duration of that interest—which is, we think, typical of Government contractors interest in the question—is illustrated by the attached bibliography of MAPI publications on the subject which we respectfully ask leave to have included in the record of these hearings.

(The document referred to appears at the conclusion of Mr. Derr's formal statement printed at the beginning of his testimony.)

Senator McClellan. I am very sorry to interrupt you. We have to conclude, because there is a rollcall vote. Would you care to supplement your statement now by what you were going to say?

Mr. Derr. Can I submit for inclusion in the record the remainder of the remarks that I would have made, Mr. Chairman?

Senator McClellan. You may do that. I am very sorry, but it is one of those things we have to contend with here quite often. Thank you very much.

The committee will resume at 10 o'clock in the morning.

(Whereupon, at 4:45 p.m., a recess was taken until tomorrow, Wednesday, June 2, 1965, at 10 a.m.)

54-400—65—pt. 1——17

GOVERNMENT PATENT POLICY

WEDNESDAY, JUNE 2, 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 10:10 a.m., in room 3302, New Senate Office Building, Senator John L. McClellan presiding.

Present: Senators McClellan (presiding), Hart, and Burdick.

Also present: Thomas C. Brennan, chief counsel, Edd N. Williams, assistant counsel, and Stephen G. Haaser, chief clerk, Subcommittee on Patents, Trademarks, and Copyrights.

Senator MCCLELLAN. The committee will come to order.

The first witness to testify on the Government patent policy bills will be Dr. Henry B. Hass. Come around, please, Mr. Hass, and identify yourself for the record.

STATEMENT OF DR. HENRY B. HASS, AMERICAN INSTITUTE OF CHEMISTS; ACCOMPANIED BY STEPHEN B. COBB, EXECUTIVE SECRETARY, AMERICAN INSTITUTE OF CHEMISTS

Dr. HASS. My name is Henry B. Hass. I have been in research and development continuously for 45 years. I was head of the Department of Chemistry at Purdue and a college professor for 21 years. Then I was in charge of research for General Aniline & Film Corp. After that I was president of the Sugar Research Foundation. Since then I have been with M. W. Kellogg, which is a large engineering and construction organization which, among other achievements, built the gaseous diffusion plant at Oak Ridge, Tenn., which provided the material for the first bomb that was able to end World War II. I am at present director of chemical research for Kellogg and a past president of the American Institute of Chemists, on whose behalf I am appearing here today.

I am accompanied by Mr. Stephen B. Cobb, the executive secretary of the American Institute of Chemists.

The American Institute of Chemists is the only society in this country concerned exclusively with the enhancement of the professional status of the chemist and chemical engineer. A number of our members have reached managerial ranks, but the majority are actively working on research programs, many of the type that eventually lead to patentable inventions. For this reason we are vitally

Senator McCLELLAN. Let us go off the record.
(Discussion off the record.)
Senator McCLELLAN. Back on the record.

Dr. HASS. This 1 percent batting average doesn't mean that we are less intelligent than other people. I think that is about the industrial average nowadays. Believe me, you have to be an optimist to be a research director.

If Congress feels that the current state of technology and financial support for research and development warrants modification in some areas of the basic patent system, as outlined in S. 789 and S. 1809, we cannot object. But we would object to a wholesale modification, as proposed in S. 1899, which, in our view, would eventually lead to the destruction of the system.

Again, proponents of the title policy argue that allowing the Government to take title to patents is no different from the company employment agreements under which employees assign their rights to the employer and that in neither case would the incentive to invent be stifled. The two situations are not comparable, nor is the incentive to invent the question. It is the incentive to develop the product or process commercially. The Government does not take the risk of commercializing patentable inventions, but the company does. Under the title policy it does not pay anyone to be first in the development of a product or process, but it does pay to be second. Financial gains still remain the strongest incentive for a company to commerialize a product under our free enterprise system and a license policy in the majority of cases will provide the best financial incentive.

Therefore, it appears to us that the approach outlined in S. 789 and S. 1809 would provide for the most orderly continuation of the country's economic growth resulting from the changing situation of increasing percentage support of research and development by the Federal Government. S. 1899 on the other hand, it seems to us, would have just the opposite effect and would discourage competent contractors from accepting Government work.

At the same time we would like respectfully to suggest certain alterations in S. 789 or S. 1809 which would, in our opinion, bring about a stronger and more effective piece of legislation. Essentially, we would prefer one bill which would combine several of the desirable features of both bills currently under consideration.

We thoroughly approve of the specific reference to "background patents" in S. 1809. In some areas, notably space and atomic energy, failure to include specific reference to these patents, obtained by the contractor at his own expense prior to the time of the contract, has been a cause of concern and, in certain cases, has led to the refusal by well-qualified commercial firms to accept the contract. These firms preferred not to accept the risk of possible loss of background rights. Therefore, the inclusion of the provision in S. 1809 referring to background patents will remove that area of concern and will, in our opinion, prevent any Government agency from overreaching itself.

While we are pleased to note that S. 1809 specifically takes cognizance of the contractor's authority to file for foreign patent rights even in those cases in which the contracting agency acquires title to domestic patents, we would like to see a more direct statement. We feel it would be better were the contractor to retain full right to file

date of enactment of this Act such receipts may be expended by the Administrator for the determination of the technical and commercial feasibility and the development of inventions in which the United States has proprietary interests.

Now, I think the effect of that would be to increase very materially the number of Government personnel which would have to be concerned in such matters. And if we look back on page 13, and I am reading now from line 23:

The Administration shall make available to each executive agency including the military departments all scientific and technical information available to the Administrator which may have value to such executive agency in the performance of its functions.

And then later on on page 14, line 12:

The Administration shall evaluate all scientific and technological information available to the Administration to determine its probable application to commercial uses in the development of new and better products and advance technological methods of production.

Now I would like to give a perspective here on what would be involved in doing the job as stated in S. 1899 in view of the present magnitude of the research and development effort in the entire world.

In the American Chemical Society, there is an organization called Chemical Abstracts which does a piece of a piece of the job called for in S. 1899. It concerns itself only with chemistry and chemical engineering and makes the results of new chemical science available to everyone who subscribes to the magazine Chemical Abstracts. It doesn't try to sort out all this information and tell each Government agency or other group what information should be applied to its problems. That is a separate and enormous task that Chemical Abstracts doesn't attempt to do in any sense.

Now, for just doing the work I have outlined, Chemical Abstracts, I was informed this morning, has 630 full-time personnel and 3,200 part-time personnel, the great majority of whom are highly trained, technical people. If this job were to be done completely, you can take that figure of 630 plus 3,200, which is 3,830 people, and multiply it several times and it gives you an idea of how many people would be required to do the job mentioned in this bill. This isn't the work of a man with a few assistants. This is a truly enormous undertaking. I think when we consider S. 1899 we should keep that in mind, in view of the fact that there is an acute shortage of technically trained people in this country. One reason Chemical Abstracts doesn't have more than 630 full-time employees is it can't find them. The diversion of thousands of technically trained people, which would be required to do this job, from their present creative employment and having them sort over this scientific information for Government agencies would put a strain upon the technical availability of people in this country that I think should be seriously considered before this bill is approved.

Senator McCLELLAN. Well now, would manpower be all that was required?

Dr. HASS. Oh no, sir. You would have to pay these people. There would be lots and lots of money required.

Senator McCLELLAN. I am talking about special equipment, plants, and so forth that would be necessary for them to work with.

Dr. HASS. Chemical Abstracts, which is this organization I was mentioning, is tomorrow dedicating a $6 million new building, and Dr.

Senator McCLELLAN. Well, I am not criticizing this. I am trying to find out exactly what it does. Maybe that is what we want. Maybe the situation is such that that should be done, the Government should do all of it. I don't know. I just wanted to get those of you who are in this business to tell us what it does. If it does this what then will be required?

Dr. HASS. The thing that will be required is hundreds and hundreds of pilot plants which cost an awful lot of money to run.

Senator McCLELLAN. Could not the Government after it fed the information into the machine and got an answer, yes, it is probable, couldn't it then license it out to private industry to try to develop it?

Dr. HASS. It could be done that way except there aren't enough pilot plants in industry or in the country to do all the work that Senator Long apparently wants to have done here.

Senator McCLELLAN. There are not enough in the country to do this? There are not enough in private enterprise either?

Dr. HASS. That is right. My company has an enormous pilot plant which costs a great deal of money to run, and we do about two projects a year on that pilot plant; if we are lucky, sometimes we can get three. This costs us about half a million dollars to a million dollars a year to run. We figure that a pilot plant operation on the average costs about half a million dollars. So we are not talking about peanuts here. If we take a great many projects which have been developed somewhere in the whole area of science and develop them as this bill says, it is going to cost many, many hundreds of millions of dollars.

Senator McCLELLAN. I am not sure that this bill means to develop it. The section says "The Administration shall," that is the Administration agency, I assume, having the patent—

> The Administration shall evaluate all scientific and technical information available to the Administration to determine its probably application to commercial uses in the development of new and better products and advance technological methods of production.

Now that evaluates to the extent of determining whether it is probable, as I understand it, to accomplish the other purpose. Then subsection 3 says—

> The Administration shall compile, publish, and provide for the greatest practical distribution to libraries, trade associations, and organizations engaged in trade and industry of publications disclosing the results of such evaluation to the end that inventors and industrial and trade organizations may receive promptly information concerning new inventions and discoveries relating to their fields of special interest.

Now, reading on:

> Conduct such economic research as may be required to evaluate the contributions made by the Administration through its activities to the growth of the trade and commerce of the United States and to the stimulation of competition among private enterprise engaged in such trade and commerce.

It is not quite clear to me whether this bill means that the Government shall develop it by a pilot process, develop it into a product, or whether it simply determines from these evaluations that it has some possibilities and then advertise it or disseminate that information. That is the way I read the bill as of now.

Dr. HAAS. Senator Long is going to testify before this committee and he can tell what is in his mind better than I can.

drafting of the original NASA bill. I worked on this measure with then Senator, now President Johnson, particularly with respect to the patent provisions of that bill. This is a most complex subject complicated by the fact that I am not a patent lawyer.

I have been concerned by an attempt to impose a virtually inflexible title approach to this subject through amendments offered on the floor of the Senate. This is especially so because they have been offered to unrelated legislation. These amendments are hastily imposed without benefit of hearings such as these through which due, deliberate, and reasonable consideration of the merits of this subject can be made. The direct result of this approach is to prevent proper clarification of the important issues involved in any determination of the proper method to the disposition of rights under Government research and development contracts.

I have sponsored and support legislation to establish a Federal patent policy under Government research and development contracts. My bill, S. 789, is intended to insure protection of the rights of all parties to these contracts. It is designed to give due recognition to their respective contribution and effort in a manner consistent with our system of free enterprise. In this way, the legitimate rights of the Government and the private contractor will be protected.

I would like to comment briefly about certain provisions of my bill.

S. 789 provides that rights to an invention shall usually be determined at the time a research and development contract is negotiated. There is a specific exception to this which permits the Government to take greater rights than it did under the original terms of the contract if there develops "new, unusual and compelling" factors related to the national security, public health and safety which did not exist at the time of contract negotiation. Regardless of the disposition of rights under a contract, the Government will always be assured of receiving an irrevocable, nonexclusive, nontransferable, royalty-free license to any invention, discovery, or improvement development under a contract.

The requirement that rights under a research and development contract should normally be fixed at the time of negotiation is, I believe, consistent with general contract procedure. The contracting parties are entitled to be made aware of their rights and responsibilities at the time an obligation is assumed.

In my opinion, this approach should be followed under research and development contracts save for those instances where the subject matter of the contract cannot be reasonably identified. Then, disposition might be deferred until a later time agreed to by the parties under rules and regulations to be established under my bill by the Secretary of Commerce.

I think that is very important because there are approximately 20 Government departments and agencies which enter into research and development contracts. If there is to be established a national patent policy to govern disposition of rights under these contracts, it would seem desirable to achieve the greatest possible compatibility and consistency in application of this policy by these departments and agencies.

It is my belief that this can be best assured through inclusion of specific guidelines for determining proper disposition of rights. Such

I believe that the basic provisions of S. 789 and your bill, Mr. Chairman, are highly compatible. This appears to be the case, also, with respect to the statement on Government patent policy promulgated by the late President Kennedy in October 1963 and endorsed by President Johnson. Differences which exist are more in form than substance. Either of these bills as well as the President's statement can serve as a reasonable basis for disposition of rights under Government research and development contracts.

These bills and the President's statement reject any premise that a reasonable and equitable solution to this complex subject can be predicated upon a virtually inflexible policy of retaining for the Federal Government proprietary rights to inventions developed under Government research and development contracts. This is so especially when such a policy is based almost exclusively upon the financial contribution of the Government regardless of amount and circumstances under which it is made.

In my view, this convenient solution ignores sound judgment and fairness. It subordinates other equally compelling factors involved in the performance of research and development contracts. These factors would include consideration of the financial contribution, technical competence, background expertise, and physical facilities of a contractor used in performance of a contract.

It is only through a flexible policy which gives due recognition to these factors and applies them to the facts of a specific contract that proper disposition of rights can be made and the best interest of the public service.

I am convinced that a flexible policy, and that is the important part of your bill, sir, as it is with mine, will serve to increase incentive to participate in Government research and development contracts. One cannot be certain that under an inflexible, restrictive patent policy, all qualified companies will desire to participate in research and development contracts. If this is the case, then the Government is not getting best value for its investment. A flexible policy should better insure greater participation in research and development contracts, improve research as well as accelerate commercial utilization of those inventions capable of being adapted to public use.

Arguments have been advanced in the past to show that proprietary rights are not essential to commercial utilization of an invention. It is certainly possible to cite instances where product development has not depended upon proprietary rights protection. However, such protection would appear essential to insure full commercial utilization where additional development of an invention will be required; where financial investment appears necessary; where the subject matter is complicated, or where a market will have to be developed.

As I have expressed, Mr. Chairman, S. 789 is not the only solution to this complex subject; however, I believe it is a reasonable approach. It shares with your bill and the President's statement on Government patent policy a premise based upon the need for flexibility in the negotiation of rights under research and development contracts. I think logic and equity alone prove the value of a flexible approach to this subject. The correctness of this approach is also shown through the long, detailed study and consideration which preceded issuance of the President's statement on Government patent policy. This state-

proper and necessary. However, under certain conditions—under certain guidelines—there are times when it will be proper to give waivers. I think what you want to do, under your bill, and what I want to do under my bill is to set up guidelines which will be fair to all and which will not be subject to abuse either by the Government or by private parties under research and development contracts.

Senator McClellan. Where you set up the guidelines with respect to granting a waiver right in the beginning or you set up guidelines with respect to granting an exclusive license after the patent title has been taken by the Government you have to vest discretion in an administrative official. In either instance, I don't see how you can avoid the human possibility of some abuses. But I think it would be just as present in one instance as in the other.

Senator Saltonstall. I think that is true, we are all human but I think if you have as good and as sound guidelines as you can and the conditions under which these things can be done, that is what we should do.

Senator McClellan. That is what we are seeking to do. We undertake to do that in each instance.

Senator Saltonstall. That is right.

Senator McClellan. There is no question about that, everybody wants to do that. There is no objection to setting up the guidelines as well as we can.

But if there can be abuse in one it seems to me there can be abuse in the other and it is just as likely to occur in one as the other. I don't think there is any way to avoid the possibility of some abuse.

Senator Saltonstall. No; I don't think you can avoid the possibility of some abuse. But if our guidelines are well set up and the Secretary of Commerce establishes rules so that the 20 departments or agencies are working under the same rules the potential for abuse can be reduced.

Senator McClellan. That is right.

I think we agree that the same general policy and procedure should apply to all agencies.

Senator Saltonstall. That is right.

Senator McClellan. Unless the law does make an exception where an exception is warranted. What I was thinking about, I have some hesitancy in just making the broad provision here that an administrator may, in his discretion, grant a waiver in the beginning at the time of contracting. Certainly we want to set up as many safeguards, guidelines as possible.

The argument against doing it is that it will be abused. You are giving undue power to an administrator, discretion that he can easily abuse.

But, it seems to me that the same abuse can occur and just as readily so, if the Government takes title and then the administrator under certain guidelines has the discretion to grant an exclusive license to someone.

Senator Saltonstall. I think it works both ways.

Senator McClellan. I think it does. That is the point I am making.

Senator Saltonstall. Yes.

commercial exploitation which are afforded by the limited time and limited scope exclusivity of the patent.

Fourthly, the association approves compulsory licensing of inventions made under Government research and development contracts when, and only when, the owner fails reasonably to offer the benefits of the invention to the public, and another party shows himself desirous and able to do so.

In a moment I will show how that brings us back to answering part of your questions about abuse, Senator.

Finally, the association favors legislation consistent with these purposes.

In order that I may put meaningful meat on the skeleton of the resolutions, let me first focus attention on a couple of fundamental premises, the understanding of which at times appears to be clear, but like Alice's cat seems to disappear and escape us now and again.

First, while patents are in the nature of property, unlike other property patents change character markedly when you take them out of the diverse hands of multiple private parties and place them in Government hands.

Second, a patent grants no right to use anything, no right to practice an invention. The Government needs title to no patent in order to secure its right to use any invention that is developed in a research and development contract. The Government's right to use an invention is developed by obtaining a license under patents issued to others, or by preventing the issuance of a patent to anybody.

But patent ownership does not materially aid the Government's right to use the results of research and development contracts.

Hence, the Government need for the use of an invention is no justification for a Government policy of taking title to patents.

What then does the patent grant? It grants the right to preclude others from using an invention for a limited time. In private hands the limited right issued others has a social and economic merit, as I will explain in a moment. In Government hands this same right to preclude others is socially undesirable; it is outside the constitutional purpose of the patent law; it is a license for the Government to use judicial process as a tool of extortion and to meddle in the private business affairs of the Nation's citizens.

If a given patent covers, let's say, an electric induction furnace as used to manufacture diamond drill bits, this patent grants the right for a limited time to prevent others from using that electric induction furnace in that particular operation, and hence indirectly it grants the right to make other manufacturers use electric resistance furnaces or gas-fired furnaces or coal-fired furnaces, but there remain people in the competition using furnaces to make such bits.

The patent owner does not himself get by his patent the right to use that electric induction furnace that was covered by the patent, and often though he owns the patent he may still not practice his own invention.

If a patent covers fluorescent lights, the patent forces others to make incondescent lights or mercury vapor lights but it leaves competition in the lighting field. In almost all cases—and by almost all I mean 99 percent of all of the patents that issue from the U.S. Patent Office—the patent is so narrow in scope that it does not give a noncompetitive

Over 30 companies are making office duplicating machines in competition with Xerox, although xerography is one of the great patented inventions of our time.

So in the private sector of our economy patents incite the commitments of research and development capital. But when you take those same patents and put them in Government hands, how do they incite the investment of research and development capital? They do not.

The Government commits its research and development capital for entirely different reasons, and properly so. It commits them for defense purposes and other such purposes. There is no incentive to the Government to commit R. & D. capital in order to get a return on the investment.

It is interesting to consider whether patents in the hands of the Government are constitutional, since they get in Government hands by operation outside the constitutional purpose; that is, the Government-owned patents result from progress of the useful arts but do not themselves incite or promote that progress as required by the Constitution.

By what constitutional purpose, is the Government justified in taking taxpayer's money, and with that money granting to itself the patent right to preclude taxpayers from using that which taxpayers paid for?

The Government is now spending well over 60 percent of the total research budget of the Nation. Let's assume for the sake of argument, and this is probably not accurate but let's assume, that Government research is only half as efficient as private research. This means that the Government gets 30 percent of all of the patents. And the Government endeavor extends to everything from the sex life of the lamprey eel in the Great Lakes to computers for controlling missiles, in both of which areas there is important commercial endeavor.

Owning 30 percent of all patents has nothing whatsoever to do with the Government's need for the right to use inventions; so what can the Government do with all these patents—these patents which are a license to use judicial process as a tool for meddling in the private commercial endeavor of others, these patents which convey only the right to preclude others from pursuing a given endeavor.

If the Government so elects, and if patents in Government hands are constitutional and are permitted by the Congress to be enforced, the Government can use the United States patent code, title 35 U.S.C., to do more regulation of all business than has ever been imagined by all of the governmental regulatory agencies in the history of the Nation. And I do not exaggerate a bit.

Patent infringement suits cost at a minimum on the order of $50,000, and they go up from there. They go way up from there.

Senator McCLELLAN. What costs $50,000?

Mr. ARNOLD. Patent infringement lawsuits, a lawsuit for patent infringement.

Senator McCLELLAN. What do you mean, because it costs that much to defend?

Mr. ARNOLD. To defend or prosecute to conclusion.

Senator McCLELLAN. You mean cost either client?

Mr. ARNOLD. Both parties have costs of that much.

Senator McCLELLAN. Both or either?

Rather, in every circumstance wherein Government removal of title from the hands of private individuals is necessary, the invention should thereupon be immediately dedicated to the public by operation of law without necessity of action by any Government agency or administrator—the only exception being the wartime takeover of a going business concern such as Nazi-controlled companies during World War II.

It is also the position of the American Bar Association that the many divergent circumstances that exist as between Government and its contractors are so varied and extreme as to make it necessary that there be flexibility of Government agencies to determine when and to what extent the contractor should be left with unencumbered title to inventions, or with title subject to an obligation to yield a compulsory license if he does not bring the invention to the public at a reasonable price and time, or with no title.

Some real-life examples of these different circumstances will make the point clear. These are fictionalized examples to avoid revelation of the confidential information, but each is based upon typical factual situations that often occur.

Example No. 1: ABC Co. has been inspecting pipe for the oil industry to find hidden fatigue cracks for years, and is currently able to measure cracks so small as to be able to guarantee a given joint of used pipe will support a string of pipe 5 miles long. ABC knows the concepts of how to do an even better inspection job, but has not reduced those concepts to practice because nobody has heretofore had any commercial interest in better results—nobody has a need justifying payment of the price for the better results.

Comes Project Mohole, and the contemplation of strings of pipe 20, 30, and 40 miles long, and hence a need for a much more highly refined technique for inspecting for hidden defects. ABC wants to render the inspection service to the National Science Foundation's Project Mohole but is tendered a contract form whereby all patent rights are assigned to the Government and wherein the Government asks for full specifications and the right to put the inspection work out for bids to ABC's competitors, on ABC's designs.

Since the specifications for the highly refined inspection equipment inherently will disclose all the techniques of the lesser refined equipment that is good for more ordinary commercial uses, the Government is asking for a full disclosure of all of ABC's inspection know-how.

Further, since ABC's long experience has taught it already how to make the more refined equipment, for the Government to claim title to patents on the development of those ideas into operating instruments is to claim as Government property all the company's precontract know-how upon which the instrument designs are founded.

Surely this is a case wherein the Government's contribution is negligible in proportion to the contractor's, wherein the Government can get the service it desires and needs—a guaranteed high-quality inspection service—at reasonable cost without buying the contractor's know-how and rendering it available to competitors and without taking title to patents built upon the contractor's development of the high-performance instruments.

This is not an art like atomic energy, where all the basic know-how was Government created. Rather this is an old art matured decades

Mr. ARNOLD. I beg your pardon? Yes, the Government could have said, "We will spend an additional $200,000 and we will run these tests and then we will offer it to the public."

This could have been done.

Senator MCCLELLAN. Couldn't they employ a contractor, this company, to run this test and pay the full price or adequate to make a profit?

Mr. ARNOLD. They could have done so. The point is the Government's incentive for this effort, when the project looked very pessimistic, is small. The contracting officer says, "The chances of success are 1 in 10, 1 in 20. Who am I to commit a quarter of a million dollars of the taxpayer's money on this kind of odds."

On the other hand, the contractor says, "The return is potentially dramatic, it is great, I will gamble a quarter of a million dollars against 10-to-1 odds if I can have a chance to get a return on it and a handsome profit.

The Government could, of course, have committed its money for the furtherance of this effort.

Senator MCCLELLAN. Well, the Government probably wouldn't have the testing facilities in the further processing and developing of the product, maybe it does, I don't know. But certainly it could go out, as I see it, to private enterprise who has the facilities, and make a contract with private enterprise to get it to do all this testing and to develop it.

Mr. ARNOLD. This is true.

Senator MCCLELLAN. But how could you make a contract in the beginning, how would you know what it is going to cost or whether it would take 6 months or 6 years to finally perfect. How do you know how to make that kind of a contract except to make it "for the next 6 months we will pay you so much to work on it?"

Mr. ARNOLD. My suggestion to you is this: Particularly in agricultural chemicals and in pharmaceuticals but in other areas also, it is very common to find the technical development and the market development costs run to, that is the commercialization after invention, that these costs run to tens, to hundreds, to thousands of times the cost of the original invention. The commercialization expense is much larger than the making of the invention in a wide variety of areas of technology.

Senator MCCLELLAN. Yes.

But as I understand the theory here, the Government takes the patent and then it can grant an exclusive license to some company to take that risk and develop it into a commercial product.

Mr. ARNOLD. I suggest to you this is philosophically erroneous for two or three reasons.

Senator MCCLELLAN. That is the answer. The Government is going to get the title, get the patent, it has got it here. But it does need processing and testing and experimentation to bring it to that state of commercialization. But the Government owns it.

Now, it can go out and give a license, exclusive license, to some private enterprise to develop it, to take that over and try to process it to that stage, can it not?

Mr. ARNOLD. The Government can do that. I think it is bad policy, and it is the position of the association that it is. One reason we

tractor retains title subject to compulsory license if the contractor himself does not offer the benefit of the invention to the public and others offers to do so, is also sound public policy.

I would point out if you let the contractor retain title you have left the title in the man who has the psychological interest, the background information, the motivation to bring this thing to the marketplace. If you let him retain title subject to the compulsory license and he does not bring it to the markplace you have saved yourself from the gross abuse that might result from the contractor-retain-title across the board.

So, that one of the ways we save ourselves from abuse under the contractor-retain-title policy, which our association would like to expand more broadly than the bills before this committee, is to attach this condition—the contractor being subject to compulsory license if he does not offer the license to the public on reasonable terms and someone else comes forward and offers to do so.

The choices, in our view, must be either, contractor-retain-title wherein the normal functions of the patent system can incite the inventor to bring the invention to public availability; or in the alternative, the Government publication or dedication of the information in those few instances where it is inequitable for the contractor to retain title even subject to the compulsory license, and this for the reason that if you give a license you must sue infringers.

You can't give a license either exclusive or nonexclusive and expect anybody to take the license unless you are willing to sue infringers. You can't pick and choose between potential licensees, unless you are willing to sue infringers, and the Government putting its financial resources into the patent litigation arena, is to me and to this association an abhorrent concept.

Turning specifically to the bill S. 1899, it might be mentioned that Senator Long's remarks in introducing the bill are to the effect that all of the public should be able freely to use all subject matter resulting from research and development contracts, but 90 percent of the language of the bill is to create an entirely new Federal bureaucracy charged with a contrary responsibility, by the express language of the bill. The contrary responsibility is that this new administration protect and preserve the property rights of the United States with respect to patents, inventions, and scientific and technological information.

How can it be protected and preserved as the proprietary right of the United States if the public freely receives the right to use these things?

The bill contemplates the granting of royalty-bearing licenses under Government patents. It is impossible to grant royalty-bearing licenses, unless you also are willing to sue non-royalty-paying infringers.

By what fair and uncorrupt political process can or should the selection be made that business X or Y should enjoy a Government license under certain patents, and Z should not, or that business P should be sued by the Government for infringement and business Q should not—when the know-how involved was produced in part with all of their tax dollars. I cannot conceive of one.

Another point: if we really want to give the public free right to use we don't need an administration to do that. My secretary can do that

product or new product, that company retaining title is much more likely to bring it to the marketplace than anybody else.

We protect ourselves from abuse by the compulsory license provision. We protect ourselves from abuse by Government officers, by having them either dedicate patents or having them leave the patent in the hands of the contractor as a matter of congressionally announced policy.

We note that only in the rarest instances is a patent broad enough to grant competition-free monopoly wherein large abuse of the public is possible. And we protect ourselves from abuse there by the compulsory license or by the Government exercise of eminent domain as to any truly monopolized critical defense or public welfare invention like a cure for cancer, just as the Government exercises eminent domain as to other property when necessary.

Our protections are a multithreaded fabric which frees us from another Government bureaucracy and leaves us no Government officer with discretion he can readily abuse to the public detriment.

The patent right to preclude others is short term, is subject to compulsory license if the public doesn't reasonably get the benefit of the invention, and subject to eminent domain. Hence, we should properly leave the invention in the hands of the contractor who has the psychological interest and background information more likely to bring it to the public benefit.

S. 1809, the predecessor of this bill, S. 1290, in the 88th Congress also received very special action and attention by the American Bar Association and it was also the subject of a resolution to the effect that it represents an important step in the right direction.

Let me then hasten to a few comments about the bill, S. 1890, as now framed.

Section 2(g) we find is biased in favor of Government title and against the contractor, because it recites that the invention is made for purposes of the bill when it is either conceived or first actually reduced to practice, even though a hundred percent of the money in developing know-how leading to the conception and 99 or 95 percent of the cost of developing the conception to reduction to practice is privately financed.

So, the way that section reads, 1-percent participation by the Government would be enough to give the Government full title to the entire patent, if the ultimate reduction to practice came under the Government's 1 percent.

Further, many a patent application is filed on an invention not yet actually reduced to practice, and if such an already patent-applied-for invention, is offered to the Government for sale, it would seem that title to the resulting patent is lost. Surely the intent must be that inventions conceived and constructively reduced to practice outside of the Government contract should be preserved in the contractor subject to Government nonexclusive license in the instance where the Government gets into the picture, and this can be taken care of by an amendment to section 3(b)(9) which does not quite seem to do the job although it looks like it was intended to do the job.

Section 4(a) commences with the fundamental departure from the association position in reciting that the Government may obtain "the principle or exclusive rights in any invention made by the contractors. * * *"

Senator McCLELLAN. Suppose we have the Government taking title to all patents, all inventions that arise out of a Government contract, someone makes a discovery and reports it, who patents it?

Mr. ARNOLD. The practice thus far, which has a lot of practical background on it, is that the application must still be filed with the oath of the inventor, but the title would be in the hands of either the Government or the contractor, whoever was to own it.

Senator McCLELLAN. Would we have to make it compulsory for the person who made the discovery to initiate the patent proceeding?

Mr. ARNOLD. No; it does make it compulsory for him to execute the lawful oath so that, I mean if it is a lawful oath, so that, we have the man who claims to have been the inventor making the statement that he did not derive it from somebody else, that he did originate it, and the language of this section of the bill seems to be a little fuzzy in that it permits people to make applications who perhaps do not have information adequate to be sure of whether the invention was derived from others or not.

Section 8 of the bill goes to the heart of the American Bar Association's most strongly felt position that the Attorney General should never put the financial resources of the U.S. Government into suing its own taxpaying citizens for patent infringement. The Government's just purpose is its right to use for governmental purposes which it can obtain by a nonexclusive license.

This purpose is served without the Government taking title to the right to preclude others from using inventions.

Mr. Chairman, during the testimony of other witnesses you have raised the question of how to avoid the evils of abuse of discretion in Government contracting officers who either wrongfully leave patent rights in the contractor at the time of letting a contract or else wrongfully and with political favoritism grant licenses to select licensees under patents as to which the Government has taken title.

It is noteworthy that the position of the American Bar Association avoids that problem by leaving the title to patents in the contractor in almost all circumstances, relying upon several inherent factors to protect both the public and the contractor, and render reasonable such decision to leave title in the contractor. The factors in brief summary are:

1. The right to preclude others granted in the patent, is almost never effective to create a monopoly free of competition—there remains almost always a competitor on the scene with a competitive substitute product that will be used if the price gets far out of line.

2. The right to preclude others is limited in time, and can't go on unduly long.

3. Inventions are normally competing for development dollars (controlled by corporate budget committees) more acutely than soap chips are competing for housewives dollars. Result: An invention must have a champion, an advocate before the corporate budget committee with both background knowledge and personal interest in it, for the already-made invention to succeed in getting private capital budgeted for its technical and market development—and a Government owned invention normally does not find any such advocate outside the company which developed it. Subsequent result: Every corporation has more ideas to develop than it has money and men to try to develop

Senator McCLELLAN. Do either of those bills provide for that?

Mr. ARNOLD. Neither of these bills provide for that. But my basic point is if you leave it in the hands of the contractor in the first place subject to the compulsory license you will avoid getting the Government in that box.

Senator McCLELLAN. I understand.

But the effect of it would be tantamount to simply having the Government sell a patent.

Mr. ARNOLD. Correct.

Senator McCLELLAN. That is what it amounts to, to the highest bidder.

Mr. ARNOLD. And this to me is the only way for the Government to dispose of a patent other than by dedicating it to the public.

Senator McCLELLAN. Now, in other words, in that license would you simply quitclaim it or would the Government have an obligation to defend the patent from infringement after it had so licensed it for a consideration?

Mr. ARNOLD. I think that it is compelling that if you license Joe Jones Co. for a consideration, and Bill Smith Co. starts to use the invention, somebody has got to sue Bill Smith Co. or else Joe Jones paid money and got no value.

Senator McCLELLAN. That is it. The question is, would the Government simply quitclaim or would it warrant?

Mr. ARNOLD. My strong urging and the association's position is that the Government give quitclaim, that is a good expression, quitclaim the entire patent to whoever buys whatever the right is, quitclaim the whole thing and then the Government is not in enforcement.

Senator McCLELLAN. And not have the obligation to follow up and protect and defend that against infringement?

Mr. ARNOLD. Correct.

Senator McCLELLAN. It would be up to the fellow who bought it to take his chance?

Mr. ARNOLD. Correct.

Senator McCLELLAN. If we didn't do that we would have Government in litigation quite often, wouldn't we?

Mr. ARNOLD. Tremendous amount of Government litigation that could not be other than the worse abuse of Government power that we have ever known.

Senator McCLELLAN. I am just trying to explore here how involved we are going to get in this Government owning all the patents and giving exclusive license. It may be the ideal way. It may be, I don't know but these thoughts occur to me as we go along and I would like to have comment on them from people who know far more about the general practice and what is involved maybe than I do.

Mr. ARNOLD. Well, the American Bar Association very much appreciates the courtesy you have given us to be heard today and the previous conferences, Senator McClellan, and we hope we were able to help you.

Senator McCLELLAN. Thank you.

The committee gave the opportunity, not Senator McClellan.

Any questions?

Senator HART. Just one question, and I think the American Bar Association would be the best one to give some general answer to it,

(The prepared statement of Mr. Arnold follows:)

STATEMENT OF TOM ARNOLD ON BEHALF OF THE AMERICAN BAR ASSOCIATION

Mr. Chairman and members of the subcommittee, I am Tom Arnold, of Houston, Tex., partner in the law firm of Arnold & Roylance, Tennessee Building, Houston, Tex. I appear before this subcommittee on behalf of the American Bas Association, an association of over 118,000 lawyers throughout the Nation. I am chairman of that association's section on patent, trademark, and copyright law.

On topics relating to patent, trademark, and copyright law, the positions of the American Bar Association are arrived at by first submission to a committee of the Section on Patent, Trademark, and Copyright Law, thence by submission to that section for debate in open session at annual conventions of that secttion. Then months later after prior notice of submission of the issue, it is submitted to the House of Delegates of the American Bar Association for action by the house of delegates in meeting assembled for open debate. This is a cumbersome and time-consuming procedure, burdened by its nature to be one normally productive of only broad brush strokes and normally not of detailed draftsmanship; but it is a carefully deliberative procedure bringing literally hundreds of lawyers experienced in the area into the study of the issues being considered by this committee today.

The American Bar Association has spoken on this subject on several occasions, most recently speaking last February by essentially unanimous action of its house of delegates, with respect to the President's memorandum and statement of Government patent policy of October 10, 1963, Federal Register, volume 28, No. 200, copy attached hereto as exhibit A.

Since that resolution of the association contains the heart of all the association positions on the three bills, S. 789, 1809, and 1899, I should read it to you here:

"*Resolved,* That the American Bar Association is opposed in principle to those portions of the President's memorandum and state of Government patent policy which seek to promote commercial use of inventions resulting from federally financed research and development contracts by normally requiring the vesting in the Government of title to patent covering such inventions.

"This association opposes any Government patent policy which contemplates depriving any citizen of the United States of the free use of any patent, the title to which is vested in the Government.

"It is the conviction of this association as expressed in prior formal resolutions, that commercial use of such inventions is most effectively promoted when the incentives afforded by exclusive rights and the protection thus given to the investment needed to promote such use, are provided under the patent system.

"The Presidential memorandum and statement of Government patent policies of October 10, 1963, is therefore disapproved in its present form.

"While the section strongly disapproves compulsory licensing generally, it will not oppose the following form of such licensing with respect to inventions resulting from federally financed research and development contracts:

"Where the patentee retains exclusive commercial rights to such inventions, no further impairment of these rights should be imposed, except upon the institution of a proceeding by an interested developer who shows by convincing evidence that the patentee without justifiable cause his failed to exploit the invention in commercial fields within a reasonable period following the issuance of the patent, and has refused to grant a license to the 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.

"The American Bar Association recommends enactment of legislation consistent with the foregoing principles."

In order that I may convey a full understanding of this resolution, and its application to the bills under consideration, I must first focus attention upon a few premises that are often understood at one moment, but like Alice's cat tend to disappear from understanding by those not working daily in patents, when they look away for a moment.

First, while patents are in the nature of property, unlike other property they change character radically when taken from diverse private hands and placed in Government hands, and this is because they are not really property in the classic sense.

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So in the private sector of the economy, patents incite the investment of R. & D. capital; thereby promote the progress of the useful arts and encourage the bringing of new products to the marketplace.

But you take those same patents and put them in Government hands, and how do they incite the progress of the useful arts? They do not.

The Government commits its R. & D. capital for reasons of defense, public disease control, etc., without any regard to possible commercial return on its R. & D. investment. And this is as it should be: that commercial return is no part of the motivation for Government R. & D. investment.

It is interesting to consider whether patents in Government hands are constitutional, since they get there by operation outside the constitutional purpose; i.e., the Government-owned patents result from progress of the useful arts but do not themselves incite or promote that progress as required by the Constitution.

By what proper constitutional purpose is the Government justified in taking taxpayers' money, and with that money granting to itself the patent right to preclude taxpayers from using that which taxpayers paid for?

The Government is now spending over 60 percent of the national research budget, in every industry from the sex life of the lamprey eel in the Great Lakes to computers for guiding missiles—in both of which areas the inventions are also of major non-Government commercial importance, as is typical.

And if we assume that Government research is even half as productive as private research, then the Government if it tries will obtain 30 percent of all the patents issued in this country and will have a patent position of strength in essentially every industry.

Owning 30 percent of all patents has nothing whatsoever to do with the Government's need for the right to use inventions; so what can the Government do with all these patents—these patents which are a license to use judicial process as a tool for meddling in the private commercial endeavor of others, these patents which convey only the right to preclude other from pursuing a given endeavor.

If it so elects (and if patents in Government hands are constitutional as above questioned), the Government can use the patent code (title 35 U.S.C.) to do more regulation of all business than has ever been imagined by all the governmental regulatory agencies heretofore dreamed of. For no company is immune in its private business endeavor from suit by the Government for patent infringement.

Patent infringement suits cost a minimum of about $50,000 to fight diligently to conclusion, and the cost goes on up from there. Way up. To the Government the investment in such suits in inconsequential, but the mere threat of such suit will deter most commercial endeavors—all but the largest.

Mr. T. Hayward Brown of the Department of Justice, who was my boss when I was with Justice a little less than 20 years ago and is still my good friend, argues that it is perfectly all right for the Government to sue on its patents—"at least in defense." So what does the Department of Justice do?

The U.S. Government commits a tort against a private corporation or individual, pirates that company's property rights as by eminent domain without any compensation or due process of law, and gets sued by that company for recovery of its damages. The Department of Justice sends its searchers back to look for Government patents that this corporation might infringe, and files an expensive patent infringement suit against this corporation, while not suing anyone among a full dozen other major companies that also infringe that patent, and while not suing anyone among thousands of corporations and people who infringe other Government patents.

Note this: The Government's choice of what party to sue is that the Government will sue "in defense" the party the Government wronged, while not suing any of the parties the Government did not wrong.

This is what the Government has already done in one case of administering its patents. And any time its political whim elects to, its portfolio of patents is such that it could likely enjoin enough key industrial operations to bring the entire national economy to a standstill—if the Government ownership and exploitation of patents is constitutional and is permitted by the Congress.

The Government must, of course, obtain in all its R. & D. contracts at least a royalty-free nonexclusive right to use the resulting inventions for governmental purposes. But as clearly inferred from the above, it is the first and strong position of the American Bar Association that the Government in its governmental capacity should never under any circumstance take title to a patent right to preclude others.

Example 2.—XYZ company under Government contract spends several hundred thousand dollars synthesizing various chemicals, and $144,000 (actual figure for the case here related) in trying out thousands of chemicals for a particular agricultural application, finally comes up with a material of poisonous and potentially highly dangerous character. This work, under Government contract, "belongs" to the Government as we can all readily argue with conviction, and the patent should belong to the Government.

But what can the Government do with the patent? Go into business? The patent doesn't grant that right and surely we are all agreed that the Government should not do that.

And, in the actual case from which this example is drawn, it took $200,000 in further tests after the making of the invention (raising of plants, treating them with the poisonous chemical, feeding them to animals, slaughtering the animals, measuring poison residue in their milk, in their meat, in their liver, etc.) before the safety of the chemical could be proved.

Out of what segment of our economy is that $200,000 to be financed? In this instance it was financed by the company, because the company got the patent and when the proof was finally in, and the Federal Food and Drug Administration and Department of Agriculture all approved the subject use of the material, the company was able to price its material to receive 10 cents per acre (at the recommended dosage) above its otherwise cost of manufacture and sale, recover its $200,000, and also save the farmer over a dollar an acre compared with prior practices.

But others entered the market as soon as the market value of the invention was proven, cut the price so there was no room for recovery of the cost of the safety tests, and the company had to prosecute a $60,000 suit to conclusion before it could commence to recover its development costs. This company's profits on the license of this invention, are being plowed into more agriculture chemical research.

What would the Government have done if it had owned the patent? How would it have got the $200,000 worth of safety testing done? By using an additional $200,000 worth of the taxpayer's money that in this case was not spent, on a gamble that looked so poor at the time that at least half of the informed men, including Government contracting officers, would not have gambled the $200,000.

But the potential of a large return from the limited life of the patent, induced a private company to gamble $200,000 after the invention was made, that almost assuredly would never have been spent by anybody, private or Government, but for the private functioning of the patent system.

The fact of the title to the invention being in the private party's hands, is the very fact that brought to the public, the benefit of the invention. Absent that privately owned patent it is almost certain that the public would not even today have enjoyed the benefits of this invention.

Should a Government contracting officer be free to recognize such a situation, to observe, "Well, the Government will never pursue this research; and neither will anybody else if we don't give them a chance at a return on their risky investment; but the public will benefit if somebody is provided incentive to gamble $200,000 of his own very high risk money and the patent will do just that."

Should the Government contracting officer be free upon recognizing such a situation, to leave title to a patent in the contractor? The American Bar Association thinks, "Yes."

One honorable Senator has opined to this Senate that this example does not exist. I suggest that he has spent more of his time studying in the dime-store-product arts than have some others, and less time working over research and development budgets of the major agricultural chemical and pharmaceutical houses.

For in the dime-store product and other technically simple arts, this example is little known and little appreciated. But in the pharmaceutical and agricultural chemical arts (and many others as well), this example is repeated time and time and time again. It is not unique or isolated. Those who don't know of this example's very common existence, have not looked for it in the right places.

For example, there are dramatic stories to be found like the magnetic clutch patented to the U.S. Government in this country, and as to which foreign patents were issued to a U.S. citizen and licensed to foreign manufacturers. The invention was never much used in this country, but was widely adopted and used in

The bill contemplates the granting of royalty-bearing licenses under Government patents. It is impossible to grant royalty-bearing licenses, unless you also are willing to sue non-royalty-paying infringers.

By what fair and uncorrupt political process can or should the selection be made that business X or Y should enjoy a Government license under certain patents, and Z should not, or that business P should be sued by the Government for infringement and business Q should not—when the know-how involved was produced in part with all of their tax dollars. I cannot conceive of one.

S. 789

This bill, or its substantial equivalent S. 1623, 88th Congress, has been considered in previous years by the American Bar Association, and acted upon as follows: "* * * That Senate bills * * * 1623, 88th Congress, represent steps in the right direction, but nevertheless fall short of the objectives herein expressed, and are therefore disapproved as presently worded."

S. 789, 89th Congress, section 12, still provides for the grant of an exclusive license to persons other than the Government contractor which made the invention, and the grant of an exclusive license is necessarily antipathetic to free use by all citizens.

Further, Government grant of an exclusive license inherently means Government suit for infringement with Government resources as the litigation weapon against selected infringers whose selection must be a political football.

Whereas the American Bar Association has not acted pro or con or the specifics of outright sale of Government-owned patents once in Government hands, the only logic consistent with association positions is that (1) the patent must be sold outright, as on an open bid basis, so as to take enforcement of the patent thereafter out of Government hands, or (2) the Government should have left title in the contractor in the first place, or (3) the Government must dedicate the patent since the Government must not become an enforcer of the patent right to preclude others.

Finally, S. 789 contemplates the Government's removing title from the contractor in more circumstances than is consistent with the association position, it being the association position that in the difficult in-between situations the uncertainty should be resolved in favor of the contractor retaining title subject to the Government license for governmental purposes, for this reason:

Admittedly there are many situations where the invention will be brought to market anyway, but there are also many like the magnetic clutch where absent private patent ownership the public will not benefit from the invention even though made and published.

S. 1809

The predecessor of this bill, S. 1290 88th Congress, received a very special and long-term study by the American Bar Association and others, and it along with S. 1623 88th Congress, Saltonstall, was the subject of the resolution of the association to the effect that they both "* * * represent steps in the right direction, but nevertheless fall short of the objectives herein expressed and are therefore disapproved as presently worded."

A few specific comments may be made with respect to S. 1809 in addition to the general philosophical points developed with respect to all the bills:

In section 2(g) we find a bias in favor of Government title, for an invention is "made" for purposes of the bill, when it is either conceived or first "actually" reduced to practice, even though 100 percent of the money in developing know-how leading to the conception, and 95 percent of the cost of developing the conception to reduction to practice, are privately financed.

Further, many a patent application is filed on an invention not yet actually reduced to practice, and if an already patent-applied-for invention is offered to the Government for sale, it would seem title to the resulting patent is lost. Surely the intent must be that inventions conceived and constructively reduced to practice outside Government contract, should be preserved to the contractor subject to the Government nonexclusive license for governmental purposes, and section 3(b)(9) would seem to need amendment to that effect.

Section 4(a) commences with the fundamental departure from the association position, in reciting that the Government may obtain "the principal or exclusive rights in any invention made by the contractor * * *."

For what just Government purpose should the Government obtain for itself exclusive rights; i.e., the right to preclude others from the use of an invention.

CONCLUSION

For the reasons above expressed, the American Bar Association

(1) approves the Government's acquiring the right to use for governmental purposes all inventions derived from Government R. & D. contracts—and no patent need be acquired to fulfill this purpose;

(2) approves of the Government's publishing inventions and dedicating them to the public and thereby to deny the contractor patent rights in inventions, in a select few circumstances;

(3) urges that the public interest is best served by the Government's leaving title to inventions in contractors in the vast majority of circumstances—extracting the requirement that the contractor must yield a compulsory license if it does not offer the invention to the public reasonably and promptly and another applicant shows itself able and willing to do so.

(4) strongly disapproves Government ownership and/or exploitation of the patent right to preclude others from use of inventions not matter from what source the patent right to preclude others may be derived. This includes, of course, disapproval of Government suits against its own citizens for infringements of patents on inventions paid for by the taxpaying citizens.

I appreciate the courtesy of this opportunity to present these views. I would be most pleased to attempt an answer to any questions you may have either now or later.

EXHIBIT A

PRESIDENTIAL MEMORANDUM AND STATEMENT OF GOVERNMENT PATENT POLICY ISSUED OCTOBER 10, 1963

(Published Federal Register, vol. 28, No. 200, October 12, 1963)

Memorandum for the Heads of Executive Departments and Agencies

Over the years, through Executive and Legislative actions, a variety of practices has developed within the Executive Branch affecting the disposition of rights to inventions made under contracts with outside organizations. It is not feasible to have complete uniformity of practice throughout the Government in view of the differing missions and statutory responsibilities of the several departments and agencies engaged in research and development. Nevertheless, there is need for greater consistency in agency practices in order to further the governmental and public interests in promoting the utilization of federally financed inventions and to avoid difficulties caused by different approaches by the agencies when dealing with the same class of organizations in comparable patent situations.

From the extensive and fruitful national discussions of government patent practices, significant common ground has come into view. First, a single presumption of ownership does not provide a satisfactory basis for government-wide policy on the allocation of rights to inventions. Another common ground of understanding is that the Government has a responsibility to foster the fullest exploitation of the inventions for the public benefit.

Attached for your guidance is a statement of government patent policy, which I have approved, identifying common objectives and criteria and setting forth the minimum rights that government agencies should acquire with regard to inventions made under their grants and contracts. This statement of policy seeks to protect the public interest by encouraging the Government to acquire the principal rights to inventions in situations where the nature of the work to be undertaken or the Government's past investment in the field of work favors full public access to resulting inventions. On the other hand, the policy recognizes that the public interest might also be served by according exclusive commercial rights to the contractor in situations where the contractor has an established nongovernmental commercial position and where there is greater likelihood that the invention would be worked and put into civilian use than would be the case if the invention were made more freely available.

Wherever the contractor retains more than a non-exclusive license, the policy would guard against failure to practice the invention by requiring that the contractor take effective steps within three years after the patent issues to bring the invention to the point of practical application or to make it available for licensing on reasonable terms. The Government would also have the right to insist on the granting of a license to others to the extent that the

of contracting, where the head of the department or agency certifies that such action will best serve the public interest. Greater rights may also be acquired by the contractor after the invention has been identified, where the invention when made in the course of or under contract is not a primary object of the contract, provided the acquisition of such greater rights is consistent with the intent of this Section 1(a) and is a necessary incentive to call forth private risk capital and expense to bring the invention to the point of practical application.

(b) In other situations, where the purpose of the contract is to build upon existing knowledge or technology to develop information, products, processes, or methods for use by the government, and the work called for by the contract is in a field of technology in which the contractor has acquired technical competence (demonstrated by factors such as know-how, experience, and patent position) directly related to an area in which the contractor has an established nongovernmental commercial position, the contractor shall normally acquire the principal or exclusive rights throughout the world in and to any resulting inventions, subject to the government acquiring at least an irrevocable nonexclusive royalty free license throughout the world for governmental purposes.

(c) Where the commercial interests of the contractor are not sufficiently established to be covered by the criteria specified in Section 1(b), above, the determination of rights shall be made by the agency after the invention has been identified, in a manner deemed most likely to serve the public interest as expressed in this policy statement, taking particularly into account the intentions of the contractor to bring the invention to the point of commercial application and the guidelines of Section 1(a) hereof, provided that the agency may prescribe by regulation special situations where the public interest in the availability of the inventions would best be served by permitting the contractor to acquire at the time of contracting greater rights than a non-exclusive license. In any case the government shall acquire at least a non-exclusive royalty free license throughout the world for governmental purposes.

(d) In the situation specified in Sections 1(b) and 1(c), when two or more potential contractors are judged to have presented proposals of equivalent merit, willingness to grant the government principal or exclusive rights in resulting inventions will be an additional factor in the evaluation of the proposals.

(e) Where the principal or exclusive (except as against the government) rights in an invention remain in the contractor, he should agree to provide written reports at reasonable intervals, when requested by the government, on the commercial use that is being made or is intended to be made of inventions made under government contracts.

(f) Where the principal or exclusive (except as against the government) rights in an invention remain in the contractor, unless the contractor, his licensee, or his assignee has taken effective steps within three years after a patent issues on the invention to bring the invention to the point of practical application or has made the invention available for licensing royalty free or on terms that are reasonable in the circumstances, or can show cause why he should retain the principal or exclusive rights for a further period of time, the government shall have the right to require the granting of a license to an applicant on a nonexclusive royalty free basis.

(g) Where the principal or exclusive (except as against the government) rights to an invention are acquired by the contractor, the government shall have the right to require the granting of a license to an applicant royalty free or on terms that are reasonable in the circumstances to the extent that the invention is required for public use by governmental regulations or as may be necessary to fulfill health needs, or for other public purposes stipulated in the contract.

(h) Where the government may acquire the principal rights and does not elect to secure a patent in a foreign country, the contractor may file and retain the principal or exclusive foreign rights subject to retention by the government of at least a royalty free license for governmental purposes and on behalf of any foreign government pursuant to any existing or future treaty or agreement with the United States.

SECTION 2. Government-owned patents shall be made available and the technological advances covered thereby brought into being in the shortest time possible through dedication or licensing and shall be listed in official government publications or otherwise.

SECTION 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. A patent advisory panel is to be established under the Federal Council for Science and Technology to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the government has any right or interest; and

(b) encourage the acquisition of data by government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions, to serve as basis for policy review and development; and

(c) make recommendations for advancing the use and exploitation of government-owned domestic and foreign patents.

SECTION 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any Executive department, independent commission, board, office, agency, administration, authority, or other government establishment of the Executive Branch of the Government of the United States of America.

(b) *Invention or invention or discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(c) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(d) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(e) *Made*—when uesd in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(f) *Governmental purpose*—means the right of the Government of the United States (including any agency thereof, state, or domestic municipal government) to practice and have practiced (made or have made, used or have used, sold or have sold) throughout the world by or on behalf of the Government of the United States.

(g) *To the point of practical application*—means to manufacture in the case

Rather in every circumstance wherein Government removal of title from the hands of private individuals is necessary, the invention should thereupon be immediately dedicated to the public by operation of law without necessity of action by any Government agency or administrator—the only exception being the wartime takeover of a going business concern such as Nazi-controlled companies during World War II.

It is also the position of the American Bar Association that the many divergent circumstances that exist as between Government and its contractors, are so varied and extreme as to make it necessary that there be flexibility of governmental agencies to determine when and to what extent the contractor should be left with unencumbered title to inventions, or with title subject to an obligation to yield a compulsory license if he does not bring the invention to the public at a reasonable price and time, or with no title.

Some real-life examples of these different circumstances will make the point clear. These are fictionalized examples to avoid revelation of the confidential information, but each is based upon typical factual situations that often occur.

Example 1.—ABC company has been inspecting pipe for the oil industry to find hidden fatigue cracks for years, and is currently able to measure cracks so small as to be able to guarantee a given joint of used pipe will support a string of pipe 5 miles long. ABC knows the concepts of how to do an even better inspection job, but has not reduced those concepts to practice because nobody has heretofore had any commercial interest in better results—nobody has a need justifying payment of the price for the better results.

Comes Project Mohole, and the contemplation of strings of pipe 20, 30, and 40 miles long, and hence a need for a much more highly refined technique for inspecting for hidden defects. ABC wants to render the inspection service to the National Science Foundation's Project Mohole, but is tendered a contract form whereby all patent rights are assigned to the Government and wherein the Government asks for full specifications and the right to put the inspection work out for bids to ABC's competitors, on ABC's designs.

Since the specifications for the highly refined inspection equipment, inherently will disclose all the techniques of the lesser refined equipment good for more ordinary commercial uses, the Government is asking for a full disclosure of all of ABC's inspection know-how.

Further, since ABC's long experience has taught it already how to make the more refined equipment, for the Government to claim title to patents on the development of those ideas into operating instruments is to claim as Government property all the company's precontract know-how upon which the instrument designs are founded. There is good reason to believe that no other contractor has enough experience in this work to be sure in advance of hundreds of thousands of experiments that it can meet the strict performance specifications,

you several times urged us favorably to consider the contractor shall own, the Government shall ride herd.

Mr. ARNOLD. Yes, sir.

Senator HART. But unless he brings it into public use, whatever your technical expression is, unless he brings it into public use he will lose it.

Mr. ARNOLD. No; he won't lose the right to use the invention but he will lose the exclusivity if another party comes in and makes application for a license under the patent and shows the man who owns the patent has not reasonably offered this invention to the public.

Senator HART. It is that point, what are reasonable terms and conditions and who decides that?

Mr. ARNOLD. It must be decided by an appropriate tribunal, I should think by a U.S. district court. The reasonable terms will very markedly from invention to invention. In some instances reasonable terms will be 1 percent of gross income.

Senator HART. Such as, what circumstances would suggest that?

Mr. ARNOLD. Typically in the electronic arts. There are alternative ways of doing things that cost you a little bit more money but you can save a little bit in weight and save a little bit in space if you will substitute, for example, a transistor for a vacuum tube.

In such a situation where the improvement circuit was not being offered, the other applicant could come in and say, "RCA got this patent, they didn't offer the benefit of it to the public, I want a license," and the royalty in this instance would be found to be on the order of 1 percent, because the savings in cost over alternative circuits using vacuum tubes or something else would be so small that 1 percent would represent a major part of the total value of the invention.

In some other instances, particularly in the oil patch, a given tool may cost only $200 to build but every time it is used it saves $10,000 worth of downtime on a rig. Well, if you have got a $200 tool that earns $10,000 every time it is used the royalty can very well be 10 or 15 percent of gross instead of 1 percent.

Whereas if you charge 10 or 15 percent on some electronics inven-

with, and it must select those ideas it knows most about and feels most confident will pay the biggest return. Most inventions of complexity and importance, once taken from the company which made them, languish unused for years, often until reinvented by another who thereby takes interest in what he conceives to be his own brainchild, without any private capital being committed to its market development. It follows that some real quantity of favoritism for the company making a development in the first place, is important to the public to bringing that invention to public enjoyment, that is, to interest, that is, getting private capital committed to the technical and market development needed to commercialize even already-made inventions.

4. Under the American Bar Association resolution, if the invention is not reasonably offered by the contractor to the public and another party shows himself both willing and able to do so, a compulsory license will be granted to such other party at a reasonable royalty—a feature which assures no long-term gouge of the public by a single monopolist for the profits of such an operation will attract the compulsory licensees.

Senator McClellan. Let me ask you this at that point, in granting the license, there is no guideline that I can determine, about the exclusive license being put out at public bid, is there?

Mr. Arnold. There is no guideline that I know.

Senator McClellan. What I am suggesting here is the Government has a patent it wants to license that somebody wants to commercialize for the general welfare. That is property, it is worth something possibly.

Is some administrator just going to select B company over here and say, "We are going to let you have this license."

Maybe A company over here is in just as good a position and just as anxious to get it. How are we going to resolve the difference there between a number who might like to try to develop it?

Mr. Arnold. I suggest to you that one basic premise that must be understood here is that there is an acute competition for the sale of ideas before those who control the purse strings on next year's product.

As I have argued, for what just governmental purpose must the Government obtain the right to preclude others from using any invention?

Section 54(a)(2) seems objectionably broad and vague and contrary to the principles of the functioning of the patent system, and most likely to discourage agricultural, chemical, and pharmaceutical companies from cooperative research efforts with the Government.

It is more precisely where the health and safety is most critical that developmental costs including Food and Drug and Department of Agriculture clearances eat up thousands of dollars in developmental costs that must be paid by the commercial undertaking, normally not paid by the Government. Hence it is here that contractor-owned patent incentives are in the public interest.

I believe it was Senator Hart who inquired about the difference between Italian law and the German law in this regard. The Italian law is quite explicit, no protection for pharmaceutical product invention. The German law is one of these semantic games where the chemical product is not patentable but they so construe the law on the protection of processes and methods of use much more broadly than the protection of processes in this country, such that the ultimate practical effect is there is a moderately satisfactory degree of patent protection in Germany for the pharmaceutical product invention. It is a semantic game that makes you think they are alike when in practical effect they are actually different.

It is also in these arts—the pharmaceutical, chemical, and agricultural arts—that you find a situation more critical as I described in my first example, where the improvement invention many times inherently includes with it all of the background knowledge, and to give away the improvement is thereby inherently to give away also something that the Government did not have a finger in.

Accordingly, the compulsory language of section 4(a) that "The agency head shall acquire" is contrary to the views of the American Bar Association which favors a "contractor retain title with exceptions" in certain circumstances versus the bill's "Government take

for all the United States by herself without any administration. All we have to do is have the Government not take title in the first place. Rather have the Government publish the information, make it available to others, but have the Government not take title to patents.

S. 789: This bill or its substantial equivalent, S. 1623 of the 88th Congress, has been considered in previous years by the American Bar Association and was acted upon as follows: The Senate bills, another one, and S. 1623, 88th Congress, represent steps in the right direction, but nevertheless fall short of the objectives herein expressed and are, therefore, disapproved as presently worded.

Senator McCLELLAN. Which bill is that?

Mr. ARNOLD. This resolution was with respect to Senator Saltonstall's S. 1623 of the last Congress, which is a very close parallel to S. 789 that is now before this committee.

S. 789 of this Congress, section 12, still provides for the grant of an exclusive license to persons other than the Government contractor which made the invention, and the granting of an exclusive license is necessarily antipathetic to free use by all citizens.

More important, the Government grant of an exclusive license inherently means Government suit for infringement against those who do not take the license but infringe; it necessarily introduces the Government into the patent litigation arena.

Whereas the American Bar Association has not acted pro or con on the specifics of outright sale of Government-owned patents, once in Government hands, the only logic consistent with the association's position is that the patent, once in Government hands, must be sold outright on an open bid basis so as to take enforcement of the patent outside of the Government hands and so as to give all interested businesses an equal opportunity to bid for the particular patents involved.

The alternative, of course, is for the Government to leave title in the contractor, this contractor who already has background and personal interest in it and know-how and the capacity to judge its commercial potential, subject to the compulsory license if the contractor does not offer it to the public and someone else comes along and does

consider it bad policy is that to give an exclusive license is to force the Government into litigating its own patents against private industry; and there is another procedure which accomplishes the public interest better.

Senator McCLELLAN. Another thing, how much staff, how much in the way of personnel and so forth, will it take, additional personnel, of the Government to take over this kind of a function.

Mr. ARNOLD. The solution we suggest is to get rid of all Government staff. [Laughter.]

Senator McCLELLAN. I wouldn't do that. Somebody might suggest you get rid of Congressmen and Senators. I am opposed to that approach. Go right ahead. [Laughter.]

Mr. ARNOLD. All right.

One Senator has suggested to the Senate that the example that I have just given wherein the patent itself really is the thing that brought the invention into the marketplace, does not exist. Well, it is true that in the dime store product line, and in many other more technical arts, this example is little known and little understood.

But in many areas it is a common everyday occurrence. The example repeats itself time after time after time. It is not unique or isolated. Those who don't know of this example's very common existence simply have not looked for it in the right places.

For example, there are real dramatic stories to be found, the magnetic clutch being one of the examples. It was invented by a Government employee of the United States and the U.S. patent issued to the U.S. Government. He was permitted to own his own patent, however, in foreign countries. The result was this clutch invention never enjoyed public use here. The public never enjoyed the benefit of it to any significant extent in this country. But in foreign countries where the patent existed in private hands, this invention became a tremendous commercial success and the public got the benefit of the invention.

It is a 20-minute discussion as to why this occurred, that in one country the patent becomes a great commercial success when it is held in private hands and in another country when it is held in the govern-

ago by private enterprise, the know-how of which Government has need to use, but the know-how of which Government has no just cause to take title to and give away to competitive contractors.

Government-take-title in such circumstances can only operate to injure and hurt the efficient enterprises in favor of the inefficient enterprises who get know-how they didn't spend money, sweat, or talent, to develop.

This is an example of the type of situation where we feel title to the inventions should remain in the contractor. In this instance title to the invention should remain in the contractor without any compulsory license being attached to the invention because the Government's contribution to this is small. The Government purposes are served by a pure service contract.

Second example, XYZ company under Government contracts spends several hundred thousand dollars synthesizing various chemicals, and an additional $144,000—this is an actual figure from the example I am giving you—an additional $144,000 in trying out thousands of chemicals in certain agricultural applications.

Finally, they come up with a startling solution but it uses a very poisonous material and very dangerous material. This work under Government contract would certainly be argued to belong to the Government, and the Government should have title to the patent, and the logic of that argument is extreme but I submit to you that it is not consistent with the public interest.

If the Federal Government gets the patent what can it do with the patent? Go into the business of manufacturing this material? It can't do that. What can it do with it? The patent right to preclude others is meaningless to the Government.

Here is another problem: This material is highly dangerous. It has been proved efficacious but somebody has to grow a lot of crops, has to spray a lot of crops with this material, has to feed that material to animals and then has to slaughter the animals and see how much poison residue is in the liver, is in the tongue, is in the beef, in the milk,

Mr. ARNOLD. Well, if there are two parties it will cost each one of them $50,000 or more to prosecute a typical patent infringement suit.

Senator MCCLELLAN. You regard that as a minimum?

Mr. ARNOLD. I regard that as a minimum to prosecute to conclusion. Obviously, most cases are settled short of conclusion. There are some few cases that are handled less expensively than that, but for all practical purposes that is a starting amount.

Senator MCCLELLAN. Where there is a real contest to the finish is what you are saying?

Mr. ARNOLD. Yes, sir. To the Government this kind of an investment with a staff of attorneys who don't have to account for their time is meaningless. But that time is a threat. All you need is that threat, and you can manipulate essentially all of the industry of America by the patent portfolio that the Government already has.

Mr. T. Hayward Brown of the Department of Justice, who was my boss a little less than 20 years ago when I was in the Department of Justice and who still is my very good friend, says it is perfectly all right for the Government to sue infringers of patents and I quote, "At least in defense of the Government."

Well, what has the Department of Justice done in the use of its patents "in defense of the Government?"

The U.S. Government commits a tort against one of its citizens. It takes his property without compensation, without due process of law. The U.S. Government is sued for this tort which happened to be the infringement of a patent. The Department of Justice goes back to its own files and finds a patent that is infringed by many companies in the United States, including this one, and says, "Well, since we have wronged you we will defend. We who have wronged you will defend by clobbering you selectively with the patents that we will not clobber anybody else with because we don't happen to want to."

So, the Government picks out the sole party that it has wronged and sues that party for infringement of a U.S. Government patent. It does not sue all of the other hundreds of companies that are

position. It gives a position where there is still competition as, for example, Kodak is still in competition with Polaroid. Kodak now competes by providing better color. Bell & Howell now competes by providing zoom lenses. Argus now competes by providing better projectors but they are all still in competition with Polaroid as Polaroid knows very well, in spite of the instant snapshots that Polaroid has monopolized.

Unless you amass tremendous numbers of patents in one legal entity there is always, with the rarest exception in our history, there is always a continuance of competition. No one legal entity has such a mass of patents unless it be and it is the U.S. Government.

But if the Government does not need patents for its own right-to-use purposes, then why should the Government acquire the right to title to patents at all? I find that question very difficult to answer.

Let me direct your attention a minute to the constituional purpose. The constitutional focus is not on the right of an inventor. It focuses not on any private individual right but rather it focuses on the public welfare. It says:

> Congress shall have the power to promote the progress of science and the useful arts.

The device by which that progress is promoted is "by securing to inventors for limited times."

Now, how does that promote the progress of the useful arts?

It is by providing incentive to private capital. Providing incentive to private capital is the only way that the constitutional patent system does promote progress.

Whether that capital is the inventor's own personal time, supplemented by his hammer and his saw and his garage, or whether that capital is provided by a corporation paying research directors and engineers to operate expensive centrifuges and microscopes in the corporation laboratory, it is still the incentive to capital that is the primary function of the patent system inciting advancements of the useful arts.

Senator McCLELLAN. So, if we are going to argue abuse may occur it may occur in the other instance as well as where the waiver is granted.

I thank the Senator.

Senator Hart, anything?

Senator HART. Thank you, Senator, very much.

Senator SALTONSTALL. Thank you, I appreciate having had the opportunity to testify on this very difficult and complex subject.

Senator McCLELLAN. Call the next witness.

Mr. BRENNAN. Mr. Tom Arnold, American Bar Association.

Senator McCLELLAN. All right, Mr. Arnold. Do you have a prepared statement?

STATEMENT OF TOM ARNOLD, CHAIRMAN, SECTION ON PATENT, TRADEMARK, AND COPYRIGHT LAW, THE AMERICAN BAR ASSOCIATION; ACCOMPANIED BY AUZVILLE JACKSON, JR., CHAIRMAN, ABA COMMITTEE ON GOVERNMENT PATENT POLICY

Mr. ARNOLD. Yes, sir; I have a prepared statement. I would like to edit it markedly in these remarks and add a few other thoughts by way of answering the questions of Senators Burdick and Hart and yourself if I may.

Senator McCLELLAN. You have a statement here of some length, 28 or 30 pages.

Did you wish to read it or just have it printed in the record?

Mr. ARNOLD. I would like to have that printed in the record, if I may.

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

If you wish to highlight it and supplement or implement it some with other remarks, you may.

Mr. ARNOLD. Yes, sir.

Senator McCLELLAN. Very well.

Mr. ARNOLD. I am Tom Arnold. I am chairman of the patent

ment explicitly recognizes the need for flexibility in negotiation of contracts for research and development which will "get the job done at the lowest cost to the taxpayers" and "promote full utilization of resulting technology."

The absence of a statutory Government patent policy, having the force of law, has resulted too often in confusion and inconsistency within the Government and among private segments of our society. This condition should not be permitted to continue. I hope legislation will be passed providing flexible standards for disposition of rights under Government research and development contracts. Equity and sound judgment require that this be done.

I thank you, Mr. Chairman and Mr. Hart, for this opportunity to present my statement on this subject. I say, very frankly, that, I am not an expert on patents. However, one need not be an expert to know that if we are to continue to invent, if we are to continue to stimulate inventive genius on the part of our citizens, if we are to continue to move ahead in the manner of Mr. Edison and Mr. Bell, perhaps this Nation's two greatest examples of inventive genius, we have got to give a certain stimulus to invention. Out of this, the public will derive results from this genius.

We know that the Government today provides substantial sums, I think up to $15 billion all told for research and development. I know $6 billion is expended in Defense for research; certainly we expect the Government in these difficult times to continue these expenditures.

But to derive best benefit for all under these expenditures, what we must have is flexibility in contracting. It is in this way that we can be assured of moving ahead in a Government way, in a private way, and in a commercial way for the future.

I thank you very much.

Senator McCLELLAN. Thank you, Senator.

There is an issue here before the committee now arising out of the different bills and their provisions. I want to determine and explore, if we can, of course, first explore it and then determine, whether there

an approach will avoid vagueness which can easily result in confusion. This is the reason for inclusion of the criteria in my bill. I believe the criteria in S. 789 establish reasonable standards which can be applied by all contracting departments and agencies in determining the contributions made by parties to a research and development contract in the light of its nature and purpose.

S. 789 provides protective devices to insure that when waiver of rights is granted by the Government, the Government will retain an interest sufficient to insure that the subject matter to which these rights relate will be developed for commercial utilization by the public as soon as practicable. This goal is very important, Mr. Chairman. It can be insured through provisions which permit the Government either to void a patent obtained under a waiver granted the contractor or compel the contractor to license others to manufacture and sell under the patent. This can be done upon a showing of failure to develop the invention for commercial use within a 3-year period from the date the patent was issued.

To insure proper safeguards against abuse of the rights of parties under Government research and development contracts, administrative and judicial procedures are established in my bill. They would be available under those provisions which concern:

1. Voidability of the rights of a contractor;
2. Licensing of a patent;
3. Administrative determination regarding Government declaration of ownership subsequent to negotiation of a research and development contract.

Furthermore, a contractor will be authorized to obtain an administrative determination with right of judicial appeal for alleged infringement. This is desirable, I believe, as remedy for those who cannot afford the necessary investment in time or money which often results from a protracted law suit. Hopefully, this provision will serve, also, to deter would-be infringers.

I do not favor permitting an executive department or agency head

Charles Price, who is expected to testify here later today, is the president of the American Chemical Society and if he doesn't get to speak fairly soon I am sure he will have to leave to be out there for the dedication of this $6 million new building.

Senator McCLELLAN. We will try to hear him. The point I am making is if the Government is to do all this, if it is to do the job—I don't know about personnel and you know more about plants and equipment than I know—but the personnel with the facilities to accommodate their talents and to make it possible for them to do the job would also be involved, would it not?

Dr. HASS. This sort of thing is now being done with the aid of computers which are not cheap. You can store enormous quantities of information into the memory of a computer and then dish it out again when you need it.

Senator McCLELLAN. Why would you need all these employees you are talking about then if it is going to be done with a computer?

Dr. HASS. Someone has to put that information on cards so that the computer can understand that information and that is a job.

Senator McCLELLAN. I didn't know a computer could take a piece of material here and experiment with it with some kind of chemical to do this or to do that. I didn't think a computer could do that.

Dr. HASS. It can't.

Senator McCLELLAN. I am talking about developing the thing into a marketable product. Who is going to do that?

Dr. HASS. I am not even talking about that part of it. I am talking about the part where it is the duty of the Administrator——

Senator McCLELLAN. The section you cited here "evaluate all scientific and technical information available to the Administration to determine its probable application to commercial uses in the development of new and better products and advance technological methods of production." It stops there. It seems to me that you have explored enough to determine whether you think it may have a possibility. Is that right?

concerned with the pieces of legislation under consideration at this time.

Basically we are in favor of the establishment of a uniform national policy concerning property rights to inventions resulting from Government-supported research and development. Further, we favor that legislation which will, in most cases, permit the contractor to take title to patents resulting from the contract research. Therefore, we approve the principle underlying both S. 789 and S. 1809 and we just as strongly oppose S. 1899.

Our views in connection with the broader patent bills are not radically different from those that have been expressed many times in the past. We feel that an overall Government title policy will work against the best interests of the public as a whole. I may say that public interest is the only basis on which these decisions are properly made. We believe that a license policy, or modification thereof as provided in S. 789 and S. 1809, will be most likely to result in maximum benefits for the Nation as a whole.

Adherents of the title policy have said that they disagree with the contention that "private ownership of patents is needed to insure the commercial use of new inventions or discoveries." As that is phrased we would also disagree, but it is not the whole story. A patent never will insure development of any sort; on the contrary, a patent gives its owner the right to exclude others from using the invention and that is all. It is this right of exclusion which gives the patent holder an incentive to expend the necessary funds for development purposes. The really important basic patents, such as that for nylon, required many years of development and many millions of dollars before the product was marketable. Actually, nylon cost $18 million before a pound was ever sold commercially, and with present research costs that figure would be approximately double. It was the protection against practice of the patent by others that made the Du Pont Co. willing to risk the time and capital.

Senator McClellan. Let me ask this question. If one could see

SECTION 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. A patent advisory panel is to be established under the Federal Council for Science and Technology to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the government has any right or interest; and

(b) encourage the acquisition of data by government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions, to serve as basis for policy review and development; and

(c) make recommendations for advancing the use and exploitation of government-owned domestic and foreign patents.

SECTION 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any Executive department, independent commission, board, office, agency, administration, authority, or other government establishment of the Executive Branch of the Government of the United States of America.

(b) *Invention or invention or discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(c) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(d) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(e) *Made*—when uesd in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(f) *Governmental purpose*—means the right of the Government of the United States (including any agency thereof, state, or domestic municipal government) to practice and have practiced (made or have made, used or have used, sold or have sold) throughout the world by or on behalf of the Government of the United States.

(g) *To the point of practical application*—means to manufacture in the case

It is the position of the association that this clause be modified to provide that in the appropriate circumstances the agency shall deny to the contractor the exclusive rights, and shall acquire the right to a disclosure of the information for public dedication purposes only.

Section 4(a)(2) seems objectionably broad and vague, and contrary to the principals of the functioning of the patent system, and most likely to discourage agricultural, chemical and pharmaceutical companies from cooperative research efforts with the Government. It is most precisely where the public health and safety is most critical, that developmental costs and Food and Drug and Department of Agriculture clearances often eat up hundreds of thousands of dollars after the invention is made; and hence in these arts patent protection is often needed to incite somebody to invest the money necessary to develop an already-made invention for market.

Also here in these arts we more commonly find the situation of example 1 above, wherein the disclosure of the improvement know-how in the development of which the Government may have a finger, inherently constitutes a disclosure to one's competitors of all the background know-how in which the Government had no finger.

The whole operation of the patent system, by its constitutionally stated purpose, is not to promote any private interest but to promote public welfare through promotion of the progress of the useful arts. The values of that system in bringing the invention not only into being, but developing it for the market, are the greater at the heart of public welfare.

Accordingly, the compulsory language of section 4(a), that "the agency head shall acquire" is contrary to the views of the American Bar Association, which favors a contractor retain title with exceptions versus the bill's Government take title with exceptions.

Lawyers who work with governmental agencies find their backlog of work often is measured in years, but business decisions must be made and capital in quantity committed in months if the public is promptly to receive the benefits of new inventions. Section 5 contains no provision for what happens if the agency head simply does not act in 60 days. It would seem that the agency head should be burdened to act within the allotted time, or in the alternative that his failure to act would operate automatically as an adjudication in favor of the contractor.

A fundamental of our patent system has always been that inventors were the applicants for all patents, and were required to declare their belief that they were the original and first inventor, and did not derive their idea from others. Section 7 of the bill affords an agency head a right of application for patent without regard, it would seem, to whether he has enough knowledge to or can otherwise make such a declaration truthfully.

Section 8 goes to the heart of the American Bar Association's most strongly

Rather in every circumstance wherein Government removal of title from the hands of private individuals is necessary, the invention should thereupon be immediately dedicated to the public by operation of law without necessity of action by any Government agency or administrator—the only exception being the wartime takeover of a going business concern such as Nazi-controlled companies during World War II.

It is also the position of the American Bar Association that the many divergent circumstances that exist as between Government and its contractors, are so varied and extreme as to make it necessary that there be flexibility of governmental agencies to determine when and to what extent the contractor should be left with unencumbered title to inventions, or with title subject to an obligation to yield a compulsory license if he does not bring the invention to the public at a reasonable price and time, or with no title.

Some real-life examples of these different circumstances will make the point clear. These are fictionalized examples to avoid revelation of the confidential information, but each is based upon typical factual situations that often occur.

Example 1.—ABC company has been inspecting pipe for the oil industry to find hidden fatigue cracks for years, and is currently able to measure cracks so small as to be able to guarantee a given joint of used pipe will support a string of pipe 5 miles long. ABC knows the concepts of how to do an even better inspection job, but has not reduced those concepts to practice because nobody has heretofore had any commercial interest in better results—nobody has a need justifying payment of the price for the better results.

Comes Project Mohole, and the contemplation of strings of pipe 20, 30, and 40 miles long, and hence a need for a much more highly refined technique for inspecting for hidden defects. ABC wants to render the inspection service to the National Science Foundation's Project Mohole, but is tendered a contract form whereby all patent rights are assigned to the Government and wherein the Government asks for full specifications and the right to put the inspection work out for bids to ABC's competitors, on ABC's designs.

Since the specifications for the highly refined inspection equipment, inherently will disclose all the techniques of the lesser refined equipment good for more ordinary commercial uses, the Government is asking for a full disclosure of all of ABC's inspection know-how.

Further, since ABC's long experience has taught it already how to make the more refined equipment, for the Government to claim title to patents on the development of those ideas into operating instruments is to claim as Government property all the company's precontract know-how upon which the instrument designs are founded. There is good reason to believe that no other contractor has enough experience in this work to be sure in advance of hundreds of thousands of experiments that it can meet the strict performance specifications,

A patent grants no right to use any invention. Many, many times I've explained that to clients or fellow lawyers, only to have them utter a remark an hour or a day later evidencing a basic premise that a patent does secure the right to use something. But it is not so; a patent grants no right to use anything. Often the owner of a patent may not lawfully manufacture that which it covers.

The Government, of course, has a legitimate interest in the use of many inventions for defense, space research, and other public purposes; but no patent ever granted that right to use and hence the need of the Government to use inventions does not justify the Government's taking title to patents.

The patent grants the right to preclude others from utilizing an invention. It is a governmental grant of right to control a limited business activity of another. It is a social and economical merit in private hands but no merit in Government hands as will be shown below.

If a given patent covers an electric furnace for making diamond bits, the patent grants the right to prevent use of electric furnaces in this application and hence the right indirectly to make the other manufacturers use gas or coal furnaces, or to pay a royalty for the use of the patented electric furnace.

If the patent covers instant snapshots a-la-Polaroid, it forces the other manufacturers to make other kinds of cameras, and to compete by producing higher quality color prints at less cost, etc.

If the patent covers fluorescent lighting, it forces the other manufacturers to make mercury vapor or incandescent lights.

But note that in almost all cases—surely in the case of more than 99 percent of all patents issued—there remains a competitor still able to use gas furnaces, or traditional photography, or incandescent lights, or some other significantly competitive substitute for the patent product, unless you amass tremendous numbers of patents in one ownership. And with the most extremely rare exception no one legal entity has such a mass of patents in a single industry as to preclude competition in except the U.S. Government.

But if the Government dose not need patents for its own right-to-use purposes, then why should the Government ever take title to a patent? A plausible answer to that question is harder to come by than at first seems possible.

A brief look at the constitutional purpose, and the actual economic role of patents when held by private parties versus when held by the Government is essential to an understanding of the issues.

The Constitution focuses not on the right of an inventor: the Constitution focuses on "promote the progress of science and the useful arts * * * by securing to authors and inventors for limited times * * *".

How is that progress promoted?

By providing an incentive to private capital. Providing incentives to private capital is the only way the patent system promotes progress.

you several times urged us favorably to consider the contractor shall own, the Government shall ride herd.

Mr. ARNOLD. Yes, sir.

Senator HART. But unless he brings it into public use, whatever your technical expression is, unless he brings it into public use he will lose it.

Mr. ARNOLD. No; he won't lose the right to use the invention but he will lose the exclusivity if another party comes in and makes application for a license under the patent and shows the man who owns the patent has not reasonably offered this invention to the public.

Senator HART. It is that point, what are reasonable terms and conditions and who decides that?

Mr. ARNOLD. It must be decided by an appropriate tribunal, I should think by a U.S. district court. The reasonable terms will very markedly from invention to invention. In some instances reasonable terms will be 1 percent of gross income.

Senator HART. Such as, what circumstances would suggest that?

Mr. ARNOLD. Typically in the electronic arts. There are alternative ways of doing things that cost you a little bit more money but you can save a little bit in weight and save a little bit in space if you will substitute, for example, a transistor for a vacuum tube.

In such a situation where the improvement circuit was not being offered, the other applicant could come in and say, "RCA got this patent, they didn't offer the benefit of it to the public, I want a license," and the royalty in this instance would be found to be on the order of 1 percent, because the savings in cost over alternative circuits using vacuum tubes or something else would be so small that 1 percent would represent a major part of the total value of the invention.

In some other instances, particularly in the oil patch, a given tool may cost only $200 to build but every time it is used it saves $10,000 worth of downtime on a rig. Well, if you have got a $200 tool that earns $10,000 every time it is used the royalty can very well be 10 or 15 percent of gross instead of 1 percent.

Whereas if you charge 10 or 15 percent on some electronics inven-

As I have argued, for what just governmental purpose must the Government obtain the right to preclude others from using any invention?

Section 54(a)(2) seems objectionably broad and vague and contrary to the principles of the functioning of the patent system, and most likely to discourage agricultural, chemical, and pharmaceutical companies from cooperative research efforts with the Government.

It is more precisely where the health and safety is most critical that developmental costs including Food and Drug and Department of Agriculture clearances eat up thousands of dollars in developmental costs that must be paid by the commercial undertaking, normally not paid by the Government. Hence it is here that contractor-owned patent incentives are in the public interest.

I believe it was Senator Hart who inquired about the difference between Italian law and the German law in this regard. The Italian law is quite explicit, no protection for pharmaceutical product invention. The German law is one of these semantic games where the chemical product is not patentable but they so construe the law on the protection of processes and methods of use much more broadly than the protection of processes in this country, such that the ultimate practical effect is there is a moderately satisfactory degree of patent protection in Germany for the pharmaceutical product invention. It is a semantic game that makes you think they are alike when in practical effect they are actually different.

It is also in these arts—the pharmaceutical, chemical, and agricultural arts—that you find a situation more critical as I described in my first example, where the improvement invention many times inherently includes with it all of the background knowledge, and to give away the improvement is thereby inherently to give away also something that the Government did not have a finger in.

Accordingly, the compulsory language of section 4(a) that "The agency head shall acquire" is contrary to the views of the American Bar Association which favors a "contractor retain title with exceptions" in certain circumstances [illegible]

consider it bad policy is that to give an exclusive license is to force the Government into litigating its own patents against private industry; and there is another procedure which accomplishes the public interest better.

Senator McCLELLAN. Another thing, how much staff, how much in the way of personnel and so forth, will it take, additional personnel, of the Government to take over this kind of a function.

Mr. ARNOLD. The solution we suggest is to get rid of all Government staff. [Laughter.]

Senator McCLELLAN. I wouldn't do that. Somebody might suggest you get rid of Congressmen and Senators. I am opposed to that approach. Go right ahead. [Laughter.]

Mr. ARNOLD. All right.

One Senator has suggested to the Senate that the example that I have just given wherein the patent itself really is the thing that brought the invention into the marketplace, does not exist. Well, it is true that in the dime store product line, and in many other more technical arts, this example is little known and little understood.

But in many areas it is a common everyday occurrence. The example repeats itself time after time after time. It is not unique or isolated. Those who don't know of this example's very common existence simply have not looked for it in the right places.

For example, there are real dramatic stories to be found, the magnetic clutch being one of the examples. It was invented by a Government employee of the United States and the U.S. patent issued to the U.S. Government. He was permitted to own his own patent, however, in foreign countries. The result was this clutch invention never enjoyed public use here. The public never enjoyed the benefit of it to any significant extent in this country. But in foreign countries where the patent existed in private hands, this invention became a tremendous commercial success and the public got the benefit of the invention.

It is a 20-minute discussion as to why this occurred, that in one country the patent becomes a great commercial success when it is held in private hands and in another country when it is held in the govern-

ago by private enterprise, the know-how of which Government has need to use, but the know-how of which Government has no just cause to take title to and give away to competitive contractors.

Government-take-title in such circumstances can only operate to injure and hurt the efficient enterprises in favor of the inefficient enterprises who get know-how they didn't spend money, sweat, or talent, to develop.

This is an example of the type of situation where we feel title to the inventions should remain in the contractor. In this instance title to the invention should remain in the contractor without any compulsory license being attached to the invention because the Government's contribution to this is small. The Government purposes are served by a pure service contract.

Second example, XYZ company under Government contracts spends several hundred thousand dollars synthesizing various chemicals, and an additional $144,000—this is an actual figure from the example I am giving you—an additional $144,000 in trying out thousands of chemicals in certain agricultural applications.

Finally, they come up with a startling solution but it uses a very poisonous material and very dangerous material. This work under Government contract would certainly be argued to belong to the Government, and the Government should have title to the patent, and the logic of that argument is extreme but I submit to you that it is not consistent with the public interest.

If the Federal Government gets the patent what can it do with the patent? Go into the business of manufacturing this material? It can't do that. What can it do with it? The patent right to preclude others is meaningless to the Government.

Here is another problem: This material is highly dangerous. It has been proved efficacious but somebody has to grow a lot of crops, has to spray a lot of crops with this material, has to feed that material to animals and then has to slaughter the animals and see how much poison residue is in the liver, is in the tongue, is in the beef, in the milk,

Mr. ARNOLD. Well, if there are two parties it will cost each one of them $50,000 or more to prosecute a typical patent infringement suit.

Senator MCCLELLAN. You regard that as a minimum?

Mr. ARNOLD. I regard that as a minimum to prosecute to conclusion. Obviously, most cases are settled short of conclusion. There are some few cases that are handled less expensively than that, but for all practical purposes that is a starting amount.

Senator MCCLELLAN. Where there is a real contest to the finish is what you are saying?

Mr. ARNOLD. Yes, sir. To the Government this kind of an investment with a staff of attorneys who don't have to account for their time is meaningless. But that time is a threat. All you need is that threat, and you can manipulate essentially all of the industry of America by the patent portfolio that the Government already has.

Mr. T. Hayward Brown of the Department of Justice, who was my boss a little less than 20 years ago when I was in the Department of Justice and who still is my very good friend, says it is perfectly all right for the Government to sue infringers of patents and I quote, "At least in defense of the Government."

Well, what has the Department of Justice done in the use of its patents "in defense of the Government?"

The U.S. Government commits a tort against one of its citizens. It takes his property without compensation, without due process of law. The U.S. Government is sued for this tort which happened to be the infringement of a patent. The Department of Justice goes back to its own files and finds a patent that is infringed by many companies in the United States, including this one, and says, "Well, since we have wronged you we will defend. We who have wronged you will defend by clobbering you selectively with the patents that we will not clobber anybody else with because we don't happen to want to."

So, the Government picks out the sole party that it has wronged and sues that party for infringement of a U.S. Government patent. It does not sue all of the other hundreds of companies that are

position. It gives a position where there is still competition as, for example, Kodak is still in competition with Polaroid. Kodak now competes by providing better color. Bell & Howell now competes by providing zoom lenses. Argus now competes by providing better projectors but they are all still in competition with Polaroid as Polaroid knows very well, in spite of the instant snapshots that Polaroid has monopolized.

Unless you amass tremendous numbers of patents in one legal entity there is always, with the rarest exception in our history, there is always a continuance of competition. No one legal entity has such a mass of patents unless it be and it is the U.S. Government.

But if the Government does not need patents for its own right-to-use purposes, then why should the Government acquire the right to title to patents at all? I find that question very difficult to answer.

Let me direct your attention a minute to the constituional purpose. The constitutional focus is not on the right of an inventor. It focuses not on any private individual right but rather it focuses on the public welfare. It says:

> Congress shall have the power to promote the progress of science and the useful arts.

The device by which that progress is promoted is "by securing to inventors for limited times."

Now, how does that promote the progress of the useful arts?

It is by providing incentive to private capital. Providing incentive to private capital is the only way that the constitutional patent system does promote progress.

Whether that capital is the inventor's own personal time, supplemented by his hammer and his saw and his garage, or whether that capital is provided by a corporation paying research directors and engineers to operate expensive centrifuges and microscopes in the corporation laboratory, it is still the incentive to capital that is the primary function of the patent system inciting advancements of the useful arts.

Senator McCLELLAN. So, if we are going to argue abuse may occur it may occur in the other instance as well as where the waiver is granted.

I thank the Senator.

Senator Hart, anything?

Senator HART. Thank you, Senator, very much.

Senator SALTONSTALL. Thank you, I appreciate having had the opportunity to testify on this very difficult and complex subject.

Senator McCLELLAN. Call the next witness.

Mr. BRENNAN. Mr. Tom Arnold, American Bar Association.

Senator McCLELLAN. All right, Mr. Arnold. Do you have a prepared statement?

STATEMENT OF TOM ARNOLD, CHAIRMAN, SECTION ON PATENT, TRADEMARK, AND COPYRIGHT LAW, THE AMERICAN BAR ASSOCIATION; ACCOMPANIED BY AUZVILLE JACKSON, JR., CHAIRMAN, ABA COMMITTEE ON GOVERNMENT PATENT POLICY

Mr. ARNOLD. Yes, sir; I have a prepared statement. I would like to edit it markedly in these remarks and add a few other thoughts by way of answering the questions of Senators Burdick and Hart and yourself if I may.

Senator McCLELLAN. You have a statement here of some length, 28 or 30 pages.

Did you wish to read it or just have it printed in the record?

Mr. ARNOLD. I would like to have that printed in the record, if I may.

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

If you wish to highlight it and supplement or implement it some with other remarks, you may.

Mr. ARNOLD. Yes, sir.

Senator McCLELLAN. Very well.

ment explicitly recognizes the need for flexibility in negotiation of contracts for research and development which will "get the job done at the lowest cost to the taxpayers" and "promote full utilization of resulting technology."

The absence of a statutory Government patent policy, having the force of law, has resulted too often in confusion and inconsistency within the Government and among private segments of our society. This condition should not be permitted to continue. I hope legislation will be passed providing flexible standards for disposition of rights under Government research and development contracts. Equity and sound judgment require that this be done.

I thank you, Mr. Chairman and Mr. Hart, for this opportunity to present my statement on this subject. I say, very frankly, that, I am not an expert on patents. However, one need not be an expert to know that if we are to continue to invent, if we are to continue to stimulate inventive genius on the part of our citizens, if we are to continue to move ahead in the manner of Mr. Edison and Mr. Bell, perhaps this Nation's two greatest examples of inventive genius, we have got to give a certain stimulus to invention. Out of this, the public will derive results from this genius.

We know that the Government today provides substantial sums, I think up to $15 billion all told for research and development. I know $6 billion is expended in Defense for research; certainly we expect the Government in these difficult times to continue these expenditures.

But to derive best benefit for all under these expenditures, what we must have is flexibility in contracting. It is in this way that we can be assured of moving ahead in a Government way, in a private way, and in a commercial way for the future.

I thank you very much.

Senator McClellan. Thank you, Senator.

There is an issue here before the committee now arising out of the different bills and their provisions. I want to determine and explore, if we can, of course, first explore it and then determine, whether there

an approach will avoid vagueness which can easily result in confusion. This is the reason for inclusion of the criteria in my bill. I believe the criteria in S. 789 establish reasonable standards which can be applied by all contracting departments and agencies in determining the contributions made by parties to a research and development contract in the light of its nature and purpose.

S. 789 provides protective devices to insure that when waiver of rights is granted by the Government, the Government will retain an interest sufficient to insure that the subject matter to which these rights relate will be developed for commercial utilization by the public as soon as practicable. This goal is very important, Mr. Chairman. It can be insured through provisions which permit the Government either to void a patent obtained under a waiver granted the contractor or compel the contractor to license others to manufacture and sell under the patent. This can be done upon a showing of failure to develop the invention for commercial use within a 3-year period from the date the patent was issued.

To insure proper safeguards against abuse of the rights of parties under Government research and development contracts, administrative and judicial procedures are established in my bill. They would be available under those provisions which concern:

1. Voidability of the rights of a contractor;
2. Licensing of a patent;
3. Administrative determination regarding Government declaration of ownership subsequent to negotiation of a research and development contract.

Furthermore, a contractor will be authorized to obtain an administrative determination with right of judicial appeal for alleged infringement. This is desirable, I believe, as remedy for those who cannot afford the necessary investment in time or money which often results from a protracted law suit. Hopefully, this provision will serve, also, to deter would-be infringers.

I do not favor permitting an executive department or agency head discretion to confer either an exclusive or nonexclusive license to work

Senator McClellan. It isn't what is in his mind. You don't interpret what is in a Congressman's mind.

Dr. Haas. Mr. McClellan, if we are going by the wording of it, and I think we have to, on page 18, lines 7 and 8, when it says "technical and commercial feasibility and for the development of inventions," in the jargon of my industry, which is research and development, "development" means pilot plant work.

Senator McClellan. I would say this at this point without a final decision. If this bill is to be accepted and reported I think this language needs some clarification. That would be my thought on it.

Very well. Any questions.

Senator Burdick. Thank you, Mr. Chairman. I came late and I don't have the benefit of your earlier testimony. But I assure you I will read your testimony.

Senator McClellan. The next witness, Senator Saltonstall, is on his way and we promised to hear him next. Everybody be at ease.

(Short recess.)

Senator McClellan. The committee will come to order.

Senator Saltonstall, the committee welcomes you, sir. We have under consideration a bill of which you are the author and we will be very glad to have your comments in support of it and if you can say kind words about anyone elses we have here I will be glad to have that, too.

[Laughter.]

STATEMENT OF HON. LEVERETT SALTONSTALL, A U.S. SENATOR FROM THE COMMONWEALTH OF MASSACHUSETTS

Senator Saltonstall. I say, Mr. Chairman, that I don't think that your bill and mine are very different. Therefore, we can support each other and, I hope, have the support of all of the other members of the committee.

Mr. Chairman, I want to speak very briefly in behalf of S. 789, and before I do so, I would like to say that I received a letter from Senator

Charles Price, who is expected to testify here later today, is the president of the American Chemical Society and if he doesn't get to speak fairly soon I am sure he will have to leave to be out there for the dedication of this $6 million new building.

Senator McCLELLAN. We will try to hear him. The point I am making is if the Government is to do all this, if it is to do the job—I don't know about personnel and you know more about plants and equipment than I know—but the personnel with the facilities to accommodate their talents and to make it possible for them to do the job would also be involved, would it not?

Dr. HASS. This sort of thing is now being done with the aid of computers which are not cheap. You can store enormous quantities of information into the memory of a computer and then dish it out again when you need it.

Senator McCLELLAN. Why would you need all these employees you are talking about then if it is going to be done with a computer?

Dr. HASS. Someone has to put that information on cards so that the computer can understand that information and that is a job.

Senator McCLELLAN. I didn't know a computer could take a piece of material here and experiment with it with some kind of chemical to do this or to do that. I didn't think a computer could do that.

Dr. HASS. It can't.

Senator McCLELLAN. I am talking about developing the thing into a marketable product. Who is going to do that?

Dr. HASS. I am not even talking about that part of it. I am talking about the part where it is the duty of the Administrator——

Senator McCLELLAN. The section you cited here "evaluate all scientific and technical information available to the Administration to determine its probable application to commercial uses in the development of new and better products and advance technological methods of production." It stops there. It seems to me that you have explored enough to determine whether you think it may have a possibility. Is that right?

Dr. HASS. If experimental work is involved here, and of course it

in foreign countries, rather than merely in those cases in which the agency elects not to file. It is our understanding that foreign governments do not normally require their firms to assign U.S. rights to the government. If this is so, S. 1809 as now written puts the U.S. Government in a poor bargaining position vis-a-vis exchange agreements with other countries.

We believe that the language of S. 789 in which determination of rights to inventions is to be made at the time of entering into the contract is more desirable than those sections of S. 1809 which provide that the determination is to be made "after disclosure * * * has been received" and on a case-by-case basis. In our judgment, the criteria in both S. 789 and S. 1809 governing title rights to these patents could just as well be applied at the time of entering into the contract as at the time when the invention is disclosed; nor would this prior determination necessarily result in greater or lesser benefits to either party. The former case has a distinct advantage of making clear to both parties just what are their rights and obligations and, in our opinion, would assure greater willingness by highly qualified contractors to undertake the work. On the other hand, determination of rights at the time of disclosure could well give rise to a considerably greater number of judicial reviews than otherwise would be the case and pose a potentially heavy administrative burden on the administrative agency.

We are concerned with the language in section 4(a)(2) of S. 1809, in which it is stated that the agency may obtain the principal or exclusive rights to any invention made for the purpose "of exploration into fields which directly concern the public health, *welfare* or safety." (Emphasis added.) Public welfare is so broad and all inclusive as to be virtually impossible to restrict. An agency head with an inclination to take title wherever possible could under this section do so in almost every case, requiring costly and time-consuming judicial reviews to appeal such decisions. In such cases the purpose of this bill would be circumvented.

concerned with the pieces of legislation under consideration at this time.

Basically we are in favor of the establishment of a uniform national policy concerning property rights to inventions resulting from Government-supported research and development. Further, we favor that legislation which will, in most cases, permit the contractor to take title to patents resulting from the contract research. Therefore, we approve the principle underlying both S. 789 and S. 1809 and we just as strongly oppose S. 1899.

Our views in connection with the broader patent bills are not radically different from those that have been expressed many times in the past. We feel that an overall Government title policy will work against the best interests of the public as a whole. I may say that public interest is the only basis on which these decisions are properly made. We believe that a license policy, or modification thereof as provided in S. 789 and S. 1809, will be most likely to result in maximum benefits for the Nation as a whole.

Adherents of the title policy have said that they disagree with the contention that "private ownership of patents is needed to insure the commercial use of new inventions or discoveries." As that is phrased we would also disagree, but it is not the whole story. A patent never will insure development of any sort; on the contrary, a patent gives its owner the right to exclude others from using the invention and that is all. It is this right of exclusion which gives the patent holder an incentive to expend the necessary funds for development purposes. The really important basic patents, such as that for nylon, required many years of development and many millions of dollars before the product was marketable. Actually, nylon cost $18 million before a pound was ever sold commercially, and with present research costs that figure would be approximately double. It was the protection against practice of the patent by others that made the Du Pont Co. willing to risk the time and capital.

Senator McClellan. Let me ask this question. If one could see

