.

Mr. FORMAN. Senator, let's take that one step further. Consider what happens to any patented invention made by private invest-

ment—where there is no Government investment and no Government rights at all. Under our patent laws, there is, of course, no assurance that the invention will be worked. You are absolutely right. However, this is in accordance with the contract, the bargain that the Government has made with the patentee, in return for his having publicly disclosed the invention—instead of trying to keep it as a trade secret, as they did in the medieval period. He is being told, "You can have the right to exclude others from manufacturing this invention. We will limit you, however, to a period of 17 years. You have got to make of it whatever you can and wish in that period. At the end of 17 years it is in the public domain"—which has always seemed like a fair deal.

Now, that is in the private sector.

We have no way of giving any further compulsion to make the inventor or patent owner—who puts out his own money, his own time and services and so forth—to make him use the invention. That is true. There is no special compulsion other than the fact that each day he fails to work the invention while possessing the right to exclude infringers brings him closer to the end of the patented term when anyone thereafter will be able to compete with him without fear of being stopped by a lawsuit.

But you have an additional lever here. You have got this right. I say the Government is a partner in this invention. It has made a contribution to the invention. The equity is there.

I have long ago recognized this.

But I say it is wrong for the Government to take title, and then do nothing with it. You have got a choice to make. It is a basic decision which must be made, a basic philosophy which must be established at this point.

Is the Government going to adopt a policy where we take title to so many inventions? If we are not going to do something with them, this is wrong.

Senator BURDICK. Just a moment. That is an assumption that nothing is going to happen to inventions whose title is acquired by the Government.

Mr. FORMAN. We have to operate on this assumption. The point is, if you enact legislation so that the Government ends up with a massive collection of inventions, it has a basic choice to make: Either it works them or it doesn't. If it doesn't work them, it is possible that nobody will. If it does work them, this will be a fundamental change in the philosophy of our society. Do we want the Government to get into business on a mass scale? If we do, let's take title to all the inventions and put the Government in business.

If the Senate and the House decide this is best for the country, then let them go ahead and write it into law, but they should at least recognize and clearly state that this is what they intend to do.

Senator BURDICK. No one wants the Government in business. They are taking these patents for the people.

Mr. FORMAN. That is a fallacy, sir. I believe the whole theory of Senator Long is wrong. He says this will not happen. But this is precisely what will happen. If the Government does not exploit it, as S. 1899 says it will, the only other choice is to leave it open to the

public. And I can only predict complete failure. You say this is an opinion. Of course it is. But can we take the chance? Can we take the chance that thousands of inventions every year will go unused? If we do, the Government will only be adding to the very problems which you pointed to yourself.

Senator BURDICK. You acknowledge that thousands of private inventions are going unused.

Mr. FORMAN. I don't question the point. If this is wrong—maybe the solution is, as has been suggested, shorten the 17-year period. We cannot discuss this now. But if the Congress thinks it is too long a wait, it could shorten it. But the point is that just because that is bad or wrong, do you want to aid and abet it by adding thousands more patents under Government contract situations, and put them in the public domain, where nobody is going to use them? If we do, our technology will end up so far behind Russia's we will never be able to catch up with them.

Senator BURDICK. I don't agree with your concluusion. But I will say that the 5-year limitation has added something intriguing to the record.

Mr. FORMAN. Well, sir, I hope you will find it acceptable as a substitute for the title-taking philosophy of S. 1899. And this hope applies, of course, to your colleagues who have thought the proposal by Senator Long, whom I admire—I said so in my statement—I think he has done a great service because he has brought this tremendously important matter to the attention of all—even though I think his solution is dead wrong. But at least he recognizes the problem. He and I agree on a fundamental point, namely that our main objective should be to get the inventions into the public hands. But we should not just do this by opening them up to everybody. Almost everyone who has testified here has told over and over how this will kill the inducement to convert most inventions into commercially useful embodiments.

Now, if you cannot accept it, if the examples you heard are not sufficient, then write something like what I have advocated into the law—and I think S. 1809 already has it. If it has not, it is in S. 789. Write in a provision whereby the Government can do something affirmative about these inventions—instead of just leaving them to anybody, instead of going into business and manufacture—let the contractor keep them. But, if he does not do something with them for the public good, let the Government take them back and find somebody else who is willing to develop them. Or if that does not work, then put the inventions in the public domain.

Senator MCCLELLAN. Thank you very much, sir.

The subcommittee has held 5 days of hearings on this subject, and the bills that are pending. We have heard 26 witnesses. A number of statements have been submitted for inclusion in the record. Although I want to expedite the subcommittee's action on this subject, I also wish to receive the counsel of all those who have a contribution to make.

Therefore, additional hearings may be held. Incidentally, the Chair today is sending out a letter to each Senator asking if he has any witnesses that he thinks could contribute anything to this. I do not want these hearings to close denying anybody whatsoever from having the opportunity to fully present their viewpoints.

The hearings will be recessed subject to call. That does not mean that this is going to be prolonged indefinitely. I am trying to expedite them to a conclusion, but without setting anybody off who really believes he has a contribution to make.

The committee will stand in recess.

(Whereupon, at 11:35 o'clock a.m., the subcommittee was adjourned, to reconvene subject to the call of the Chair.)

GOVERNMENT PATENT POLICY

TUESDAY, AUGUST 17, 1965

U.S. SENATE,
SUBCOMMITTEE ON PATENTS,
TRADEMARKS, AND COPYRIGHTS OF THE
COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 3302, New Senate Office Building, Senator John L. McClellan (chairman of the subcommittee) presiding.

Present: Senators McClellan (presiding), Burdick, Scott, and Fong.

Also present: Thomas C. Brennan, chief counsel; Edd N. Williams, Jr., assistant counsel; and Stephen Haaser, chief clerk, Subcommittee on Patents, Trademarks, and Copyrights; Horace L. Flurry, representing Senator Hart.

Senator MCCLELLAN. The committee will come to order.

The subcommittee this morning resumes public hearings on the pending bills relating to various aspects of Government patent policy. Since the last session of the committee on July 7, the minority leader, Senator Dirksen, introduced a bill on this subject, which is S. 2326. This bill has been referred to the subcommittee and will be included as a part of these hearings.

(The bill, S. 2326, referred to appears on p. 30 of part 1.)

Senator MCCLELLAN. I don't know whether there is anyone here to testify specifically on that bill, but if so we will hear them. In the final markup of a bill, and during the subcommittee's deliberations, with respect to all or any of the proposals his bill will be considered.

At the conclusion of the last hearing held on July 7, I wrote a letter to all members of the Senate inviting their suggestions as to any additional witnesses whose testimony they thought should be heard by the subcommittee before the hearings on these bills were concluded. I state very frankly the purpose in doing that was to make certain that no Senator, and no one else so far as I know, would be able to say that the committee declined or refused to hear anyone who had any contribution they thought they could make to these hearings or to a resolution of the issues involved.

I now direct that a copy of this letter be printed at this point in the record together with the written replies which I received from 13 Senators. I may note that only three Senators requested witnesses to be heard, and the subcommittee has sought to make possible the appearance of those whose testimony was requested. In one instance, I believe it was Senator Kennedy of New York who suggested in his reply that

he had looked over the list of witnesses and that he saw that no representative of the Department of Justice had testified, and he requested that Assistant Attorney General Donald Turner of the Antitrust Division be invited. He knew that Mr. Turner had done some work in this field, and thought it might be well to invite him to testify. Now I may say that the Department of Justice has been invited to testify. On two occasions heretofore they have suggested that they preferred simply to send down a statement. They didn't care to appear and testify personally.

Has that statement been received?

Mr. BRENNAN. Yes, Senator, it has.

Senator MCCLELLAN. The statement has been received and, of course, it is a part of the record.

After we received this letter from Senator Kennedy we again contacted the Department and they said all they cared to do was submit a statement.

All of the letters we received will be placed in the record and printed at this point.

(The letters referred to follow:)

U.S. SENATE,
COMMITTEE ON THE JUDICIARY,
SUBCOMMITTEE ON PATENTS, TRADEMARKS, AND COPYRIGHTS,
July 7, 1965.

Senator ——— ———,
U.S. Senate,
Washington, D.C.

DEAR SENATOR: The Subcommittee on Patents, Trademarks, and Copyrights has just concluded 5 days of public hearings on four bills relating to various aspects of Government patent policy. Three of these bills (S. 789, S. 1809, and S. 1899) are principally concerned with the ownership of patent rights in inventious arising under Government-financed research and development contracts or grants.

The subcommittee has heard testimony from 26 witnesses, including Members of Congress, executive departments and agencies, and representatives of industry, the bar, and scientific groups. A number of additional statements have been filed for the record. The subcommittee also held hearings on this subject during previous Congresses, and a number of staff studies, describing the patent practices of the various agencies, have been published.

Notice of the subcommittee hearings appeared in the Congressional Record, and the subcommittee has heard every witness who requested the opportunity to testify. I believe that the subcommittee has developed a thorough record. However, in view of the great interest which many Members of the Senate have indicated in this issue, I would welcome any suggestions which you may have concerning additional witnesses whom you think the subcommittee should hear before these hearings are closed.

I am attaching a list of the witnesses who have appeared during the recent hearings.

Sincerely,

JOHN L. MCCLELLAN, *Chairman.*

U.S. SENATE,
Washington, D.C., July 12, 1965.

Hon. JOHN L. MCCLELLAN,
U.S. Senate,
Washington, D.C.

DEAR JOHN: This is to acknowledge receipt of your letter of July 7 in which you inquire as to whether or not I know of any additional witnesses that the Subcommittee on Patents, Trademarks, and Copyrights would heard regarding Government-financed research.

Although the hearings have prompted considerable amounts of interest in the State I have heard of no special requests to appear before the committee.

I am taking the liberty to send your letter to my former assistant, L. Ralph Mecham, who is currently assistant to the president of the University of Utah. If he has any suggestions for witnesses I will be glad to forward them to you.

Sincerely,

WALLACE F. BENNETT.

U.S. SENATE,
July 14, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Senate Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for your recent letter and the enclosure concerning the hearings on bills relating to various aspects of Government patent policy.

My own State of Colorado does have a large number of firms holding Government research contracts. I am now attempting to contact some of these firms and their representatives in order to see if they wish to submit statements. If they do so wish, I will inform you at the earliest possible time.

Best regards.

Sincerely,

PETER H. DOMINICK,
U.S. Senator.

U.S. SENATE,
July 14, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: With reference to your letter of July 7 with respect to any suggestions concerning additional witnesses to be heard by the subcommittee on S. 789, S. 1809, and S. 1899, I know of no other witnesses who desire to be heard.

Several of the Government agencies have testified. It is assumed that Senator Eastland has or will request statements from all of the Government agencies which engage in research and development contracts with respect to patent policy being followed by such agencies and their views with respect to the bills pending before the subcommittee.

Sincerely,

PHILIP A. HART, *Chairman.*

U.S. SENATE,
July 15, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Patents, Trademarks, and Copyrights Subcommittee, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for your letter concerning the hearings on Government patent policy.

These hearings, with the impressive list of witnesses, will be most helpful on this troublesome question. I will follow this matter with interest.

At this time, I do not have any witnesses to add to the list.

Best regards.

Sincerely,

ROMAN L. HRUSKA,
U.S. Senator, Nebraska.

U.S. SENATE,
July 12, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Senate Committee on the Judiciary, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for your letter requesting any suggestions as to additional witnesses who might be heard by the Subcommittee on Patents, Trademarks, and Copyrights on the various Government patent bills.

At present I do not have any additional names to submit.

Sincerely,

DANIEL K. INOUYE,
U.S. Senator.

U.S. SENATE,
Washington, D.C., August 2, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I hope I am not too late in answering your letter of July 2 asking for suggestions concerning additional witnesses whom the subcommittee might hear on the question of Government patent policy.

In looking over the list which you sent, I saw no representative of the Department of Justice. I know that Assistant Attorney General Donald Turner of the Antitrust Division has done a good deal of thinking on this subject, and if he has not already been invited, I suggest that he would be a very helpful witness.

Again, I apologize for my tardiness in responding to your letter.

Sincerely,

BOB F. KENNEDY.

U.S. SENATE,
June 28, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Senate Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR JOHN: I have followed with considerable interest the hearings held by your subcommittee pertaining to the various patent bills S. 789, S. 1809, and S. 1899. S. 1809, which you have authored makes a very important contribution to the possible solution of the complex problem involving inventions developed under Government contracts because it recognizes the fact that equities of all parties to an invention must be considered in determining patent rights. Hence, a solution which would require the Government always, or never, taking rights in inventions is not the proper one. I therefore agree with and support your proposal.

I would suggest, however, one possible change for your consideration. Since Government contractors include a number of educational institutions and nonprofit research organizations, I believe you might consider including these groups in your bill. While such educational and nonprofit organizations do not have "commercial" positions in that they are not manufacturers or producers of products, they do enjoy commercial status insofar as licensing inventions is concerned. They also rely on such revenues as a source of additional research funds within the particular university or research community. Thus, their reasons for enjoying whatever benefits may be available under your bill are as strong and valid as those relating to manufacturing concerns.

The University of California, I understand, has proposed the attached amendment to S. 1809 which would include educational institutions having definite, established patent policies requiring assignment of inventions. I hope you will find this request a reasonable one and urge that your subcommitee might adopt language along this line.

Sincerely yours,

THOMAS H. KUCHEL.

UNIVERSITY OF CALIFORNIA—PROPOSED AMENDMENT TO S. 1809 TO INCLUDE EDUCATIONAL INSTITUTIONS

Section 4b, page 8, beginning line 5:

"tablished nongovernmental commercial position *or, in the case of an educational or nonprofit institution contractor which has a definite, established policy, approved and promulgated by its governing body, of retaining or acquiring, title to inventions made by its employees or of requiring its employees to assign title to such inventions to a patent-holding entity for the benefit of the institution,* the agency head shall acquire no greater rights than the nonexclusive."

U.S. SENATE,
July 16, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Have received your recent letter concerning the hearings of the Subcommittee on Patents, Trademarks, and Copyrights on certain patent bills and the enclosed witness list. Appreciate your thoughtfulness in writing with respect to this matter. Do not have any suggestions as to additional witnesses.

Can assure you I look forward to the recommendations of your subcommittee.

Kindest regards.

Sincerely,

EDWARD V. LONG,
U.S. Senator.

U.S. SENATE,
Washington, D.C., July 15, 1965.

HON. JOHN L. MCCLELLAN,
U.S. Senate, Washington, D.C.

DEAR SENATOR: Thank you for your letter of July 7 concerning the public hearings before your subcommittee on several bills relating to Government patent policy, and asking my suggestions for any additional witnesses who might appear before your committee.

The witnesses who have already testified before your committee appear to me to cover the spectrum and I do not have any names to offer. I do want, however, to commend you for holding these hearings and I am confident that your committee will develop some strong recommendations for the formulation of a fair Government patent policy.

With best wishes and kindest personal regards, I am,

Sincerely yours,

MIKE MONRONEY.

U.S. SENATE,
July 21, 1965.

HON. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights,
Judiciary Committee,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your letter of July 7, requesting suggestions as to possible further testimony at your patent hearings.

My interest in patent matters had led me to introduce bills on NASA patent policy in the 88th and 89th Congresses and to participate in the continuing consideration of the issues before the Senate Select Committee on Small Business.

Although I am aware of the chairman's desire to conclude the hearings as soon as possible, I would like to request an appearance in order to present a statement of my views on this important subject. If this request is granted, I am prepared to testify at any time that would be convenient for the subcommittee.

Sincerely,

WAYNE MORSE.

U.S. SENATE,
July 12, 1965.

Hon. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, Washington, D.C.

DEAR SENATOR MCCLELLAN: Permit me to acknowledge and thank you for your letter with reference to the hearings which have been concluded on several bills relating to Government patent policy.

I am very glad indeed to have the benefit of this information; however, I am not aware of any additional witnesses that should be called.

With best wishes, I am,
Sincerely,

RICHARD RUSSELL.

U.S. SENATE,
August 6, 1965.

Hon. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Old Senate Office Building, Washington, D.C.

DEAR JOHN: I am deeply concerned that the record of the subcommittee's hearings may not be as complete as it could be as to what effect unwise Government patent policies might have on future scientific research undertaken in our institutions of higher education.

It occurs to me that some of the bills on which we are holding hearings might be construed in such a way as to vest in the Government title to all inventions and discoveries from research in our colleges and universities which have received Federal grants for any one of a number of purposes, even including financial aid for the construction of scientific facilities.

I believe that you share my concern. For this reason, I would like to suggest that an invitation to appear before the subcommittee at its hearing of August 17 be extended to J. William Hinkley III, president and director of Research Corp., 405 Lexington Avenue, New York, N.Y.

Mr. Hinkley's organization handles the patent policy matters of a substantial number of the Nation's outstanding colleges and universities, and as such, is qualified to discuss with the subcommittee the patent policies of such institutions as well as the effect the pending bills would have on the future of scientific research in them.

Kindest regards.
Sincerely,

HUGH SCOTT, *U.S. Senator.*

U.S. SENATE,
July 13, 1965.

Hon. JOHN L. MCCLELLAN,
Chairman, Subcommittee on Patents, Trademarks, and Copyrights, Senate Office Building, Washington, D.C.

DEAR JOHN: Thank you for your courtesy in informing me of the status of your hearings on the present patent legislation.

I, of course, share with you the belief that these are most important measures, and I appreciated the opportunity to appear before your subcommittee and to testify in person.

Let me take this opportunity to thank you for the courtesy shown me by you and the members of your subcommittee at that time, and to assure you that I believe that you have given full and fair consideration to all these measures.

With warmest personal regards,
Sincerely,

HARRISON A. WILLIAMS, Jr.

Senator McCLELLAN. With the approval of my colleagues on the committee, the Chair would like, in order to expedite these hearings but not to deny anyone the right to be heard, we are going to invite each witness, if he will, to try to confine his statement to 15 minutes. I want to say that we hope you will try to give your statement succinctly and concisely and be brief so that we can accommodate all of those we have scheduled.

Senator Fong, do you have any statement?

Senator FONG. No, thank you, Mr. Chairman.

Senator McCLELLAN. Thank you very much.

The first witness is Dr. James A. Shannon, Director of the National Institutes of Health.

Dr. Shannon, we are glad to welcome you this morning. You have someone with you?

Dr. SHANNON. Yes, sir; I have Mr. Richard Seggel, who is my executive officer at the National Institutes of Health, for any technical backup.

Senator McCLELLAN. All right, Doctor.

I note you have a prepared statement. Do you wish to read it or do you wish to place it in the record and highlight it?

Dr. SHANNON. I would rather read it, sir.

Senator McCLELLAN. You may proceed.

STATEMENT OF DR. JAMES A. SHANNON, DIRECTOR, NATIONAL INSTITUTES OF HEALTH; ACCOMPANIED BY RICHARD L. SEGGEL, EXECUTIVE OFFICER

Dr. SHANNON. Senator McClellan, and members of the committee, I appreciate the opportunity afforded by your invitation to appear before this committee and discuss the relationships of patent policies to NIH programs, especially as it concerns research financed by multiple sources or situations where additional private funds are necessary for the full development of an invention. At the outset, I would emphasize that the NIH as one of the Bureaus of the Public Health Service, is a component of the Department of Health, Education, and Welfare, and functions within the patent regulations set forth by the Department.

I understand that the Department's patent policies and its position on the legislation before this committee have already been presented. For this reason, I will limit my statements to the two areas of concern mentioned in your invitation.

I would first like to address myself to situations where additional private funds are necessary for the full development of an invention made under Federal support, since I believe the policy problems attending these situations are a major public concern.

Senator McClellan, I would like to say parenthetically that while I talk about drugs in this particular statement, this also would include biologics and the whole range of related materials, but for simplicity I will limit my specific comments to therapeutic agents.

The NIH supports research activities through grants, contracts, and within its own laboratories which may result in the discovery of potential therapeutic agents. Before one of these agents can reach the marketplace for public consumption, it must travel a long road, usually measured in years, from discovery to complete development. This road includes the actual discovery of the potential therapeutic agent, the preliminary screening to determine if the agent has possible therapeutic utility, different stages of animal testing, preliminary tests in humans, and, finally, full-scale clinical testing of the agent. The newly discovered agent may be a completely new chemical entity or an old chemical either of which is shown to be useful as a therapeutic. The developmental process in either case is governed by the Federal food and drug laws which require evidence of careful testing before the agent can be cleared for the market.

In most instances the NIH or its grantees do not participate in the full development of a therapeutic agent up to the point where it is made available commercially. We view our role in the Nation's medical research effort as complementary to the activities of the other elements within our society, both public and private, that also support research and development related to health. It seems to us that the interests of the American people are best served when the various elements of this medical research structure can interact. The most effective interrelationship results when the particular capabilities of the various elements, Federal and non-Federal, can be utilized to the fullest extent.

Generally speaking, the NIH scientist or grantee will be involved, if at all, at one of four points in the development process:

(*a*) NIH funds may be involved in the organic synthesis of a compound and perhaps in a portion of its screening in a biological system. We may participate in animal and clinical testing but will not usually, except in psychopharmacology and cancer chemotherapy, pursue this to a definitive conclusion.

More generally the chemist, given freedom of action, would approach the pharmaceutical industry which has extensive capability to undertake the entire development and testing process and is able to accumulate all the data from different stages of development necessary for FDA acceptance.

(*b*) NIH funds may also be involved in support of research which involves the probing of biological mechanisms with chemical agents. Out of such investigation may well come new knowledge on novel uses for a compound, but in general such an investigator will rarely have the capability of followthrough as is the case with a wholly new therapeutic agent.

(*c*) NIH funds more recently support broad clinical investigation and such work has a heavy commitment to the assessment of therapeutic activity, either in absolute or comparative terms, of a number of chemical substances. Out of this type of work in the past has come wholly new therapeutic uses that have had broad impact on clinical medicine.

Without regard to NIH programs, I have in mind in this respect the discovery of the tranquilizing properties of reserpine when this drug was in use as a blood pressure lowering agent and the dicovery of energizing properties of isoniazide when the drug was being explored as an antitubercular agent.