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SYMPOSIUM ON GOVERNMENT CONTRACT PATENT POLICY

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FOREWORD

Thomas G. Meeker *

The Federal Bar Association welcomes the opportunity in this *Symposium on Government Contract Patent Policy* to present the views of outstanding specialists on this important and timely subject.

The impact on our economy of the Federal Government's massive and still-growing procurement program is so great that the Government's policy concerning the disposition of rights to inventions resulting from Government procurement, especially Government-financed research and development, is necessarily of major and constantly increasing importance.

Recent developments, and changing conceptions of national interest, are likely to increase efforts to secure, both administratively and through legislation, changes in present agency patent policies and practices. In this connection, the comprehensive treatment of this subject provided in this Symposium should prove invaluable.

The issues here are at the same time controversial and far-reaching, involving, as they do, national defense, procurement policy, concentration of economic power, the patent system and our free enterprise economy. We are therefore most grateful for the very constructive contributions which the authors and editors have made in producing this Symposium.

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Federal use rights, although it is pointed out that the public interest need not be equated to Government title so long as private ownership will assure the broadest public benefit. Several techniques for this are described, including dedication to the public.

Richard Whiting, associated with the Government Patent Policy Study Committee, an industry group, writes very interestingly for private retention of title, but suggests the willingness to consider alternate safeguards of the public interest against possible industry excesses so long as they do not diminish the efficacy of the patent system.

Elmer J. Gorn, Raytheon Company patent counsel, speaks forthrightly and unequivocally for contractor retention of title, but advocates flexibility in cases of overriding national interest and avoidance of any single inflexible standard for all agencies.

Former Patent Commissioner *Robert C. Watson* advocates flexibility of patent policy and avoidance of decisions on the patent policy issue which would undermine the patent system. He suggests a central Government agency to manage Government-owned patents, dispose in an orderly way of Government-owned patents, and assist agencies in making decisions as to proper patent policy.

Patent policy for Government employee inventions is the engagingly treated subject of *Wilson R. Maltby's* article, in which he underlines the importance to the national welfare of reasserting strong inducements to *individual* inventors, pointing to steps taken in other countries to foster creative activity through awards and bonuses from the employer. Provisions for utilization of inventions owned by the Government are urged as essential to the present Government policy of asserting title in appropriate cases.

A valuable article is contributed by *Professor Donald Stevenson Watson* of the George Washington University Patent, Trademark and Copyright Foundation, as an amplification of the Foundation's Winter 1960 Journal, devoted entirely to "Federal Patent Policies in Contracts for Research and Development". That issue constitutes the Foundation's report on its study completed under contract with the General Services Administration as the result of recommendations for such study by the Interdepartmental Patent Policy Study Group. Valuable data are developed in the study as the result of information on patent policies and practices of many industrial concerns and Government agencies.

Because of its general relevance to the consideration of Government contract patent policy, *Colonel George F. Westerman's* article on "International Exchange of Patent Rights and Technical Information for Defense Purposes" is included in this issue of the Journal. It briefly explains the framework of U.S. legislation and international agreements designed to create a favorable climate for exchange of patent licenses and know-how in furtherance of U.S. mutual defense efforts.

Coincidental Areas of Agreement

While a reading of the articles in this Symposium discloses numerous and strong *differences* of opinion on the basic issue, several areas of relative *agreement* are also apparent.

For example, the *Long, Davis-Davidson, Robert Watson, Maltby* and *Anderson* articles *all* suggest the desirability of a *central Government patent*

FEDERAL CONTRACT PATENT POLICY AND THE PUBLIC INTEREST

Senator Russell B. Long *

According to my value system a policy is in the public interest if it does the following:

1. It tends to accelerate the rate of scientific achievement.
2. It encourages economic growth.
3. It promotes efficiency in the economic system providing the consumer with the goods and services he requires at the lowest possible prices.
4. It tends to promote and maintain a free competitive society.
5. It tends to reduce great inequalities of income and wealth.
6. It must not offend our sense of what is fair and just.

On the other hand, a policy which does not accomplish these ends I would consider contrary to the public interest.

Using the above criteria, it is the contention of this essay that the patent policies of the Department of Defense, the Post Office Department, the Treasury Department and other agencies which give away to the contractor monopolies on Government-financed inventions are injurious to this Nation. The policies of the Atomic Energy Commission, the Department of Agriculture, the Tennessee Valley Authority, and the National Aeronautics and Space Administration, on the contrary—if administered intelligently—serve to promote the general welfare.

I. Standard Arguments for Relinquishing Title

There are five principal arguments used by the proponents of the "license theory," [1] a system under which, except for a mere license to use, the Government completely relinquishes to private contractors all rights to the results of research and development financed with public funds. These are:

1. It is necessary to give exclusive commercial rights, a monopoly, to a private firm to insure that the Government-financed invention is produced for civilian consumption;

2. If the Government takes title or puts an invention into the public domain by making it available to anyone, investment in its production will be discouraged;

3. The rate of increase in productivity and national output would be retarded;

4. If private monopolies are not given to the contractor, the cost of the contract to the Government would increase and some firms would be reluctant to take contracts.

5. Inventors will lack incentive if the Government takes title.

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* United States Senator, State of Louisiana, Chairman, Subcommittee on Monopoly, U. S. Senate Small Business Committee.

[1] The view that in Government-financed research and development contracts, the contractor should be given all rights to resulting inventions and the Government should retain merely an irrevocable, nonexclusive, royalty-free license for Governmental use.

ventions is really a part of the previous argument and is equally inconsistent with reality. An examination of the records of the TVA, the Department of Agriculture, and the Department of Health, Education and Welfare discloses that businesses do take licenses and produce items for the civilian market even though there are no exclusive commercial rights. An interesting example is the patent on the development of frozen orange juice concentrate which was developed cooperatively with the Department of Agriculture and the Florida Citrus Commission at a cost to each of about $70,000 and which now has wide use. This development has returned to the farmers in the 1958-59 season alone around $120 million for oranges that are now processed in frozen orange concentrate.

The Aerosol bomb is another example of a publicly developed and owned invention which has been put to great use by industry. Licenses for the production of fertilizers and insecticides have also been secured and have been exploited. No sooner did the Public Health Service give the go-ahead signal for U. S. manufacture of a new polio vaccine that can be taken by mouth, when at least four large vaccine makers immediately applied for Government licenses to make the new vaccine commercially.[4]

According to the Small Business Administration, there are on the average four inquiries for every Government-owned patent published in the SBA "Products List Circular" from small businessmen who are interested in expanding their activities or entering new fields. In 1960, for example, an estimated 1,000 inquiries were received about 232 published Government-owned patents, which are available to all citizens.[5]

Members of the patent bar sometimes point to the low utilization rate of patents owned by the Department of Defense. This is, of course, the natural result of the Department's policy of retaining title only when the contractor has decided that the invention is of no interest to him. In other words, the Department of Defense is left only with those inventions which private firms have already decided are not worth exploiting for themselves, or are not even worth keeping for sale to others. Needless to say, the contractor would take the title, even if there was a remote possibility that the Government-financed invention might turn out to be valuable in the future. This indicates the lack of value of the inventions left with the DOD, and it is, therefore, not surprising that other businessmen are not hastily using these rejected patents.

Allowing private firms, on the other hand, to keep patent rights gives no assurance that an invention will be exploited. The biggest companies, those that get over 96 percent of Government research and development dollars, have used or are about to use only 50.6 percent of all patents held by them. The corresponding figure for smaller companies, which get less than four percent of Government R & D dollars is 75.5 percent.[6] For industry as a whole, the over-all average estimate of used patents would be 52.2 percent.[7]

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[4] *Wall Street Journal*, August 25, 1960.

[5] Derived from information supplied by the Administrator of the Small Business Administration in a letter dated January 23, 1961, to Senator Sparkman, Chairman of the Senate Small Business Committee. This letter is in the Committee's files.

[6] *Journal of Political Economy*, December, 1959, Vol. LXVII, #6, p. 632, note (17).

[7] *Patent, Trademark and Copyright Journal of Research and Education*, Fall, 1959, Vol. 3, #3, pp. 237-238.

Raytheon's development of radar for the Navy during World War II, with the resulting growth of a staff skilled in radar principles, is probably a classic example of Government-sponsored R & D enhancing a company's profit capabilities. "Today, we're a leading producer of commercial ship radar, the basic know-how for which we gained from the Navy work," a Raytheon official says. The commercial work is in addition to the radar Raytheon turns out for the military, he added.[10]

(3) Companies also say that doing military-sponsored research often gets an earlier evaluation of how its work is going than it would if the reseach was aimed only for commercial markets:

> When competing in the commercial market, you often spend several years in the laboratory conceiving and developing a product, and then you take time to develop a market program and to test it, before you finally get around to putting the decision of your success up to the public. But when you're selling to the military, they're interested in technological improvements just over the horizon—the best brainwork to this point. The Government is able to provide an early evaluation of your R & D effort.

—so says the executive vice president of Litton Industries, Inc., an electronics concern.[11]

The small companies are frequently the loudest in their praise of Government R & D. They say, according to the WALL STREET JOURNAL [12] that with the aid of Government research money they're able to investigate fields that would be too expensive for them to look into with just their own resources.

(4) "A company our size couldn't afford to be in this basic research if it weren't for Government contracts" according to Ralph F. Redemske, vice president of Servomechanisms, Inc.

(5) Another major advantage from Government R & D contracts is that the research contractor, more often than not, turns out to be the production contractor. Any business, big or small, learns how to make something new, advancing the state of the art, which very often leads to commercial or Government production contracts.

Working for the Government can be so profitable that the Aerojet General Corporation, solely on Government contracts, and within a period of 17 years, increased—40,000 times from an initial investment of $7,500 to a market value of $300,000,000 [13] at the end of 1959, with only modest additions of outside capital.

III. Real Costs of Relinquishing Title

But even if there is an increase in costs—and I doubt there would be—we should be prepared to pay it.

The present system has a very high hidden cost. It may not show up in the cost of Government expenditures on research and development, but it cer-

[10] *Ibid.*

[11] *Ibid.*

[12] *Ibid.*

[13] *Hearings on Patent Policies of Departments and Agencies of the Federal Government—1959*, before the Monopoly Subcommittee of the Select Committee on Small Business, 86th Cong., 1st Sess., December 8, 9, and 10, 1959, testimony of Emerson S. Reichard, Jr., Director of Contracts, Aerojet-General Corp., pp. 70-97.

Such wastage of resources is an important cost which certainly cannot be underestimated.

Another cost to the public, which cannot be ignored, results from well-known past abuses of the patent privileges both in terms of growth and national defense. Many of the firms which had been guilty of the worst kind of patent abuses in the past are now among the most favored major Government research and development contractors.

Many of the largest Government contractors who have benefited most from the Department of Defense's largesse of the public's resources are firms which are violators of our country's laws. In the past several months the General Electric Company, Westinghouse, Allis Chalmers and a host of others have been indicted twenty times for criminal violations of collusive price fixing, rigging bids, allocating markets and other anti-social acts.[17] The granting of patent rights by the Government to these firms continues to expose the public to the various potential abuses without providing us with any compensating advantages.

Finally, how about the argument that some firms would be reluctant to take a Government R & D contract? This is really an irrelevant consideration and should not merit attention. Some firms will be reluctant to take a Government contract for any number of reasons. The important point is that there are competent firms willing to do the work. Admiral Rickover has stated that many firms are constantly urging the AEC to give them research opportunities because these firms know the great benefits flowing from this type of work. The Department of Agriculture, HEW, and the NASA have had similar experiences.

The National Aeronautics and Space Administration has reported a few "cases" where the contractor refused a NASA research and development contract. A careful examination reveals, however, that the Department of Defense was willing to give the contractor the same contract as NASA's but with only a license to the Government to manufacture and use the invention for Governmental purposes which NASA could not do under the law. Under such circumstances, it was to the contractor's benefit to refuse the NASA contract and take the other agency's contract. In another case the refusal by one contractor led to the development of an alternative source, a benefical result.[18]

If our Government has to depend on any one or even a few companies to do its work, we are in a very bad situation which should be remedied immediately. The Government should either help build up several firms to put them into a position so they can competently fulfill the most rigorous Governmental needs or, if necessary, the Government should perform the work itself. The Government should have innumerable competent sources from which to purchase both research and development services as well as needed procurement items. If the Government should find itself at the mercy of any one or several companies, it should develop its own capacity and provide for its own needs.

5. It is sometimes—but not too often—argued that scientists and inventors will be discouraged for lack of incentive, if the Government takes title. This argument is, of course, not susceptible of demonstration and is usually advanced as a last resort. Under the standard industry employment contracts, the firms

[17] *New York Times,* December 9, 1960, pages 1 and 22. These corporations were found guilty of antitrust charges, were fined, and some of their officers imprisoned. *The Washington Post,* Feb. 7, 1961, page 1.

[18] *Hearings, supra* note 12, p. 271.

should be discovered lighter for a given strength than anything known, it would make practicable many devices hitherto frustrated by gravity, and it would have widespread influence upon the design of many types of machines. New hard alloys remained useless until, with the invention of tungsten carbide tools, methods were discovered of working these alloys. When the General Electric Company, combined with the Krupp Company of Germany during the thirties to raise and maintain at high levels the price of tungsten carbide, the result was to slow down considerably a new technology.

The opportunity for invention therefore continually proliferates. A new invention can, therefore, open up new fields through its cross fertilization with older ideas, thus clearing the ground for other possible major innovations.

The importance of the most rapid and thorough dissemination of new scientific and technical knowledge throughout our society, therefore, cannot be over-emphasized. James M. Jagger, personnel director of Arthur D. Little, Inc., a well-known research and development concern, describes the conflicting attitudes in industry of scientists and management.[21]

> If a breakthrough is made in industry, the company wants to keep it from the competition, but the scientist wants it published. He's interested in the recognition of his peers and colleagues, not profits.

According to the *Wall Street Journal*,[22] most companies require that all their researchers' writings be cleared with management before publication, and competitive situations or patent problems occasionally delay or prevent publication. The same article quotes a scientist who hit upon a new idea in the physics of glass-forming, which was a definite advance of the art but the company was not willing to let it out.[23]

One of the witnesses[24] before our Senate Small Business Committee described the policies of a "very major laboratory" in this country. He found that this firm had the most elaborate facilities—special bibliographic services and library facilities—to extract scientific information from hundreds of journals. They did this to save a lead time of only two weeks over the publicly available abstract service. To save two weeks, it paid to operate a rather large and expensive facility.

On the other hand, the outgo of knowledge from this firm was quite different. Taking the data of the last five years of the papers published in the scientific literature by employees of the laboratory, the investigator found that there was a period of three to five years that intervened between the private circulation of these research reports inside the firm and the public availability of these reports. In summary, it paid this firm to make a large outlay to gain two weeks in the "intake" of knowledge, but there was a period of three to five years for knowledge to get out—and a considerable part of it never does get out.

In our technological era, the scientific community consumes information virtually as quickly as it is produced. Hence this information must be distributed

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[21] *Handle with Care,* Wall Street Journal, April 16, 1959.

[22] *Ibid.*

[23] *Ibid.*

[24] Testimony of Prof. Seymour Melman, Columbia University, *Hearings, supra* note 12, pp. 222-223.

their fullest contribution to the well-being of our society. Our objectives should be removal of all possible obstacles to the establishment and growth of small and moderate-sized firms and their penetration into new economic areas. The present policy of the Department of Defense of allowing huge companies to improve their already formidable patent structures at the public's expense by its very nature frustrates the attainment of these objectives.

> Whatever their merits, it is undeniable that patent rights confer monopoly powers on the patentee. Patents enable their owners to restrict the use of inventions, thereby restricting the contributions to the national product that the patented inventions could make, in the hope that the resulting higher market price will make possible (monopoly) profits in excess of what could be earned under competitive conditions. To deny this feature of the patent system would be tantamount to denial of any usefulness of the patent system.[29]

The policies of the Department of Defense, the National Science Foundation, the Post Office Department, and the Treasury Department, in giving away to private companies patent rights to inventions developed at Government expense, coupled with the fact that 95% of Government R & D funds go to the largest companies, tends to promote monopoly. This was the conclusion of the Attorney General of the United States in his report of November 8, 1956.

Given the present distribution of research facilities in industry, the granting of exclusive commercial rights to private firms doing Government-financed research is giving a major advantage to the larger firms. This further accelerates the pace of economic concentration.

On the other hand, the policies of the Atomic Energy Commission, the Department of Health, Education and Welfare, the Department of Agriculture, and the Federal Aviation Agency of taking title to inventions produced with public funds and making them available to the public, have just the opposite effect for the following reasons:

1. They help to remove at least one of the factors which make for economic concentration, viz., the accumulation of a large number of patents by a small group of industrial giants.
2. Small business is able to use the results of the research capabilities of the large corporation which have many facilities too expensive for the small company or the individual.
3. Scores of small businesses would benefit by the ability to enter new fields from which they had hitherto been excluded.
4. One barrier to the entry of new—and particularly small—firms into an industry is found in the cost advantages of established firms, many of which have accumulated valuable know-how from Government-financed research and development.

An established firm may use the patent to keep out new firms altogether by denying the use of patents or can impose royalty charges for their use which raises the entrant's cost. This cannot happen if the Government owned the patent, and there is no reason to allow it to happen if the research on which the patent is based is paid for by the taxpayers.

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[29] Testimony of Professor Hamberg, University of Maryland, *Hearings, supra,* note 12, pp. 17-21.

very inventions which it pays to develop. The National Science Foundation and the Post Office Department, after giving away title to Government-sponsored inventions, merely take a "nonexclusive, nontransferable, and royalty-free license to practice by or for the United States Government throughout the world, each Subject Invention in the manufacture, use and disposition according to law of any article or material, and in the use of any method." In addition—and this is a direct quote from a Post Office Department R & D contract—

> . . . no license granted herein shall convey any right to the Government to manufacture, have manufactured, or use any Subject Invention for the purpose of providing services or supplies to the general public in competition with the contractor or the contractor's commercial licensees in the licensed fields.

Now, what does this mean? The Railway Express Agency claims that it competes with the Parcel Post service of the Post Office Department, and has so testified before the Senate Post Office Committee. Under the provision, it can probably take the Post Office Department to court and block the Government from using those very machines for the benefit of the taxpayers which the taxpayers paid to have developed. What is the function of the Post Office Department if not to provide services to the general public?

A case involving the National Science Foundation is even worse from the point of view of the public interest because the Foundation deals with more basic inventions. The National Science Foundation signed a contract with a rather large company to do research in the area of weather modification. This problem is of tremendous importance to many areas throughout the country . . . in fact, throughout the world. But what do we find in the contract? The same kind of a provision is included whereby the Government could not provide services to the general public in competition with the contractor or the contractor's commercial licensees. Now, to whom would the Government provide weather modification services, if not to the public? A private firm in possession of exclusive commercial rights in this field could charge the public all the traffic will bear even though the public paid all the costs of inventing and developing the means of control.[31]

Frequently we hear that big businesses no not need patents; that they can use other means to prosper and grow; that it is the small firms that need them.

An indication that big firms don't fall for their own propaganda is that they fight so violently to secure patent rights even when the Government pays for research. They have fought against Government antitrust suits with all their resources to prevent the opening up of their huge patent portfolios as in the RCA, IT&T, IBM and other cases.

Some companies say that they are interested in patents only for defensive purposes, so they cannot be excluded from various areas of our economic life. If the Government retains its property rights, this objective will be attained.

But is it true that small business depends more on patents for protection than big business? Two of our small business witnesses testified to the contrary.

[31] We are informally advised that the National Science Foundation has recently adopted a revised patent policy on its weather modification program to provide that ordinarily, unless the grantee's or the contractor's equities justify some different arrangement, the National Science Foundation will retain the right to determine the disposition of patent rights resulting from the research supported.

To quote one of our witnesses:

> But since the patent rights are clearly not needed to serve as an inducement to invent and innovate, while they simultaneously impede the diffusion of technological knowledge uncovered at public expense, the granting of patent privileges to the contracting firms clearly gives society none of the alleged advantages of the patent system while foisting upon us one of its decisive disadvantages.
>
> In short, we are faced with the unconscionable situation in which the Federal Government taxes the citizens of this country to secure funds for scientific research, on the ground that such research promotes the general welfare and then turns the results of such research over to some private corporation on an exclusive, monopoly basis. This amounts to public taxation for private privilege, a policy that is clearly in violation of the basic tenets of any democracy. Such a violation might possibly be justified on the grounds that it leads to greater enhancement of the general welfare than adherence to a basic principle would; but in the present cases, no offsetting gains are in the offing. Under the circumstances, it seems palpably evident that new discoveries derived from research supported by public funds belong to the people and constitute a part of the public domain to which all citizens should have access on terms of equality.[32]

There are cases, however, where private companies have already invested their own resources and have established commercial positions in fields in which the Government is interested. Obviously, such equities should be recognized. It is equally obvious that if the Government uses public funds, its equities also should be recognized.

An additional distinction should be made between firms which have acquired background information at the public expense and those that have acquired background at their own expense. Some firms have built up background almost solely at Government expense. Such firms would have no equities to be recognized. The same would apply to commercial firms that have established new divisions for research in the space and atomic fields, where background could have been acquired only at Government expense.

In summary, the general objective should be to protect the interests of the private concern doing business with the Government and at the same time conscientiously safeguarding the interests of the Government as the trustee of the public interest.

D. *Double Standard*

Furthermore, the present patent policies of the Defense Department impose a double standard upon our national life. When one private firm pays another firm to develop something for it, the first firm expects and gets the rights for which it is paying.

This position is summarized by the Martin Company, an important contractor of the Defense Department, which stated that when Government funds

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[32] Testimony of Professor Hamberg, *Hearings, supra* note 12, pp. 17-21.

Our supreme goal is—or should be—the development of the individual, the creation for the individual of a maximum area of personal freedom and personal responsibility. Our concept of the humane, liberal society is one in which every individual should be encouraged and given every opportunity to make the most of himself. The self-reliant, responsible, creative citizen is the very foundation of democracy and of every institution that recognizes the dignity of man. This goal is our ultimate ethical value and this is the crucial difference between the Soviet system and ours.

Our problem, therefore, is that of continually trying to enlarge the individual's share in conducting his own life, and in this the policy of competition has played an important role. Competition tends to reduce limitations to individual freedom, challenges individual capabilities, and better proportions rewards to efforts.

Political liberty can survive only within an effectively competitive economic system. Yet our own Government has been undermining the vitality of competition through policies which serve to decrease the freedom and responsibility of individuals in many industries or those who wish to enter them.

The present patent policies of the Department of Defense, by giving to private companies the control of products and industries, aids in restricting the range of productive activities open to the individual and reduces the scope for individual freedom within an area, and is thus in conflict with the whole spirit of the free enterprise philosophy with its aims of decentralized market power.

Many Members of Congress have thought about this problem, and have come to the same conclusion—that where the Government pays for research, it should obtain patent rights in any resulting invention or discovery so that these may be available for the use of all the people instead of a relatively small number of contractors. This was the principle which sparked the struggle in the atomic energy field in 1954. The Congress reaffirmed the principle again in the Coal Research and Development Bill (H.R. 3375, now PL 599), the Helium Gas Bill (H.R. 10548, now PL 777), and the Saline Water Bill (S. 3557), which was passed by the Senate during the last Session of Congress. The basic provisions of the Atomic Energy Act were also reenacted in the first session of the last Congress.

VI. Attitude behind Demands for Private Ownership of Publicly-financed Inventions.

What is especially disturbing is the spirit behind these policies. Those very businessmen who demand property rights on inventions and discoveries paid out of public funds are generally those very people who object most vigorously when the Government aids sectors of our society other than their own.

Here is what a business publication recently wrote about Government prodigality:

> . . . yet if there is one prodigious uncontrolled source of waste in the U. S. today, whether in the form of farm price supports, shipping subsidies, padded payrolls or outright graft, it is government. Unlike private buyers

VII. Specific Recommendations

In order to attain our objectives, the Congress should enact a law with these three features:

1. The United States Government should acquire title and full right of use and disposition of scientific and technical information obtained and inventions made at its direction and at its expense, subject to waiver of Government title when the equities of the situation so require.

2. Needless to say, the acquisition of title is not enough. Constructive *use* of the patents so acquired by the Government is required to achieve public benefit in return for the public funds invested in their development. For that reason, there should be established a "Federal Inventions Authority" which would administer all Government-owned patents and make necessary determinations in the administration of the Act. It would be affirmatively charged with the duty of protecting the public interest in scientific and technological developments achieved through the activities of departments and agencies of the U. S. Government and would be charged with the dissemination of knowledge so developed in order to stimulate invention and innovation which will cut costs, produce new products, and increase per capita industrial production through efficiency and new technology.

In order to secure the fastest and fullest use of inventions, discoveries, and innovations, an expanded program of utilization research could be undertaken as a means of widening the uses of Government-owned patents.

In order to make utilization information readily available to all, the authority can engage in those activities necessary to carry out this function, such as aiding libraries to:

(a) acquire collections of publications having descriptions of inventions, helpful to inventors, business and the general public;

(b) inform business and industry (plants, factories, construction and engineering organizations) of new techniques and innovations in their fields of interest;

(c) provide inventors and innovators with knowledge of advances in their areas of interest;

(d) give instructions in the use of technical, scientific and economic literature in libraries and schools.

3. The policy should stimulate discovery and invention in the public interest by providing for the making of generous monetary awards as well as public recognition to all persons who contribute to the United States for public use scientific and technological discoveries of significant value in the fields of national defense or public health, or to any national scientific program, without regard to the patentability of the contributions so made.

surpass that of the Atomic Energy Commission and within a few years it may even overtake the Department of Defense as the world's largest research and development spender. Government-sponsored space research today accounts for about 5% of all research and development funds, public and private, spent annually in the United States. Tomorrow it may run to 15 or 20 per cent or higher. The implication for our patent system is obvious.

Because our national space program and our patent system hold marked significance for each other, it is growing impossible to consider one to the exclusion of the other. This can be demonstrated not only in terms of dollars, but in terms of philosophy as well. It has, in fact, *been* demonstrated in the extensive hearings of the Subcommittee on Patents and Scientific Inventions and its parent House Committee on Science and Astronautics.[5]

It may be, as some argue, that a complete overhaul of patent policy toward contractors who do research and development work for the Government is needed —an across-the-board policy to resolve questions of whether the United States can be satisfied with a license under patents resulting from such research or whether it must insist on title to them.

My belief coincides with that of the Comptroller General of the United States, who suggests that the Federal Government may always need flexibility in its patent approach to federally financed research.[6]

Meanwhile it is disturbing to note recent tendencies of Congress to legislate inflexible patent provisions in a manner which disparages private rights. This has happened not only with the National Aeronautics and Space Act of 1958,[7] but with the Coal Research Act of 1960,[8] and was attempted in the Saline Water Conversion Act of 1960 [9] which passed the Senate but was not taken up in the House.

To see why it is disturbing we must review and re-evaluate our patent philosophy.

Growth of the System's Philosophy

The patent system of the United States is a concept of securing to inventors an exclusive right to their discoveries in exchange for public disclosure of them.

The grant of "Letters Patent" originally arose out of the inherent right of the sovereign to grant or withold exclusive privileges according to the whim or fancy (sometimes even the conscience) of the sovereign. At first, the "patent" right applied to necessary and useful commodities, such as salt, the "patentee" being granted the exclusive right to deal in those commodities throughout the realm. The advent of political reform whereby the citizenry undertook a greater voice in and control of the sovereign and his government gave rise to restrictions on the subject matter of exclusive grants or "patents". It was deemed in the best interests of the citizenry to confer an exclusive franchise or grant for limited

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[5] Hearings before the Subcommittee on Patents and Scientific Inventions, House Committee on Science and Astronautics, on "Property Rights in Inventions, made under Federal Space Research Contracts," 86th Congress, 1st Session (1959).

[6] Report of the Comptroller General to the House Committee on the Judiciary, March 10, 1960.

[7] 72 Stat. 426, 435 (1958), 42 USC 2451-2459.

[8] PL 86-599, 74 Stat. 336 (1960).

[9] S. 3557, 86th Cong., 2nd Sess. (1960).

exercised the right of eminent domain as to all patented inventions, but due process requires the Government to compensate the owner of the property for the reasonable value thereof. This waiver of immunity has been extended to allow employees of the Government, under certain circumstances, to sue for infringement of a patent owned by the employee. At the same time, the remedy granted is exclusive and comprehensive.[13]

It is apparent, therefore, that it has been the intent of Congress for more than fifty years to preserve the incentive provided by our patent statutes by securing to inventors the exclusive right to their discoveries, even as against the sovereign itself.

Meanwhile, there has been a recent tendency for the Federal Government to undertake functions and even some businesses which traditionally were matters for private enterprise. The Government has sometimes entered such fields in its own name (e.g. Tennessee Valley Authority.[14]) but more frequently by subsidies (e.g. shipping, air lines, farm price supports, etc.). Now, and indeed for the last 15 years, Government has become increasingly active in scientific research and development—until today it is the source of well over half of all the research dollars in the United States.

The Government does not claim rights in the private property of the shippers, airlines, or farmers, nor does it claim the crops or any part thereof as a result of the subsidy payments made. Why should it claim rights to the inventions resulting from the research and development work it finances?

Moreover, we should not forget that under the American concept of government, all rights, except those expressly granted to the Government, are retained by the people. So far as inventions are concerned, the people have delegated to Congress the power to secure to inventors the exclusive right to their discoveries. The Constitutional delegation does not itself contemplate the issuance of patents to the Government, nor is it contemplated that the Government or the people should have the free use of the inventions conceived and patented under the guarantees provided. This is true whether the scientific research from which the inventions arise are financed or subsidized by the Government, by private enterprise or by the inventor himself.

As the concept of the "patent grant" was not new to our founding fathers when they drafted the Constitution, we must interpret and apply it in the light of prior history and thus determine the form and scope of legislation which would best implement the Constitution insofar as it bears on Government ownership of, or interest in, the patent property right.

It is my feeling that the Constitution can be properly fulfilled only by operating our patent system as an integral part of our free enterprise economy, within which the Government itself should play only those essential roles which private entities cannot undertake. When the Government feels compelled to promote the progress of science and useful arts by conducting research and development in its own laboratories or by awarding contracts to others to conduct such research and development work, it is to that extent injecting itself into the free enterprise economy. Obviously, this is essential in many instances.

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[13] Richmond Co. v. United States. 275 US 331 (1928); Bereslavsky v. Esso Standard Oil, 175 F2d 148 (4th Cir, 1949); Badowski v. United States, —— Ct. Cl. ——, F2d 934 (1960).

[14] 48 Stat. 61 (1933), 16 USC 831d (i).

a non-exclusive license, the Government being held liable for infringement in the Court of Claims only as to patents on inventions previously made by him.

The contracting officer, on the other hand, acting in the interest of the Government, made sure that the Government obtained an express license which was not only non-exclusive but also royalty-free as to any inventions which arose out of a research and development contract. In some instances the contracts provided that contractors would indemnify the Government in the event of infringement.[18] Contractors generally had no objection to such terms and conditions since there would be little market for the item in the civilian free enterprise economy, and the granting of a license to the Government (which, under such circumstances, would be tantamount to granting an exclusive license) would not adversely affect the contractors' competitive position. Indeed, the contractor, as a result of his newly acquired know-how, would be in a favored position to receive contracts from the Government for supply of the end item developed through the research. Where the item happened to have commercial value outside the Government's own needs, the contractor was free to sell it in the civilian economy and, if he owned the patents on the item, to license others to make it in competition with him.

Wartime Measures

This system worked satisfactorily even during the feverish preparations for supplying the requirements of the Government during World War II. Congress found it necessary, however, to take certain measures to limit the royalties which would be received by patent owners as a result of the extraordinary volume of government contracts. Hence, the Royalty Adjustment Act of 1942.[19] This Act was a counterpart of the Federal Renegotiation Act[20] which placed a limit on the profits which might be made by contractors even though no patentable inventions were involved in fulfilling the contract.

Concurrently with the expansion of research and development work on behalf of the Armed Services, there arose a necessity for greater secrecy and security with respect to technological and scientific advances. Congress, therefore, extended the Invention Secrecy Act,[21] under which applications for patents on inventions which affect the national security are not only to be held under normal secrecy in the Patent Office as provided by the patent statutes, but are further restricted by prohibiting the applicant and all others having knowledge of the information disclosed in the application from communicating such information to anyone other than those authorized by the appropriate Government agency. Even under these stringent measures, inventors are protected to the extent that the patent owner's rights to compensation for the invention is recognized in case the invention is used secretly by the Government during the period of secrecy.

World War II experience led to later adoption of much of the content of the present "Armed Services Procurement Regulations" (ASPR). Section IX

[18] So-called "save harmless" or "patent indemnity" clauses.

[19] 56 Stat. 1013 (1942).

[20] 56 Stat. 245 (1942) as amended, 50 USC App. 1191; 62 Stat. 259 (1948), 50 USC App. 1193; 65 Stat. 7 (1951), 50 USC App. 1211-1233.

[21] 56 Stat. 370 (1942). See Inventions Survey Act of 1951, P.L. 82-256, 35 USC 181-186.

resulting from contracts with the Commission have undoubtedly retarded incentive to invent in the field of nuclear technology. While the point is arguable, it may even be one of the reasons for loss of standing of the United States in the post-war world-wide contest for technical supremacy in atomic energy.[25]

The Congressional view expressed in the Atomic Energy Act was not, however, a final pronouncement (nor perhaps even a turning point) in Congressional policy with respect to ownership of patents arising out of Government-financed research. In 1950, Congress passed the National Science Foundation Act,[26] pursuant to the terms of which the Foundation was authorized to contract for basic "scientific research". The Foundation is required to include in such contracts provisions governing the disposition of inventions produced thereunder "in a manner calculated to protect the public interest and the equities of the individual or organization with which the contract or other arrangement is executed". There was no requirement that the Foundation take title to any patents, nor was there even a requirement that a royalty-free, non-exclusive license be reserved to the Government. The authorization was broad and placed patent rights squarely within the discretion of the Foundation. This action was consistent with the general policy of the Government (including Legislative and Executive branches) existing prior to the Atomic Energy Act, although it did lay down a criterion by which the Foundation should operate.

Of course, the Atomic Energy Act was passed in the light of a new technology, the commercial application of which was entirely unexplored and, if anything, considered impracticable at the time. The National Science Foundation Act recognized that the Government would be drawing upon previously acquired knowledge, know-how and experience in an effort to stimulate science through Federal sponsorship. Nonetheless, while there is no evidence that the Foundation has had difficulty in supporting research, the rigid policies of the Atomic Energy Commission have frequently been criticized with respect to research contracts which must be placed under terms imposed by the Atomic Energy Act.

When Congress was confronted with the need for a new agency to deal with the exploration of outer space, it felt compelled to set forth in the legislation creating the National Aeronautics and Space Administration[27] some provision governing invention rights arising out of Government-financed research and development. Without hearings on the precise point, and as a result of compromise in conference, an Act was passed which included a patent provision corresponding to that set forth in the Atomic Energy Act. There was no showing that space exploration involved a totally new technology. On the other hand, it was not then evident that space technology would require such a myriad of previously accumulated resources and techniques in fuels, materials, electronics, engineering, aeronautics, chemistry, mechanics, etc., or that its needs would

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[25] According to information provided by General Leslie R. Groves, USA (ret.), director of the Manhattan Project, no difficulty arose from the flexible patent policies followed by Project officers in the development of the atomic bomb. At that time the Government did not take the entire right, title and interest to nuclear inventions unless it had borne the complete cost of the research and the contractor had made no prior contribution to it. Varying gradations of title and license grants were developed according to the equities of the circumstances. This system seemed to produce results with relative speed and smoothness.

[26] 64 Stat. 149 (1950), 42 USC 1861-75.

[27] *Supra* note 7.

others who feel that the system could be abolished without adverse effects upon our society.

I am of the opinion that the substance of our patent system is sound. Without it we would not be the world leader we are today. If we destroy that system, we will go a long way toward destroying ourselves.

But the system is no better nor more important than the individuals who make it work—the inventors. In the hearings that have been held in both Houses of Congress and in the writings which have come to my attention, there has been too little said about the role of the individual in the functioning of the patent system. Some say that "team research" has replaced the "garret inventor". As a matter of simple logic, is it really possible for a "team" to conceive anything in the nature of a mental act or mental concept? The individual human mind is the agency through which conceptions must necessarily take place. It is true that through team effort the conception of one mind may be enlarged and improved upon by others, but, in the final analysis, the germ of an idea must originate in a single mind. It may sometimes be cross-bred with other ideas arising in the minds of other individuals. The ultimate product of the mental effort of one or more individuals will usually yield a plurality of inventions.

It is the brain children of the inventors of our country which our Constitution gave to the Congress responsibility for protecting. In addition, we must stimulate the inventive mind by preserving the incentive to create. If we take away the incentive to invent, we can expect our standard of living to fall with all of the implications of such an occurrence.

Incentive will be preserved if Congress confines itself to the definition of principles governing the disposition of inventions made as a result of Government-financed research, rather than spelling out in legislative texts the precise terms and conditions by which Federal contracting officers are to be bound.

Uniformity of Policy

To the extent that uniformity of policy is desirable (whether merely for the sake of uniformity or for the sake of administration), the uniformity which generally prevailed in Government attitudes prior to the enactment of the Atomic Energy Act appeared to satisfy the needs of the people. At no time prior to enactment of the Atomic Energy Act was it necessary to require through legislation that the Government take more than a royalty-free, non-exclusive license to practice patented inventions.

If, after study, Congress concludes that it should make some overall provision for the disposition of patent rights arising from government research contracts, this might be accomplished through an independent office or board specifically set up to determine the proprietary equities together with the various elements of public need involved in the research programs of any given Federal agency. In such manner the public interest could be safeguarded without inflicting rigid patent dogma upon all Federal agencies regardless of the circumstances.

If we learned nothing else from our legislative hearings in regard to property rights in inventions, we learned that there are many grey areas which simply cannot be treated inflexibly and fairly at the same time.

RIGHTS TO INVENTIONS UNDER NASA CONTRACTS

John A. Johnson *

I. INTRODUCTION

Since enactment of the National Aeronautics and Space Act of 1958,[1] far more has been written and said about section 305, entitled "Property Rights in Inventions," [2] than all the rest of the Act together. That section contains the most recent expression of Congressional concern with the vexing problem of the allocation of rights between the Government and its contractors to inventions made in the performance of Government contracts.[3] It is not the purpose of this article either to defend or criticize the statutory language chosen by the Congress [4] but simply to set forth the policies and procedures which have been adopted by the National Aeronautics and Space Administration for administering the patent provisions of the Act.

Section 305 begins with the following subsections:

> (a) Whenever any invention is made in the performance of any work under any contract of the Administration, and the Administrator determines that—
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> (1) the person who made the invention was employed or assigned to perform research, development, or exploration work and the invention is related to the work he was employed or assigned to perform, or that it was within the scope of his employment duties, whether or not it was made during working hours, or with a contribution by the

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[1] 72 Stat. 426 (1958), 42 USC 2451-2476.

[2] 42 USC 2457.

[3] For an account of the legislative history of the patent provisions of the Act, see Maltby, *The National Aeronautics and Space Act of 1958 Patent Provisions*, 27 Geo.Wash.L.Rev. 49 (1958), pointing out that neither the hearings nor the congressional reports reveal why the Congress regarded these provisions as advantageous to the nation's program of aeronautical and space activities, nor do they show reasons for the application of any new patent policy either to space or aeronautics matters. The author concludes that certain clauses of the patent provisions of the National Aeronautics and Space Act of 1958 are so similar to corresponding clauses of the Atomic Energy Act of 1954 as to suggest that that Act was the model from which the NASA Act was prepared. See also O'Brien and Parker, *Property Rights in Inventions under the National Aeronautics and Space Act of 1958*, 19 Fed.B.J. 255 (1959).

[4] NASA recommended to the 86th Congress that section 305 be repealed and that there be enacted in its place provisions similar to those enacted in 1950 for the National Science Foundation (64 Stat. 154, 42 USC 1871), which directs that each contract or "other arrangement" relating to scientific research "shall contain provisions governing the disposition of inventions produced thereunder in a manner calculated to protect the public interest and the equities of the individual or organization with which the contract or other arrangement is executed: . . ." NASA's proposal was incorporated in H.R. 9675, 86th Cong., 2d Sess., sec. 1 (11). The House Committee on Science and Astronautics, after extensive hearings, recommended enactment of a bill (H.R. 12049, 86th Cong., 2d Sess., sec. 1 (13)), which in large measure embodied NASA's proposal. (Hearings Before the Subcommittee on Patents and Scientific Inventions of the Committee on Science and Astronautics on Property Rights in Inventions Made under Federal Space Research Contracts, 86th Cong., 1st Sess., ser. 47 (Aug. 19, 20, Nov. 30, Dec. 1-5, 1959); H.Rept. No. 1633, 86th Cong., 2d Sess. (1960).) On June 9, 1960, the bill was passed by the House (106 Cong. Rec. 11388). No action was taken by the Senate.

of the United States) of any invention for which the Administrator holds a patent on behalf of the United States.[6]

While there are additional provisions in section 305 of great interest to NASA contractors and the patent bar,[7] the scope of this article is confined to the problems of policy and procedure raised by the subsections quoted above.

At the outset of NASA's existence as an independent Government agency engaged in large-scale contracting for research and development work, it was necessary to provide answers to these questions:

(a) To what contracts is section 305 applicable?

(b) What procedure should be utilized to enable the Administrator to make determinations under subsection 305 (a) concerning the conditions under which inventions are made?

(c) What should be the policy concerning waiver of the rights of the United States to inventions with respect to which the Administrator has made a positive determination under subsection 305 (a)?

(d) What should be the policy governing the licensing of inventions for which the Administrator holds patents on behalf of the United States?

Before stating the answers which NASA has given to these questions, some general observations about section 305 are in order. They concern what the section does not do, rather than what it does. Section 305 most definitely does not provide that all inventions made in the course of performing contracts with NASA shall become the property of the Government. Nor does it provide that any particular class of inventions made under NASA contracts shall become the property of the Government. Finally, it does not provide that every invention made under the conditions enumerated in subsection 305 (a) of the Act shall necessarily become the property of the Government. In all cases, even if the facts relating to the invention and the contract under which it was made are such as

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[6] 42 USC 2457 (f) - (g).

[7] Subsection 305 (c) (42 USC 2457 (c)) prohibits issuance of a patent to any applicant other than the Administrator for any invention "which appears to the Commissioner of Patents to have significant utility in the conduct of aeronautical and space activities" unless the applicant files a sworn statement with the Commissioner setting forth the full facts concerning the circumstances under which the invention was made and stating the relationship, if any, of the invention to the performance of any work under a NASA contract. The Commissioner is required to furnish such applications and statements to the Administrator of NASA.

Subsection 305 (d) (42 USC 2457 (d)) provides, with respect to such applications, that the Commissioner may issue a patent to the applicant unless the Administrator, within a specified period of time, requests that the patent be issued to him on behalf of the United States. If the Administrator makes such a request, the Commissioner shall issue the patent to the Administrator unless the applicant, having been notified by the Commissioner, requests a hearing before a Board of Patent Interferences. The determination of the Board is subject to appeal by the applicant or by the Administrator to the Court of Customs and Patent Appeals.

Subsection 305 (e) (42 USC 2457 (e)) provides that, whenever any patent has been issued to an applicant in conformity with subsection (d), and the Administrator thereafter has reason to believe that the applicant's sworn statement contained any false representation of any material fact, the Administrator within five years after the date of issuance of such patent may file with the Commissioner a request for transfer to the Administrator of title to such patent on the records of the Commissioner. In that event, title shall be so transferred to the Administrator unless the owner of record, having been notified by the Commissioner of the Administrator's action, requests a hearing before a Board of Patent Interferences on the question whether any such false representation was contained in the applicant's sworn statement. The determination of the Board is subject to appeal by either party to the Court of Customs and Patent Appeals.

II. Contracts to Which Section 305 is Applicable

The first question, to what contracts is section 305 applicable, may appear on an initial reading of the statute to be no question at all. Subsection 305 (a) refers to any invention "made in the performance of *any work* under *any contract* of the Administration." [10] Subsection 305 (b), however, applies to "each contract entered into by the Administrator with any party *for the performance of work,*" and it provides that such contracts shall contain provisions requiring the contractor to render reports "containing full and complete technical information concerning any invention, discovery, improvement, or innovation which may be made *in the performance of any such work.*"

Thus, it is apparent that not every contract with NASA but only contracts "for the performance of work" are subject to section 305.[11] What kind of work? Almost every contract with NASA entails work of some kind for its performance. Unless the references to "work" are simply redundant, they must have been intended to limit the application of subsection 305 (b), for in their absence the provisions of that subsection would clearly have been applicable to all NASA contracts. While the language of the Act is not helpful, NASA has concluded that the Congress wished to impose the reporting requirements only upon those NASA contractors who undertake to perform work of a kind which involves some prospect of inventive activity. This would exclude the contract which calls simply for the delivery of standard, commercial items, as well as the contract for supply of nonstandard items on which development work has been completed. In arriving at this conclusion, it was recognized that in the course of performing such a supply contract the contractor might improve its product by means of an invention, and that such an invention would escape the impact of section 305. In that case, NASA would gain the benefit of the improved product which had not been anticipated at the time the contract was awarded, and the contractor would retain all rights to the invention.

With these considerations in mind, NASA has provided in its regulations that a "Property Rights in Inventions" clause shall be included in every NASA contract "which entails technical, scientific, or engineering work of a kind performed in a contract having as one of its purposes (1) the conduct of basic or applied research, (2) the design or development, or manufacture for the first time, of any machine, article of manufacture, or composition of matter to satisfy NASA's specifications or special requirements, (3) the development of any process or technique for atttaining a NASA objective not readily attainable through the practice of a previously developed process or technique, or (4) the testing or experimenting with a machine, process, or technique to determine whether the same is suitable or could be made suitable for a NASA objective."[12]

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[10] Subsection 305 (j) (42 USC 2457 (j)) defines "contract" as meaning "any actual or proposed contract, agreement, understanding, or other arrangement, and includes any assignment, substitution of parties, or subcontract executed or entered into thereunder." It also defines the term "made," when used in relation to any invention, as meaning "the conception or first actual reduction to practice of such invention."

[11] For discussion of the meaning of the terms "work" and "contract" in the context of subsections 305 (a) and (b), see O'Brien and Parker, *supra* note 3, at 256-260.

[12] 14 CFR 1201.101-2 (a).

It is obvious that the facts on which the Administrator's determination must be based are in the possession of the contractor, not NASA, in the first instance. Either a time-consuming, costly investigation by NASA personnel or the reporting of detailed facts by the contractor would be necessary to enable the Administrator to make an independent determination of the conditions under which the invention was made. It appears, however, that in most cases there would be no question about the facts and that they would support only a positive determination under subsection 305 (a). Under such circumstances, it would be a waste of effort for the contractor to submit a detailed statement of the facts and to require that the Administrator review them.

In order to simplify administration and eliminate unnecessary burdens on both the contractors and NASA, the "Property Rights in Inventions" clause expresses the agreement of the parties that any invention made in the performance of work under the contract "shall be presumed to have been made by a person described in paragraphs (1) or (2) of subsection 305 (a) of the Act, and under the conditions therein described," unless the contractor, within the time limits specified in the clause, takes one of several alternative steps. The courses of action open to the contractor to prevent the agreed presumption from taking effect are the following:

(1) The contractor may submit to the Administrator a written statement setting forth details of the circumstances under which the invention was made so as to enable the Administrator to make a determination under subsection 305 (a);

(2) The contractor may file a patent application for the invention; or

(3) The contractor may request an advisory opinion concerning waiver of rights of the United States to the invention.

Thus, if the contractor does no more than report the invention, or if it takes the first alternative stated above, the Administrator is enabled to make the determinations called for by subsection 305(a) either on the basis of the agreed presumption, on the basis of the information submitted by the contractor, or, if necesary, on the basis of facts independently ascertained by NASA.

If the Administrator determines that the invention has been made under circumstances causing it to become the exclusive property of the United States, if the rights of the United States to the invention are not waived, and if the invention is patentable and is likely to be used in the public interest, NASA will take all of the steps necessary to acquire a patent to the invention.

If, on the other hand, it is determined that the invention was not made under circumstances causing it to become the exclusive property of the United States, the "Property Rights in Inventions" clause provides for the granting by the contractor to the Government of an irrevocable, nonexclusive, nontransferable, and royalty-free license to practice the invention throughout the world.

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from those proposed by the Chairman of the Government Patents Board to the Subcommittee on Patents, Trademarks, and Copyrights of the House Committee on the Judiciary for use in determining rights between the Government and its employees. (Hearings Before Subcommittee No. 3 of the House Committee on the Judiciary, 85th Cong., 2d Sess., ser. 15, at 25-26 (1958)).

See also O'Brien and Parker, *supra* note 3, at 267, concluding that "the Congress intended the common law doctrines governing the division of rights in inventions between employer and employee to be applicable to the division of rights between NASA and its contractors where the invention is made in the performance of the work under the contract by a person employed or assigned to perform research or development work."

The only statutory criterion is "the interests of the United States," and it is left to the Administrator to decide how those interests would best be served by the waiving or retention of the Government's rights to inventions.[18]

The debate between the proponents of the Goverment's taking title to contractors' inventions and those who favor acquiring only a royalty-free license for Government use has been carried on with vigor for many years. Although no uniform answer has been provided either by the Executive or Legislative Branch, there appears to be rather general agreement that the Government's patent policies should, in the words of the Constitution,[19] "promote the progress of science and useful arts" by stimulating inventive activity and encouraging the earliest and widest use of inventions for the benefit of the public. One of the fundamental purposes of the patent system is not served unless an invention is given practical application so that the public derives some tangible benefit from it.

It is frequently necessary that a single firm or person either own an invention or have the exclusive license under it in order to be willing to risk the capital required for its speedy development. The monopoly which the patent system provides is intended to make such risk-taking more attractive than would otherwise be the case.

The taking by the Government of title to inventions made in the course of Government-sponsored research and development work may deprive the public of this very real economic benefit from the patent system. The commercial development of certain inventions undoubtedly is retarded by the loss of patent protection through the Government's acquisition of title.

On the other hand, there is a definite public interest in being sure that the retention in private hands of patent rights to inventions resulting from Government-sponsored research and development actually operates in the beneficial way which is claimed for the patent system. The possibility that the patent may be used to suppress, rather than advance, a new line of technological development is certainly a legitimate object for concern, even though the instances of such misuse may be few and far between. As the result of the expenditure of public funds, the Goverment has a substantial interest in precluding suppression of such inventions and in deriving practical benefits from them for the public at an early date.

NASA's policies concerning retention or waiver of the Government's rights to contractors' inventions have been developed with these considerations in mind. As basic policy, the Administrator has announced that he considers that waiver "would be in the interests of the United States where (a) the stimulus of private ownership of patent rights will encourage the development of the invention to the point of practical application earlier than would otherwise be the case, or (b) there are substantial equities justifying the retention of private rights in the invention." [20]

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[18] In accordance with the requirement in subsection 305 (f), all waivers are subject to the reservation of an irrevocable, nonexclusive, nontransferable, royalty-free license for the practice of the invention throughout the world by or on behalf of the United States or any foreign government. 14 CFR 1245.105.

[19] U.S. Const. art. I, sec. 8.

[20] 14 CFR 1245.103.

has sought to do this by providing[25] that all waivers, except those granted on inventions developed to the point of practical application prior to the request for waiver and waivers granted on inventions conceived prior to and independently of, but first actually reduced to practice in, the performance of work under a contract of the Administration, will be voidable at the option of the Administrator unless the recipient of the waiver shall, on or before the end of the fifth year from the grant of a United States patent on such invention or the end of the eighth year from the date of acceptance of the waiver, whichever is sooner, demonstrate to the Administrator (1) that the invention has been developed to the point of practical application,[26] or (2) that the invention has been made available for licensing either royalty-free or at a reasonable royalty rate, or (3) that there are circumstances justifying failure to comply with either of the foregoing and concurrently justifying continuance of the waiver.

Before voiding a waiver for failure to comply with the conditions imposed on it, NASA will furnish the recipient of the waiver a written notice of its intention, and 30 days will be allowed in which to request a hearing before the NASA Inventions and Contributions Board.[27]

D. Procedures.

Although the waiver authority of the Administrator extends "to any invention or class of inventions made or which may be made" in the performance of work under a NASA contract, NASA has adopted the policy of not granting any waivers in advance of the making of the invention because of the great difficulty, if not impossibility, of determining with any degree of assurance that the interests of the United States would be served by waiver before the precise nature of the invention is known.[28]

Petitions for waiver may be filed by a contractor, an assignee of a contractor, or an inventor who was not under an obligation to assign the invention to the contractor by which he was employed when the invention was made. In every case, the petitioner has the privilege of an oral hearing before the NASA Inventions and Contributions Board,[29] which has the statutory duty of transmitting to the Administrator its findings of fact with respect to each proposal for waiver and its recommendations for action.[30]

V. Licenses

Section 305 (g) of the Act provides that the Administrator shall determine the terms and conditions upon which licenses will be granted by NASA for the practice of any invention for which the Administrator holds a patent on behalf

[25] 14 CFR 1245.106.

[26] Development "to the point of practical application" is defined as meaning the manufacture, practice, or operation of the invention "under such conditions as to establish that the invention is being worked or that its benefits are reasonably accessible to the public." 14 CFR 1245.101 (c).

[27] 14 CFR 1245.106 (d).

[28] See Maltby, *supra* note 3, at 60, concluding that the Administrator of NASA "presumably must make it clear in each contract that he has the authority to determine ownership of any resulting invention, whether or not it is in an area where he would prefer to waive title. . . ."

[29] 14 CFR 1245.108 (b) (4).

[30] 42 USC 2457 (f).

ability of being liberal in permitting contractors to retain ownership of inventions they make in the performance of NASA contracts, NASA does not agree with the long established position of certain Government agencies that the public interest is sufficiently protected if the Government is assured that it may always make royalty-free use of inventions arising from research and development work financed with public funds. In contrast with those agencies, NASA has adopted waiver and licensing policies based on the principle that, in all cases where the invention has resulted from work financed by the Government, the private party acquiring patent rights in the invention, whether as the patentee or as a licensee of the Government, should be required to prove that it is seeking to exploit the invention within a reasonable period of time—failing which, all rights to the invention should vest in the Government. This is a principle which appears consistent with the fundamental purpose of the patent system, the legitimate interests of Government contractors, and the interests of the taxpaying and consuming public.

ably. Although in many situations the patent question is secondary to other issues, how it is treated as a matter of policy may have a vital effect on the success of major governmental programs.

It is hoped that it would be useful to the thorough review which is needed to present an analysis of some of the important policy issues as they appear to the administrator (as distinct from the economist or legal scholar) in framing appropriate agency policy.

I. Policy by Analogy or Express Command

At the outset two significant limitations on the scope of this discussion should be kept clearly in mind. First, we are talking about patent rights, seventeen year monopolies granted by the Government, and licenses thereunder granted by patent owners, which may arise in inventions made under Government contracts. We are not talking about technical data, the mass of information (much or most of which is unpatentable) which tells one how to make a thing, and which may be infused with legal rights and policy considerations wholly different from those affecting patents.[4] Second, we are speaking of research performed under contract by non-Government contracts. We shall not examine what policies are appropriate to inventions made by employees of the Government itself,[5] or by employees generally.

It is important to distinguish clearly between the two situations—contractor inventions, and employee inventions—because they are often confused, and policies for the employee situation are simetimes urged as applying by analogy in the contractor situation. Since an employer frequently requires his employees to assign their inventions to him[6] it is argued that the Government should likewise require its contractors to turn over their inventions to the Government. Yet the considerations which lead to a policy choice in one area may not fit in other circumstances.

The Government's relations with a contractor are not equivalent to those of an employer with his employee. The employee agrees to give up some or all of his rights to his employer since he cannot, as an individual, exploit his inventions effectively. It is the company which can and does develop and sell the things the employee is hired to invent. Moreover, the employer enables the employee to have the benefit of unique facilities, specialized know-how, and inventive fellow

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[4] Technical data policy is based on the need to acquire and use data as a contract end-product. Patent policy, on the other hand, concerns the handling of a fortuitous event, namely, making a patentable invention in the course of performing the contract work, or in other words a by-product as distinguished from an end-product. Security restrictions aside, data developed at Government expense is freely available, whereas data originated at private expense which falls within certain definite limitations, may be available only for limited use if at all. Data policy touches the legal doctrines pertaining to trade secrets and confidential relationships, as opposed to public disclosure of inventions which are patented. To talk about patents and technical data as synonymous terms is to become entangled in a morass with no clear way out.

[5] These are set forth in Ex.O. 10096, as amended (1950). See *Patent Practices of the Government Patents Board,* Preliminary Report of the Senate Subcommittee on Patents, Trademarks and Copyrights, 86th Cong. 1st Sess. (1959). See also *A Government Patent Policy for Employee Inventions,* Wilson R. Maltby, *supra* in this issue of the Fed. B. J.

[6] The extent to which this is done is uncertain. See Finnegan and Pogue, *Federal Employee Invention Rights—Time to Legislate,* 55 Mich. L.R. 903, 932 (1957) and materials cited therein.

Nor does the common law appear to provide any useful guide to the appropriate policy. Without attempting an extensive analysis of the reported cases,[10] it is sufficient to say that practically all of them concern how to handle inventions made where there was no express agreement on the subject between employer and employe. The formulas worked out for solving such cases—which may ultimately be expressed in terms of what the parties intended by entering the employment relationship—inevitably reflect the policy considerations of the employment situation.

The Government-contractor situation is quite different: here, in addition to the distinctions already discussed, there are no property rights yet in existence because the inventions have not been made and patents have not issued. The question between the parties is, how should the contract divide the property rights which may eventually issue in the inventions which are going to be conceived or developed in the course of the contract.

In *Ordnance Engineering Corp. v. The United States*,[11] apparently the only case which deals with the Government's rights in inventions made by its contractors, the Court of Claims held only that the Government would not have to pay royalties on inventions which a contractor had made while performing a cost-plus Government contract. It would seem to be the irreducible minimum for the Government to get a license broad enough to use inventions made under a Government contract free of royalty claims and to let anyone else use the inventions on the Government's behalf. Whether the Government should acquire something more, and the contractor retain something less, is the issue.

A more certain source of guidance for policy making in this field is of course the statutory law which governs the agency's operations. If there is no statute on the question, the administrator has complete responsibility for the choice of policy. But even where there is some provision of law there is usually a considerable area in which discretion may still be exercised. The National Science Foundation Act of 1950,[12] for example, provides that contracts and grants of the Foundation are to "contain provisions governing the disposition of inventions produced thereunder in a manner calculated to protect the public interest and the equities of the individual or organization" concerned. The National Aeronautics and Space Act of 1958 [13] grants power to the Administrator to waive all or any part of the rights of the United States in inventions subject to the Act if he "determines that the interests of the United States will be served thereby". Thus the same policy considerations which apply in the absence of statute may also apply in greater or lesser degree even though there is statutory guidance.

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[10] For a discussion, see 3 U.S. Dep't of Justice, Investigation of Government Patent Practices and Policies—*Report and Recommendations of the Attorney General to the President* 135 (1947).

[11] 68 Ct. Cl. 301, 353 (1929), *supplemented*, 73 Ct. Cl. 379 (1931), *cert. denied*, 302 U. S. 708 (1937). Some commentators feel that certain dicta in the opinion support a view that the common law applicable to employee inventions also governs the contractor situation if the contract is silent on the subject. However, it should be noted that despite the assertion that the employee principles applied and would place ownership in the Government the actual holdings in the instant case and in the cases cited by the court were in terms of implied licenses only.

[12] 64 Stat. 149, 154 (1950), 42 USC 1861, 1871.

[13] PL 85-568, 72 Stat. 426, 436 (1958), 42 USC 2451, 2457 (f).

including foreigners. Historically, moreover, it has not brought suit against anyone for infringement. In practice, therefore, the Government does not obtain or use patents to practice inventions exclusively or to realize income through royalties [21] or to control commerce by assigning patents.

Granting that it is an anomaly for the Government to give itself a temporary monopoly privilege which it does not exercise, and laying aside for a moment the question of defense against infringement claims, what purposes are served by the Government's taking title?

Title in the Government means that the invention is free to all of industry whether or not it is at the stage of commercial exploitation. According to some, this is reason enough for the government to take title, and in fact, they assert, any other result would be contrary to the public interest. Certainly where the aim of the Government research program is an end-product ready for sale and use on the domestic market, such as a fertilizer or a drug or a frozen orange juice concentrate, this result has much to be said for it.

But it is most important not to be rigid or doctrinaire in one's thinking on this point. Not all inventions are alike, and not all research programs are aimed at bringing products to the commercial market. In many significant Government research projects, there are inventions which remain undeveloped because they are not directly involved in the research goal. Other inventions are developed for specialized Government usage without any consideration as to possible commercial applications. In many cases there will be inventions whose commercial possibilities are unforeseeable, such as the material developed for missile nose cones being turned into a new kind of heat-resistant dishware. Then there are the problems of adapting the new idea for commercial sale at competitive prices, tooling for production, and creating markets, none of which is supported by, or of concern to, the Government.

The application of new technology for commercial uses may depend in substantial measure on the regular incentives and protections of the patent system. To say that no patent incentives will be required simply because Government funds have been expended in conceiving or developing ideas is to make, it seems to us, a doubtful judgment on the facts. There are many thousands of patented inventions in the Government portfolios which are available to everyone, and which, to judge by the number of requests for licenses, have been of little or no interest to industry. At least one agency which by law follows a policy of obtaining title to contractor inventions has requested authority to grant exclusive licenses as the only practical way to get certain inventions off the shelf,[22] and another agency is proposing regulations to permit exclusive licenses in anticipation of the same result.[23] After extensive hearings on complaints that a statutory policy of obtaining title for the Government was hurting the space effort a Subcommittee of the House Committee on Science

[21] The Federal Aviation Agency has recently indicated an intent to share in its contractors' royalties on commercial applications made under its research and development contracts, in order to recover all or part of the Government's expenditure. Federal Aviation Agency, Agency Order No. 56, November 1, 1960.

[22] This is the Department of Agriculture. See S. Rept. 193, 86th Cong. 1st Sess. (1959) and Long Committee Hearings, pp. 346-347 (1959).

[23] The National Aeronautics and Space Administration has this proposal under consideration, including the possibility of seeking royalty income through exclusive licensing.

inventors and others, who may secure patents and require royalties on the inventions which the Government leaves unpatented.

Without discussing the numerous technical reasons for this,[27] it must be acknowledged that a program increasing the taking of patent titles by the Government in any considerable way would necessarily mean increasing the agency's patent staff by a corresponding degree, unless there are some sweeping changes in the patent law.[28]

III. Patent Policy and Agency Mission

Having briefly considered some reasons for which the Government might wish to obtain title to the inventions of contractors, we turn now to discuss how these aims may fit in with other purposes of the agency. As the Government usually does not need to obtain title to protect a purely Governmental interest, the patent question is usually secondary to other problems. The primary question for the administrator is how to obtain the most effective research and development for the successful accomplishment of the agency mission.

The success of an agency's research program is clearly dependent on the quality of the work performed. In programs whose national priorities are very high, it is absolutely vital that the Government be assured of the most brilliant, imaginative, inventive, and practical work available in the nation. The number of bidders for a research project is not in itself significant, since there are always those who wish to spend the Government's money. What is necessary is that the ones most skilled in the art which the contract proposes to draw upon be interested in competing for the contract. It is important that there be highly qualified competitors for such contracts so that the Government and the nation will have the benefit of the competitive clash of new ideas.

If a new pump, say, is needed for a new high speed destroyer or some difficult application in rocketry, the agency will wish to have proposals from all the manufacturers most skilled in the design and fabrication of pumps. An agency whose research program is conducted pretty largely by agency employees and non-profit institutions is thus in a different situation with respect to the effect of patent policy on its operations than an agency whose research program depends in significant degree upon corporations engaged in manufacturing products for sale.

As indicated at the beginning of our discussion we are talking about research by contractors, and in the main this means manufacturing companies. It may be noted in passing, however, that many universities which do research on Government contracts wish to retain title to inventions made thereunder. They have a variety of reasons, one of the most important of which is that the income realized from a successful university patent may be ploughed back into more research.[29] The Department of Defense once had a policy under which it would take

[27] For an entertaining and informative analysis see Helvestine, *Protecting Navy Inventions*, September 1959 Naval Research Reviews 8-13 (1959).

[28] Were the Government to require its contractors to prepare the patent applications, as a reimbursable expense of performing the contracts, a substantial question of unauthorized practice of law might be raised. See Marshall et al. v. The New Inventor's Club, Inc., 99 USPQ 460 (1953) and In re Batelle Memorial Institute, 127 USPQ 289 (1960).

[29] See Hearings before a Subcommittee of the Joint Committee on Atomic Energy on Atomic Energy Patents, 86th Cong. 1st Sess., pp. 194-197 (1959) [hereinafter cited as Atomic Energy Hearings] and Mitchell Committee Hearings, pp. 857-880 (1959).

demand that a firm create products for its commercial rivals at the same time. Firms must turn over the technical data developed during Government contracts so that the Government may be able to re-produce from others. The Government always obtains a license sufficiently broad that patents on inventions made under Government research and development contracts will not block such reprocurement from others. Industry is understandably reluctant to turn over its commercial rights as well.

Contractor reluctance can be felt in a number of ways, including direct refusal, indirect (and unpublicized) rejection of contract opportunities and, more subtly, using less than the best men, devoting weaker management attention, saving the most promising ideas for independent development, going-through-the-motions,[33] and perhaps diluting the incentive to the individual company inventor. The problem of contractor reluctance is especially acute at the subcontract level. While some contractors have large businesses exclusively devoted to the Government and in consequence must accept the work on any basis it is offered, most contractors are in a position to refuse Government business if they believe the terms are unduly oppressive. There is a real danger that Government insistence on title in all cases may mean becoming excessively dependent upon the services of the few, and, perhaps, less qualified contractors who take Government contracts on any terms they can get them.

Contractor reluctance is not a theoretical possibility. Many agencies have experienced it. The National Aeronautics and Space Administration acknowledged the problem[34] in its recent request for a change in its statutory policy which requires it to take title, even though it has adopted a very liberal approach to the granting of waivers. The Atomic Energy Commission has acknowledged that many contractors are reluctant to accept research responsibilities for the Commission,[35] even though the Commission frequently permits in effect exclusive rights to a contractor in fields outside those the Commission's interest.[36] When the Public Health Service first began to depend on private industry to carry on a significant amount of research in the cancer chemotherapy field, the Service found it necessary to adopt a policy of leaving title with the contractors, subject to certain safeguards, in order to get the work started.[37] The Department of Defense used to have considerable difficulty with contractors when it insisted on the right to take out foreign patents on contractor inventions,[38] and eventually its

[33] See Solo, *Synthetic Rubber: A Case Study in Technological Development Under Government Direction* 108-109, Study No. 18, Senate Subcommittee on Patents, Trademarks, and Copyrights, 85th Cong. 2d Sess. (1959).

[34] For specific cases see Mitchell Committee Report, pp. 29-31 (1960) and speech of Representative Mitchell, June 2, 1960, 106 Cong. Rec. 10912-10913 (1960).

[35] Mitchell Committee Hearings, p. 133, Long Committee Hearings, pp. 242-243. However, the Commission does not feel that its work has been comprised by its statutory patent policy. See also remarks of the General Counsel of the Commission, Atomic Energy Hearings, pp. 13-14 (1959): "I think that application of these principles special to atomic energy generally in the patent field would be discouraging and a deterrent to progress."

[36] In situations in which the research and development work relates only incidentally to basic research of the Commission but does relate to a field in which the contractor has an established position and the work will be routine development or production, the contractor may receive back from the Government an exclusive license for purposes other than use in the production or utilization of special nuclear material or atomic energy. Long Committee Hearings, pp. 235, 248 (1959). This is the "Type C" clause. The practical effect would seem to be the same as leaving title in the contractor for the defined purposes.

[37] Long Committee Hearings, pp. 356, 364, 371-373 (1959).

[38] ASPR 9-107.4 (1950).

search sponsored by the Government may well turn up several alternative methods, each patentable, and each developed by different and competing contractors. Moreover the work given to the larger contractors has not prevented the healthy emergence of vigorous and creative new businesses in what might be called the research and development field. Retaining patent rights in their inventions of course eventually enables such firms to establish commercial positions as against the older and bigger companies. Smaller companies themselves—those who theoretically would be most immediately benefited if the Government were to take patent rights on their behalf—are frequently vehement in opposing such a policy.

The dollar volume of a research and development contract would seem to be an unreliable guide to the commercial value of the inventions made. For example, much of the cost in the development programs in the Department of Defense reflects the necessity to test new equipment under extreme conditions which commercial equipment would not have to meet. The cost of military technology is well known, yet much of the money is spent for the fantastically expensive testing equipment and testing supplies rather than invention-producing activity as such. Many inventions resulting from military research and development have little or no commercial implications.[45] Several of the largest and oldest contractors for the Department of Defense have no commercial business resulting from their work for the Government.[46]

IV. Alternative Approaches

As the foregoing discussion has attempted to show, an across-the-board approach for the whole Government, while undoubtedly desirable for some agencies, would be dangerous for others. It is clear that adequately to make provision for all the conflicting considerations it is essential that there be administrative flexibility. The problem is how to achieve it.

Consider some alternative approaches. Very few people who have studied the problem have advocated a title policy without permitting relaxation of the policy in certain instances. One approach has been to vest title to contractor inventions in the Government but to permit the Government to waive the rights in favor of the contractor in suitable cases. The National Aeronautics and Space Administration has published regulations for this express purpose, and in view of the present statute, they are undoubtedly liberal from the industry point of view.[47] However, industry wants to know what its rights will be before the contract is written. Second guessing after an invention is reported may encourage the hoarding of valuable ideas. It is not easy to tell at the time a patent application is filed whether the invention will be valuable commercially.

On the other hand, the policy of acquiring for the Government a nonexclusive, royalty-free license to cover all uses by or on behalf of the Government, which would seem to be in most cases the irreducible minimum, has met with widespread industry acceptance, even at the subcontract level. Elaborate provisions for handling subcontractor refusals have rarely if at all been put into operation.

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[45] See *Patent Practices of the Department of Defense,* Preliminary Report of the Senate Subcommittee on Patents, Trademarks, and Copyrights, 87th Cong. 1st Sess. (1961).

[46] For a discussion of why such companies wish to apply for patents on their inventions, see Long Committee Hearings, pp. 104 (Aerojet-General Corp.) and 410 (The Martin Co.) (1959).

[47] 14 CFR 1245 (1959).

tory on its face. The definition of a small business for certain purposes may require changes for other purposes. Firms which may be called middle sized would be most affected, and these are often the most creative companies. Finally, the scheme would present real problems when small firms grow large.

Another proposal is to acquire along with the royalty-free license the power in the Government to grant sublicenses if a patented invention is not being worked after a period of time [51] or if the patent is enabling unreasonable pricing. Such sublicenses could be awarded on an exclusive basis in order to preserve the patent incentive feature. The purpose of this proposal would be to avoid the dangers of suppression or profiteering on inventions sponsored by the Government. The existence of these evils is often asserted, and the assertion is just as often denied. If those things do not in fact occur, industry should not have objections to some mechanism for ensuring that they will not occur.

These proposals for greater license rights,[52] together with the administrative machinery necessary to implement them, would seem to require legislation if they are to be adopted on any broad scale. In the meantime the administrator has the problem of framing a policy that will carry out the agency's mission and that will meet the public interest. Essentially this will involve the choice between taking title on the one hand or license on the other. Aside from the question of increasing the patent staff, there are considerations of administrative feasibility in setting up standards for making this choice in individual cases.

One significant proposal calls upon the administrator to balance the "contributions" of contractor and Government in the invention.[53] This would be a terribly difficult job to accomplish equitably. The sources of an invention, even if identifiable, are incommensurable. What goes into the making of an invention cannot be adequately rendered in terms of dollars or other tangible measurement.[54]

The better approach, we submit, is to define as clearly as possible the purposes which would be served by the Government's taking title or license to inventions made under research programs, relating these purposes to the basic justifications of the patent system and the differing objectives of the individual Government agencies. When these purposes are understood, the administrator can apply them to the facts of the particular case, find acceptable contractors, employ the bargaining power of the Government, and accomplish the job without the adverse effects a broader, more uniform, but less flexible policy would present. If there is to be legislation on a Government-wide basis, it is important that the legislative background, as well as the statutory language, permit such a flexible approach.[55]

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[51] The National Aeronautics and Space Administration reserves the right to recall its waiver of rights in contractor inventions if after a specified time the patent is not being worked. 14 CFR 1245.106 (1959).

[52] A proposal to take license rights on behalf of foreign governments raises issues beyond the scope of this paper.

[53] S. 3610, 86th Cong., introduced May 31, 1960.

[54] For example, the Government took over the development of missiles as a matter of the highest urgency and poured tremendous amounts of money into the project. Yet much of the program depended on advances made by private effort at a time when the Government had little financial interest in the work. At what point can it be said that these private efforts no longer represent a "contribution"?

[55] *E.g.*, H. Rept. No. 1633, 86th Cong., 2d Sess., pp. 7-10 (1960) adopting the recommendations of the Mitchell Committee Report, pp. 33-35 (1960).

Defense by modification of its regulations, effective January 31, 1961, now provides for the acquisition of title by the Government in specified circumstances. On the other hand, The Congress has prescribed the general policies for the Atomic Energy Commission [4] and for the National Aeronautics and Space Administration [5] to acquire the patent rights for the Government.[6] Thus Section 152 of the Atomic Energy Act of 1954 [7] provides in part that any invention

> useful in the production or utilization of special nuclear material or atomic energy, made or conceived under any contract, subcontract, arrangement or other relationship with the Commission, . . . shall be deemed to have been made or conceived by the Commission, except that the Commission may waive its claim to any such invention or discovery,

and Section 159 of that Act [8] provides in part that:

> Nothing in this Act shall affect the right of the Commission to require that patents granted on inventions made or conceived during the course of federally financed research or operations, be assigned to the U. S.

Pursuant to this legislative direction, the Atomic Energy Commission acquires the rights in and to inventions in the atomic energy field. It also acquires the rights in non-atomic energy fields unless the contractor has an industrial and patent position in the particular non-atomic energy field of the contract work. In such event, the contractor has been accorded the exclusive rights in inventions for purposes other than use in the production or utilization of special nuclear material or atomic energy. [9]

The most recent legislative enactment affecting rights in inventions in the

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resulting from its contracts and sharing royalties with the contractors.—Federal Aviation Agency Press Release No. 145, November 2, 1960.

[4] 68 Stat. 919 (1954), 42 USC 2011-2281.

[5] 72 Stat. 426 (1958), 42 USC 2451; Sec. 9-107, Armed Services Procurement Regulations (ASPR), 32 CFR 9.107. Department of Health, Education and Welfare Monograph Preliminary Report of the Sub-committee on Patents (1960), 86th Cong., 1st Sess., pp. 5-11.

[6] These statutory requirements are discussed in 19 Fed. B. J. 255 (July 1959), *"Property Rights In Inventions Under the National Aeronautics and Space Act of 1958"* by G. D. O'Brien and Gayle Parker.

[7] 68 Stat. 919 (1954), 42 USC 2182.

[8] 68 Stat. 920 (1954), 42 USC 2189.

[9] The contract clauses used by the U. S. Atomic Energy Commission are generally referred to as the Type A, B, or C Clauses. Under the Type A Clause, the Commission determines the rights in and to any inventions under Commission-sponsored research and development work; under the Type B clause, the contractor retains at least a nonexclusive license for commercial use of any invention in the non-atomic energy fields; while under the Type C clause, the contractor retains the sole license in any invention (except as against the Government or its account) with the sole right to grant sublicenses for outfield uses (non-atomic energy purposes). The clauses are set forth in BNA Atomic Industry Reporter 235: 211-213; CCH Atomic Energy Law Reporter, Par. 12,965-12,967. If an invention results from work at a privately owned contractor facility, as distinguished from a Government or Commission-owned or Government or Commission contractor operated facility, the contractor may file a U. S. application and any foreign patent application and retain substantial rights in the foreign patents. 26 Fed. Reg. 693 (January 24, 1961). The Commission has a policy of granting non-exclusive, royalty-free licenses in all United States patents owned or controlled by the Commission. TID 4557, Sept. 1956, 10 CFR 81.12, BNA Atomic Industry Reporter 235:31. The Commission recently adopted a policy of charging royalties on Commission foreign-owned patents of other than U. S. citizens when the foreign government charges royalties. 26 Fed. Reg. 693 (January 24, 1961).

In 1959-1960, out of an estimated 12.4 billion dollars spent on all research and development, in the United States, the Federal share was 7.9 billion dollars,[15] or approximately 64%. The total 1962 proposed Federal financing of research and development is 9.4+ billion compared to 3.1 billion in 1953,—an increase of 312% in 10 years.[16]

No longer are we concerned only with private or corporate research inventions. Today many of the products in daily use resulted from inventions conceived in Government laboratories or Government-owned-contractor-operated facilities, as well as from other Government sponsored private contract work. As long as the research and development was primarily privately sponsored, a patent system designed to encourage a private inventor may have been adequate. Under such circumstances, the policy of the Government towards inventions resulting from Government-sponsored research and development was not of particular public interest. It is not surprising, therefore, that the policy of many Government agencies to retain only a license to use inventions resulting from Government-financed research and development was largely crystallized during the period when the Government's sponsorship was relatively a small percentage of the research and development dollar spent in the United States.

With the shift of the center of gravity from the lone inventor of 1870 to the corporate and, more recently, the Government-sponsored inventor of 1960, it appears timely to re-evaluate the division of the rights in inventions as between the Government and its contractors.

III. To Whom Are Patents Being Issued?

So far as issued patents are concerned, the number of private individual inventors has been declining and the corporate and Government inventors have been increasing. During the period 1936-1955, an estimated 58.37% of the patents issued were issued to private corporations.[17] Since some corporations do not record assignments until after the patents have issued[18] and since some may never record their assignments, the percentage owned by corporations may even be larger. During the same period, the number of patents issued to the U. S. Government increased from .08% to 2.27%. In 1955 an estimated 60.65% of all patents were issued to corporations or to the Government.[19] On the basis of the figures furnished for representative periods during 1956 and 1957, it is estimated that approximately 62.3% of the patents issued in 1956 and 1957 were issued to domestic and foreign corporations, 2.2% to the U. S. Government, and 35.5% to private individual inventors.[20]

With the ever-increasing expenditure of Government funds for research and development, whether the Government follows a policy of the contractor acquiring the rights (subject to the Government's acquisition of only a license) or if the Government pursues a policy of the Government acquiring all rights,

[15] National Science Foundation *Federal Funds for Science*, 59-40, p. 3.

[16] The Washington Star, Jan. 16, 1961.

[17] Study of Subcommittee on Patents, 84th Cong., 2nd Sess (1957), pp. 12-13, *"Distribution of Patents Issued to Corporations (1939-1955)"*.

[18] A 1938 study disclosed that between January 1, 1931, and June 30, 1938, 2.87% of the patents were acquired after issuance by corporations, Id. p. 18.

[19] Id.

[20] These estimates are the writer's, based on figures for representative months in 1956 and 1957.

This Report concluded: [26]

> If such further analysis demonstrates maintaining a strong tendency towards concentration, then it would seem that the vital interest of this Government in maintaining a freely competitive economy would add a strong argument in favor of the Government acquisition of patents.[27]

IV. What Is the Government's Policy Today?

The Government appears to be in about the same position that it was at the time of the Attorney General's 1947 Report, except in one important respect. Since that time, the Congress has enacted legislation specifically affecting the rights in inventions resulting from contracts made with the National Science Foundation, the Atomic Energy Commission, and the National Aeronautics and Space Administration.[28] These legislative enactments have "aided and abetted" the controversy as evidenced by the extensive Congressional hearings, reports and debates, on patent matters during the 86th Congress.[29] Despite such exhaustive hearings, studies and debate, the issue still remains unresolved.

One school advocates that all the Government needs and is entitled to is a nonexclusive license for limited governmental purposes. The second proclaims that the Government is entitled to greater rights, generally stated to be title to, or exclusive rights in, inventions. The two positions center around certain purported requirements:

A. Creation of incentive to invent.
B. The protection of risk capital in commercial exploitation.
C. The Government should get what it pays for.
D. Patents as a means of dissemination of knowledge in the best public interest.

A. Creation of Incentive to Invent.

The Government license proponents assert that a license to the Government is all that is needed to protect the Government. According to this school of thought, the patent system was established as an incentive to the inventor. This incentive would be destroyed if the Government acquired the rights.[30]

While it should be recognized that the patent system is, has been, and probably will be an incentive to certain individual inventors, others will invent without regard to individual incentive. Yet where the employer acquires all rights in and to the employee's inventions that are made in the course of em-

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[26] *Id.* p. 53.

[27] *Ibid.*

[28] *Supra* notes 8 and 9, 11 and 14.

[29] Report of the Subcommittee on Patents and Scientific Inventions to the Committee on Science and Astronautics, House of Representatives, 86th Cong., 2nd Sess. Hearings May 17-18 on S. 3156 and S. 3550 before Subcommittee on Patents of the Senate Committee on the Judiciary. Hearings before the Joint Committee on Atomic Energy, May 17-18, 1960, 86th Cong., 2nd Sess. on Omnibus Bills. HR. 11979 and S. 3461. Hearings before the Subcommittee on Monopoly of the Senate Select Committee on Small Business, 86th Cong., 2nd Sess., as well as the Debates in the House of Representatives on June 8 and 9, 1960, on HR. 12575 to Amend Section 305 of the Space Act.

[30] National Association of Manufacturers, *Patent Rights under Government Contracts,* No. 8, p. 3, November 1960.

such cases are believed the exception rather than the rule, and Governmental policy more properly should be based on the general situation, rather than the exception. If exclusivity is necessary, one still has the question of whether the contractor, rather than the Government, should be in a position to effect commercial exploitation.

Data to support the necessity for contractor exclusivity on Government contract work is lacking.[34] However, it is believed that, if the economics with respect to a particular item or product are such that a profit can be made on the capital ventured, the risk will be taken to promote an invention even though the Government grants only a nonexclusive license.

The Tennessee Valley Authority, which grants only nonexclusive licenses,[35] has a considerable number of patents pertaining to the production of fertilizer. In recent testimony, before the Subcommittee on Patents, TVA Chairman Vogel stated:

> TVA makes the patents available to industry under royalty-free, nonexclusive licenses. Fertilizer manufacturers have equal opportunity to receive such and no individual or firm may preempt any TVA invention for competitive advantage or for price control . . . this has resulted in a benefit to equipment manufacturers who have thus been provided with a wider market for their tools and machinery. The fact that TVA patents can be used but not controlled has not kept industry from seeking and obtaining licenses. Some 160 different firms have received over 200 licenses. TVA patents on devices and processes for manufacturing high-analysis granular fertilizer from conventional materials have been licensed for use by 109 fertilizer and equipment manufacturers. About two-thirds of the granular fertilizer made each year in this country is manufactured under a TVA license.[36]

The Department of Agriculture also grants nonexclusive licenses. By the end of the fiscal year 1960, it had granted 899 licenses. More than three licenses were granted on some 62 of its patents, which have wide application in the competitive industrial market. The Department has granted over 41 licenses on a process for preparing Antigens, an important ingredient in control of pullorum disease in chickens; 121 licenses on a patent covering a method of applying Parasiticides—the well-known insecticide bomb; and 44 licenses on a means of preservation of forage crops. The Atomic Energy Commission has granted over 800 licenses on patents that are owned and administered by the Commission.[37] It is to be noted also that many persons or organizations may be using Government patents without a license.

What is the record as to contractors' use of inventions where the contractors have acquired the rights under Government contracts? So far as is known,

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[34] The General Services Administration in 1959 awarded a contract to George Washington University Patent Foundation to secure facts as to the use made by contractors of inventions acquired on Government research and development contracts. As of December 1960, no factual report has been submitted by the Foundation.

[35] *Supra* note 32.

[36] Hearings on S. 3156 before the Subcommittee on Patents of the Senate Judiciary Committee, 86th Cong., 2nd Sess.

[37] The 1960 Annual Report of AEC to the Congress under Section 202 of the Atomic Energy Act of 1954.

In sponsoring research affecting the public health, agriculture, the natural resources, atomic energy, and similar matters, the Government not only conducts the research for mere governmental product purposes but also for the general welfare. In fact, the Congress has specifically directed certain departments and agencies to conduct research for the public benefit as well as the promotion of industrial programs. The Department of Agriculture, for example, under the Department of Agriculture Research and Marketing Act of 1946, as amended, is directed to conduct

> Research relating to the improvement of the quality of, and the development of new and improved methods of the production, marketing, distribution, processing, and utilization of plant and animal commodities at all stages from the original producer through to the ultimate consumer; research into the problems of human nutrition and nutritive value of agricultural commodities, with particular reference to their content of vitamins, minerals, amino and fatty acids, and all other constituents that may be found necessary for the health of the consumer and to the gains or losses in nutritive value that may take place at any stage of their production, distribution, processing, and preparation for use by the consumer; . . . research relating to the design, development, and the more efficient and satisfactory use of farm buildings, farm homes, farm machinery, including the application of electricity and other forms of power, research relating to the diversification of farm enterprises, both as to the type of commodities produced and as to the types of operations performed, on the individual farm, research relating to any other laws and principles that may contribute to the establishment and maintenance of a permanent and effective agricultural industry.[41]

Similarly, in the atomic energy field, the Congress has declared it to be the policy of the United States that

> the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise.[42]

The Commission also is directed to conduct research and development pertaining, among other things, to the

> utilization of special nuclear material, atomic energy, and radioactive material and processes entailed in the ultilization or production of atomic energy or such material for all other purposes, including industrial uses, the generation of usable energy, and the demonstration of the practical value of utilization or production facilities for industrial or commercial purposes; [43]

It seems fair to maintain that what the Government pays for depends upon the programs, objectives, and the overall requirements of the statutory authority of a particular government agency or department. Can one therefore state that in all cases all the Government pays for is merely a product and a license?

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[41] 60 Stat. 1090, 7 USC 427a.

[42] Section 1b, Atomic Energy Act of 1954, 68 Stat. 919 (1954), 42 USC 2011.

[43] *Id.*, Section 31a(4)68 Stat. 919 (1954), 42 USC 2051.

to question where Federal funds create technological information. Thus exclusivity in the contractor may may erect a barrier to the rapid dissemination of the technical reports and prevent prompt dissemination of the information developed. With respect to knowledge created with public monies, should not the Government, rather than the contractor, have the right to say when the information should be disseminated?

Conclusions.

It is sometimes stated that Government ownership defeats the purpose of the patent system because the Government gives free licenses and does not enforce its patents. This could be cured by the Government's charging royalties and enforcing its patents. However, collection of royalties, it is claimed, would put the Government in business.

Whether or not Government ownership frustrates maximum exploitation of patents may depend on just what use the Government makes of its patents. As hereinbefore seen, a considerable number of licenses to use Government-owned inventions have been issued, and many possibly us Government-owned inventions without a license. If free licensing does not result in maximum use of Government-owned patents, the Government should make maximum use of these patents in accordance with Congressional and Executive Directives.

V. Who Should Get the Invention?

In view of the ever-increasing role of Government research, and the potential for concentration of patents resulting from Government research in larger corporations, some overall equitable policy should be crystallized with respect to inventions resulting from Government research and development. Whether this policy of the Federal Government be fixed by statute or executive order is not material, but any such general policy should protect the public interest and promote the general welfare. At the same time, the policy should balance the equities of the individual contractors and the Government so as to promote the American system of free enterprise. While general uniformity should be a principal objective, there should be room for flexibility in the administration thereof by the respective departments and agencies, in or to meet the objectives and programs of the particular department or agency, to stimulate individual incentive, to provide for early dissemination of the technological information and data developed, to avoid creation of preferential positions, and to assure just and equitable protection of rights of the public, the contractor and the Government.

The administration of the program might well be in the hands of an administrator with an Advisory Board composed of representatives of the Government departments and agencies that conduct research and development. There might also be limited rotating representation from the other Government departments and agencies. Each agency or department should administer its own program, with the administrator approving the policies and practices of the respective agencies or departments in compliance with specific legislative enactments and to assure general uniformity, where possible, in overall treatment of inventions.

It is recognized that there could be pitfalls of inconsistency if each agency and department administers its own program, but with the administrator's overall direction and coordination, these could be kept to a minimum. After all, as

GOVERNMENT PATENT POLICY— ANOTHER LOOK AT AN OLD PROBLEM

Ross D. Davis * *and Eugene J. Davidson* **

I. INTRODUCTION

If we properly read the omens, it seems unlikely that the tides of controversy eddying about the various Government policies controlling the acquisition and disposition of patents [1] developed through the expenditure of Federal funds [2] has crested. Indeed, all indications are to the contrary.

In the preparation of this article, we have reviewed in some detail the policies espoused by a broad spectrum of interested parties together with the reasoning marshaled to sustain these policies.[3] The burden of the arguments supporting these divergent policies are particularly interesting because most if not all of them seem liberally peppered with good common sense. We are struck by the fact that the evidence of one proponent does not refute the proof of another. Rather we find that the opinions supporting dissimilar viewpoints are mutually characterized by their soundness—at least as far as they go.

Because there is so much merit to what has been said on this difficult subject and because for every persuasive argument there appears to be, in many cases, an equally persuasive reply, we suggest the existence of a compromise position. The problem then is to seek out a common denominator which will bring fundamental order out of apparent confusion.

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[1] There are two principal policies, the *License Policy* and the *Title Policy*. The larger Government contractors generally favor the former policy under which they retain title to patents on inventions, improvements and discoveries conceived or first actually reduced to practice in the performance of a Government contract or grant. The Government receives only a royalty free non-exclusive license to utilize the patent under this policy. Within the Government, the Department of Defense is the principal exponent of this policy. Under the *Title Policy* the Government obtains the title to these patents. This policy is favored by a smaller but equally determined group. One of the principal advocates of this policy is Senator Russell B. Long, Chairman of the Monopoly Subcommittee of the Senate Select Committee on Small Business, 86th Cong. (hereinafter referred to as the "Long Subcommittee"). During the 86th Cong., 1st Sess. this Subcommittee conducted hearings on Dec. 8, 9 and 10, 1959 on *Patent Policies of Departments and Agencies of the Federal Government—1959*. Many small business concerns support Senator Long. However, there are concerns qualifying as small business which favor the *License Policy*. By statute, the Atomic Energy Commission (68 Stat. 944 (1954), 42 USC 2182) and the National Aeronautics and Space Administration, hereinafter called "NASA" (72 Stat. 435 (1958), 42 USC 2457) follow the *Title Policy* unless they determine that the public interest warrants waiving the Government's claim to title. Contracts made by the Department of Agriculture under the Research and Marketing Act of 1946 are required to contain a provision making the results of the research available to the public. 60 Stat. 1085 (1946), 7 USC 427i(a). The patent policies of many of the executive agencies are described in reports issued by the Senate Committee on the Judiciary, 85th Cong., 2nd Sess. and 86th Cong., 1st and 2nd Sess.

[2] The phrase "patents developed through the expenditure of Federal funds" and similar phrases are intended to refer to inventions, improvements and discoveries conceived or first actually reduced to practice in the performance of a contract or grant made by a Federal department or agency.

[3] It is not deemed necessary to repeat these arguments which are discussed in extensio in other articles of this issue of the Federal Bar Journal.

policy to achieve a variety of arrangements which range from the total acquisition of patent rights by the Government to the total release of patent rights.[6] We think that "flexibility" should be a principal ingredient of the Government's policy. Any Government patent policy must be predicated on the recognition that particular circumstances may require the acquisition by the Government of all patent rights; particular circumstances may require the total release by the Government of such rights; or the particular circumstance may require something in between these two extremes.

There is, of course, a further interest involved in these matters, the *public interest*. But the needs of the public may be somewhat remote from the immediate needs of the contractor and the contracting agency. For this reason, it is essential that there be developed a method of defining and applying the *public interest* in these determinations.

III. What Is The Public Interest—The Department of Justice and the Small Business Administration

Over the years the Attorney General has expressed a concern with the effect of Federal Government contracting practices and more specifically research and development contracting activities upon competition. He, as well as others, has raised the question of whether current practices of the Federal Government tend to increase concentration of economic power by centering the research and development effort in the hands of a few and largest concerns. The disposition of patent rights arising from Federal contracts is an important facet of this potential menace.

Thus, in 1947, a study by the Department of Justice of Government patent practices and policies resulted in a recommendation by the Attorney General that generally the Government should take full title to patents developed through Government financed contracts and grants for research and development.[7] A provision of the Defense Production Act of 1950, as amended, directed the Attorney General to review the administration of that Act for the purpose of determining any factors which may tend to eliminate competition, create or strengthen monopolies, injure small business or otherwise promote undue concentration of economic power. Carrying out this provision, the Department of Justice, in 1956, reviewed and reported on the effect of Government-sponsored industrial research on competition.[8] The report remarked on the relative importance of Federal research expenditures. It pointed out the industrial bene-

[6] This is not to infer that in operation the policies are identical. As was noted in note 1, *supra*, the regulations of the Department of Defense are such as to make it highly unlikely for the Government to acquire title, whereas the National Aeronautics and Space Act as interpreted and implemented by NASA may properly be said to make it difficult and possibly unlikely for the contractor to acquire title in many instances.

[7] *Investigation of Government Patent Practices and Policies—Report and Recommendations of the Attorney General to the President* 5 and 76 (1947). In support of this recommendation, the Attorney General advised that this policy would (1) assure free and equal availability of inventions to industry and science, (2) eliminate any advantage to the contractors, and would avoid concentration of economic power in the hands of a few corporations, (3) prevent suppression of the inventions or imposition of an assessment for their use, and (4) not substantially increase the cost to the Government of the contract work or diminish the contractor's efforts to perform the work competently. The Attorney General recognized that exceptions to this policy might be necessary under limited and controlled circumstances.

[8] Report of Attorney General of November 9, 1956.

that permitting contractors to retain title to patents will not result in this consequence. We do not think, however, that this is a sufficient answer. It would not appear to be sound policy for one Government agency to engage in practices which tend to concentrate economic power and to rely on another to undo the damages created by this policy.

The *public interest* reflected in and through the Small Business Act [13] is, of course, related to the responsibilities of the Department of Justice. This Act and the programs it inaugurates are based on the premise that free and open competition can be maintained only by according to the smaller enterprises access to free markets, free entry into business and the opportunities for the expression and growth of personal initiative and individual judgments. Here again, the writers do not presume to speak for the Small Business Administration. Nevertheless, insofar as the effect on free competition and smaller enterprises of any Government patent policy is concerned, certain observations are pertinent.

Whatever patent policy the Government chooses to adopt, it will, in theory, operate equally for all enterprises both small and large. Superficially, then, small business has no special interest to be served. But this "equality" holds true only to the extent that the smaller firms share ratably not only in Government-financed research and development but also in all contracts let by the Government.[14] Unfortunately, for a variety of reasons this has not been the case. One reason is that small business concerns have been receiving an ever declining share of the Government procurement dollar. The share of military procurements for fiscal year 1960 was 16.1 per cent and during the first four months of fiscal year 1961, it has fallen to 15.9 per cent. Since the bulk of the contract awards to small concerns is of a nut and bolt variety (small concerns received only 3.4 per cent of the military research and development expenditures during fiscal year 1960 and 1.8 per cent of these expenditures during the first four months of fiscal year 1961) the likelihood that small business concerns generally will be the direct beneficiaries of the *Licence Policy* is somewhat remote. Therefore, the same concentration of Government contracts in the larger concerns which

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[13] 72 Stat. 384-396 (1958), 15 USC 631-647.

[14] The patent potentialities available to a concern which receives large scale Government research and development contracts are highlighted by the *Survey of Certain Aspects of the Ballistic Missile Program of the Department of the Air Force* as developed by the Subcommittee on Manpower Utilization of the Committee on Post Office and Civil Service, House of Representatives, 86th Cong., 2nd Sess., and by the Comptroller General. This survey disclosed that as of June 30, 1959, 218 patent disclosures had been made by employees of Ramo-Wooldridge Division of Thompson Ramo Wooldridge, Inc., arising from work under Government contracts. Of these 218 disclosures, 62 patent applications were filed; 33 applications were approved for filing; 57 disclosures were under evaluation; 3 disclosures were awaiting evaluation and 62 disclosures were in an inactive status. Of the 95 disclosures for which applications had been filed or were approved for filing, Ramo Wooldridge considered 11 to relate to developments believed to be sufficiently basic and important to provide a basis for a new industry or an entirely new product line, or which may have a major effect on the expansion or conversion of an existing industry or product line. 69 were believed to relate to developments which are part of important commercial or patent positions (e.g., one of several developments relating to a major commercial program or to an active patent licensing program) or which offer the possibility of obtaining enforcible patent protection for a particular product as to which commercial use is definitely predictable. 13 related to developments which offer the possibility of obtaining patent protection of substantial or broad scope, but whose use or importance is not yet definitely predictable. Only 2 were so marginal as to be considered to relate to a development believed to be of minor importance or of marginal patentability, but still justify patent consideration for some special reason (e.g., to provide recognition of the inventor, or to provide insurance against patenting by competitors). See 43-45.

Act of 1958 and urged its repeal.[19] Industry and the Patent Law profession produced as witnesses many of their most knowledgeable and persuasive experts and their strongest arguments in an effort to convince the Congress of the soundness of their position. The full Committee's minority report states that "the shock troops in this assault (on the patent provisions of the Space Act) were recruited either from industry or the organized bar and most of them were battle-scarred veterans and seasoned campaigners from the long and unsuccessful campaign against Government ownership of patents in the field of Atomic Energy." [20]

Witnesses from the electronic, aeronautic, astronautic, chemical and other industries as well as the legal profession, all testified against the *Title Policy*. They came with prepared studies and proposals. They invoked the Constitution, the national defense, the national policy of aiding small business and the free enterprise system. They even made comparisons between the Soviet patent system and the American patent system. Despite this effort, the Mitchell Subcommittee recommendations suggest that the witnesses failed to totally justify industry's broad claims and demands. It would seem the most the Mitchell Subcommittee could conclude from the evidence was that the *Title Policy* was undesirable under certain conditions, but that it should prevail under other conditions.[21] This apparent failure of industry and the Patent Law profession

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[19] Some industry and Patent Bar witnesses recommended substituting for the present NASA requirements legislative provisions similar to the National Science Foundation Act of 1950 (64 Stat. 154 (1950), 42 USC 1871) i.e., "Each contract . . . shall contain provisions governing the disposition of inventions . . . in a manner calculated to protect the public interest and the equities of the . . . (contractor) . . ." *Supra,* note 5. Hearings at 214, 364, 427, 500, 562 and 571. The Electronic Industries Association proposed that the contractor retain title and the Government receive only a non-exclusive, nontransferable, royalty-free license to use patents developed in the performance of NASA experimental, developmental or research contracts. The Government could file for the patent if the inventor or his assignee elected not to file. While the proposed provision was silent as to whether NASA could demand greater rights or could obtain a royalty-free license in patents developed under supply contracts, it is clear the sponsors viewed the suggested language as establishing the maximum rights NASA could obtain. *Id.* at 318, 407 and 543: cf. also 546. A witness representing a Government contractor questioned whether the Government should even receive the royalty-free license. *Id.* at 247; cf. also 555. Still other witnesses proposed making the statute retroactive and requiring the Government to disclaim title to patents previously acquired. *Id.* at 343 and 557. The Machinery and Allied Products Institute urged that NASA be permitted to obtain title only to inventions which are (1) the product of or directly related to the contract research and development work, (2) of critical importance to space flight and technology and (3) *"only after the contractor . . . has refused to license others . . . under reasonable terms." Id.* at 570 (Italics supplied) Other industry and professional organizations, including the American Bar Association, and several leading Government contractors, which did not recommend specific statutory language, went on record as favoring adoption of a policy comparable to that of the Department of Defense. *Id.* at 239, 273, 313, 361, 436, 442, 469, 520, 533, 534 and 559.

[20] *Supra,* note 5, Cong. Rec. 11294.

[21] *Supra,* note 18 at 34 and 39. During the debate in the House of Representatives on H.R. 12049, 86th Cong., 2nd Sess., individual members of the Mitchell Subcommittee emphasized this fact. For example, see the statement of Representative James G. Fulton, Cong. Rec. 11285 (Daily Ed. June 8, 1960) Cf. also speech of Representative Daddario before the Federal Bar Association on Feb. 10, 1961. Cong. Rec. A 1122 (Daily Ed. Feb. 21, 1961). This conclusion by a majority of the Mitchell Subcommittee is all the more significant because the Subcommittee considered only the effect of the *Title Policy* on NASA. It expressly disclaimed any attempt to investigate and consider all the problems involved with the ownership of patents developed through the expenditure of Federal Funds. See Report at 27.

B. *Need for a Single Administering Agency*

If there is to be a single Government-wide definition of *public interest* to govern the disposition of patent rights, then of necessity there also must be unity in its implementation and administration. In other words, there must be one basic definition of *public interest* and one agency responsible for applying the definition to the specific discoveries and inventions. Where the authority should be lodged is a matter of detail [25]—except that it should not be in the contracting agencies.

In any specific case, the decision to obtain for the Government or release to the contractor title to a patent will involve issues which transcend the performance of the contract. Inevitably there must be considered the interplay of many other factors including, for example, the sociological and economic consequences of the decision. Contracting officers, harassed with the intricacies of the Federal procurement system, frequently have neither the time nor the competence to deal with these additional complexities. Nor should they be required to make such determinations. These issues are not directly related to the performance of their mission. The Department of Defense has stated publicly that identification of these elements is outside the Department's mission; that the Department is "much more" interested in the end item; the patent issue is a "secondary consideration." [26]

In addition, the question may reasonably be raised as to whether contracting officers would be totally sympathetic to anything other than a *License Policy*. To permit the contractor to retain patents both simplifies the contracting official's work and, possibly, secures a lower contract price. While the administration of the Government's patent policy could be placed in a higher echelon of the contracting agency where presumably a more considered judgment would be exercised, these decisions still would be handled by officials whose immediate interest is the procurement of the end item and not the disposition of any patents which may result from the performance of the contract. Moreover, consistency between procuring agencies would be lacking.

Vesting the function in a single agency would achieve still other benefits. A principal objection to the *Title Policy* is that under its operation no

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[25] The suggestion of a single administering agency is not novel. The Attorney General in his 1947 Report recommended establishment of a Government Patents Administration, assisted and advised by a Government Patents Board. The Board would be composed of representatives of industry, labor, education, the consuming public and one representative each from the Departments of Agriculture, Commerce, Interior, Justice, Navy and War, Federal Security Agency (now Department of Health, Education and Welfare), Federal Works Agency (now a part of General Services Administration), National Academy of Sciences, National Advisory Committee for Aeronautics (now NASA), Office of Scientific Research and Development (since abolished), Reconstruction Finance Corporation (since abolished) and the Tennessee Valley Authority. *Supra*, note 7, at 8, 144-146. More recent suggestions have contemplated less elaborate organizations which would be part of an existing Federal department or agency with a requirement that that department or agency secure the recommendations of the Small Business Administration as to the effect on the small business community and of the Department of Justice as to the antitrust consequences of any proposed waiver of the Government's claim to title. These, of course, are only two of many possibilities that merit consideration.

[26] Long Subcommittee Hearings. *Supra*, note 1, at 281 and 306.

also be recognized that although this patent policy debate has been in progress —intermittently to be sure—for almost a score of years, many of the meaningful facts on which the decision should be predicated are not yet known. Opinions (as distinguished from factual evidence) exist in abundance, but in the final analysis these are merely individual opinions based on individual experiences. Thus, there is a need for further investigation to uncover and isolate the controlling facts in order to achieve an equitable and workable definition.[29]

However, as we have said previously, it is possible at this time to establish the general framework within which the definition of *public interest* would fit. Congressional hearings, reports and debates indicate that the criteria for taking title by the Government or permitting it to remain (with or without restrictions) in the contractor should include matters such as:

1. Maintenance and promotion of a competitive economy;
2. Encouragement of economic growth;
3. Encouragement of the incentive to invent;
4. Acceleration of the rate of scientific achievement;
5. Effect upon the general public health, safety or welfare.

Apart from these more basic considerations, the disposition of title would also depend on such matters as:

6. Whether the field of technology is new or has been developed primarily by the Government;
7. Whether the contract work is essentially an extension of the commercial activity of the contractor so that the Government's contribution to any invention or discovery is of little or no significance;
8. Whether the contractor's background knowledge and experience is the consequence of Government-financed or Government-assisted activities; and
9. Whether a Government requirement of more than a non-exclusive, nontransferable, royalty-free license would preclude or seriously impair the Government's ability to obtain the contract work.

There are those who, reviewing similar recommendations, have proclaimed that they are essentially unusable contradictions. For example, they point out that public welfare may encompass everything that is done by the Government; that the maintenance and promotion of a competitive economy is a philosophical concept without finite boundaries; and that the Government's procurement programs are so extensive as to make it doubtful as to whether there can be any area in which the current state of the art is not predicated, to some degree, on past Government procurement activities.

We cannot concur. Certainly these criteria were not intended to be viewed in the narrow sense as absolute ukases. Rather, they should be viewed as statements of philosophy and a starting point from which the definition should be established after the needed facts are developed. As such, we believe they have merit and provide a sound basis for further action.

At first impression, it would seem that these necessary facts should be adduced by Congressional investigations and the definition, guidelines and

[29] *Supra*, note 15.

PATENT POLICIES OF THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Parke M. Banta *
Manuel B. Hiller **

The patent policies of the Department of Health, Education, and Welfare have been framed with the view that the purpose of Federal investment in research in the health and educational sciences, whether conducted intramurally or by public or private institutions through grants or contracts, is not merely to procure information for governmental operations. The aim of inquiry supported by the Department, for which expenditures of considerable magnitude are being made [1], is not achieved unless the benefit of that Federal spending is available to the entire public. To illustrate, if a drug or device of therapeutic value is developed through a Federal research grant, the grant purpose is hardly fulfilled merely by obtaining the inventor's permission (license) that the drug be used without the payment of royalty in Federal hospitals or otherwise in the treatment of the limited classes of persons receiving medical care from the Federal Government. Indeed, the health research programs would be excessively expensive and the entire concept of investment of significant sums of public money in all fields of research would be subject to serious challenge if they rested on merely getting better information to provide better treatment in Federal facilities or obtaining research results for use limited to direct Government operations.

The Department's patent program does not oblige the Federal Government to acquire ownership of all inventions. However, the Department requires that ownership be left to private persons only on a basis which will assure the broadest public benefit. Also, any exploitation of the invention must be under controls that will avoid repressive practices or in effect require the public to pay twice for the benefits. There are, of course, some situations where the best assurance that no exclusive rights can be obtained and used for purely individual private ends would be for the Department to obtain a patent which would then be dedicated to the public use. This role of Government as the supporter of private research for public purposes is clearly to be distinguished from its role as purchaser or procurer of materials or "hardware" where it may have no interest other than being free to utilize them.

The keystone of the patent policies of the Department is succinctly stated in its regulations:

It is the general policy of the Department that the results of Depart-

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[1] Appropriations in fiscal year 1961 for research and investigation in the Department of Health, Education, and Welfare total $407,238,600.

While the public welfare-oriented agencies of the Government were thus united in one organization, the Federal Security Agency which later became the Department of Health, Education, and Welfare, they nevertheless retained their separate identities and diversified statutory responsibility to make inquiry, research, investigate and share the results thereof with the general public. These statutory mandates were affirmed by years of operation under their policies and procedures as is indicated by the following examples.

A. *The Public Health Service.*

The Public Health Service was transferred from the Treasury Department, having originated as a Marine Hospital Service, by Act of July 16, 1798, and having expanded to include foreign and interstate quarantine and biologic control. It is continuing to expand its health research program each year in order to keep abreast of the giant strides and breakthroughs in science to which its efforts have substantially contributed. The broad directive given to the Surgeon General of the Public Health Service to carry out this work is illustrated by the opening paragraph of Sec. 301 of the Public Health Service Act: [7]

> The Surgeon General shall conduct in the Service, and encourage, cooperate with, and render assistance to other appropriate public authorities, scientific institutions, and scientists in the conduct of, and promote the coordination of, research, investigations, experiments, demonstrations, and studies relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and impairments of man, including water purification, sewage treatment, and pollution of lakes and streams.

He is further charged therein to

> Collect and make available through publications and other appropriate means, information as to, and the practical application of such research and other activities.

Similar authority was given to conduct, and cause to be conducted, research and investigation in the field of water pollution [8] and air pollution [9] and to make public the results of those programs.

B. *The Office of Education.*

The Office of Education was originally created

> to collect statistics and facts showing the condition and progress of education in the several States and Territories, and to diffuse such information respecting the organization and management of schools and school systems, and methods of teaching, as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise promote the cause of education throughout the country.[10]

It has since been given [11] broad research and investigatory powers and the

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[7] 58 Stat. 691 (1944), 42 USC 241.
[8] 70 Stat. 498 (1956), 33 USC 466-466k.
[9] 69 Stat. 322 (1955), 42 USC 1857-1857f.
[10] 14 Stat. 434 (1867), 15 Stat. 92, 106 (1868), 20 USC 1.
[11] 72 Stat. 1581 (1958), 20 USC 401-589.

grant field as early as 1940, and has been continued despite diverse pressures for a fresh approach.[21]

With this background, the Federal Security Administrator, in 1949, anticipating Ex.O. 10096 (1950), established an Agency Patents Policy Committee, consisting of representatives of the Social Security Administration, Office of Education, Public Health Service, Office of the Administrator, Food and Drug Administration, and the Office of the General Counsel, to study the patent problems of the Agency and to formulate recommendations for an Agency-wide patent policy. Upon the issuance of Ex.O. 10096 (1950), the Committee drafted an Agency Order [22] setting forth the Patent Policy and Procedures of the Agency, and in that Order, approved by the Administrator, the Agency Patents Board was established.[23]

II. The Department's Present Policy Governing the Disposition of Invention Rights.

The policy of the Department of Health, Education, and Welfare with respect to inventions developed by the Department or through its activities [24] is set forth in Parts 6-8 of its regulations.[25]

Part 6 of the regulations establishes the general policy of the Department, viz., to provide by publication or other means for free access to the results of Department research. It also provides the criteria for issuance of licenses under patents for administration of which the Department has responsibility.[26]

Part 7, covering employee inventions, insures that such inventions when directly related to the employee's official functions or to which the Federal Government has made a substantial contribution shall be owned and con-

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although neither it nor they have any interest in monopolizing inventions which may be made in the course of its studies and experiments, both have an interest in seeing that the inventions are not monopolized by anyone. . . . It is unthinkable that, where a valuable instrument in the war against disease is developed by a public agency through the use of public funds, the public servants employed in its production would be allowed to monopolize it for private gain and levy a tribute upon the public which has paid for its production, upon merely granting a non-exclusive license for its use to the governmental department to which they are employed."

[21] In 1947, the National Advisory Health Council (Established by Act of April 9, 1930, 46 Stat. 152) informally recommended in favor of leaving all invention rights to the grantee subject only to a reservation of a license to the Government. The growth of health research and the inquiry concerning Agency policy from the Department of Justice which was engaged in a study preparatory to the Attorney General's report and recommendation to the President in 1949, provided a further stimulus for reappraisal.

[22] FSA Order No. 110, dated July 10, 1950, (unpublished).

[23] After the establishment of the Department of HEW this Board was converted into the Department Patents Board and its functions expanded to include formulation and application of patent policy of the Department and to hear employee appeals from determinations of invention rights.

[24] The bulk of the Department's research activity is in the field of medical research which is carried out cooperatively with public and nonprofit agencies and with individual members of the scientific community. This activity is largely accomplished through the administration of a substantial number of grant programs involving many millions of dollars. For fiscal 1961, the appropriations to the PHS for research totalled $382,651,600 as compared to total research appropriations for the entire Department in the amount of $407,238,600. Anticipated obligations in fiscal 1961 for grants for research total $289,841,000.

[25] 45 CFR Subtitle A, Parts 6-8 (1960).

[26] 45 CFR 6.3 (1960).

Section 8.6 provides for similar disposition of invention rights arising out of the performance of work under research contracts. The same alternative provided to non-profit grantee institutions is carried forward in the contract area by a provision in the regulation [31] that contracts for research with non-profit institutions may leave the invention rights for disposition by the institution if its policies and procedures are acceptable as meeting the requirements applicable in the grant situation.[32]

There is one exception to the Department's policy against relinquishment of invention rights to a private contractor, *viz.*, where contracts with industrial profit-making organizations in the cancer chemotherapy program are involved. That program represents an intensified effort of the Public Health Service, with special appropriations made available under a Congressional directive, to explore exhaustively and rapidly the potentialities of chemical compounds in the control of cancer. Because of the peculiar exigencies of this program and in order that the resources of pharmaceutical and chemical firms may be brought to bear with a minimum of delay, an exception to general Department policy has been authorized [33] in the negotiation of industrial contracts for this program. In essence, that exception provides that in industrial research contracts in the cancer chemotherapy program, the contractor may accept either the standard patent clause which implements the general policy of the Department reserving the right of disposition of inventions to the Surgeon General, or a standard alternative clause leaving the right to patentable inventions with the contractor subject to certain limitations deemed necessary to protect the public's interest in the results of contracted research. The crucial provision therein (Sec. B.4 of the policy statement) reserves to the Surgeon General the right to either dedicate the invention to the public or to issue royalty-free, non-exclusive licenses notwithstanding and in derogation of any patent which the contractor had theretofore obtained. The exercise of that right is conditioned upon a finding that either the supply of the invention is inadequate to meet the public need, the price is unreasonable or its quality is insufficient. Moreover, the right is subject to certain procedural safe-guards which are specifically spelled out in paragraph B.4 of the Secretary's statement of policy.

There is thus provided a mechanism by which the public interest in any invention resulting from Government-financed cancer research is protected against insufficient supply to meet the public need, unreasonable price or in-

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issue sublicenses as provided in § 8.3, under any patent applied for or obtained upon the invention.

It is of interest to note that Mr. Ronald A. P. Guest, Patents Advisor, British Joint Services Mission, in addressing the Briefing Conference on Patents, Trademarks and Copyrights, sponsored by the FBA and the BNA, Inc., in Washington, D. C. on May 18/19, 1959, pointed out that, inasmuch as universities in England are not patent-minded, research contracts with universities usually contain a clause providing for assignment of rights to patentable inventions to the Government and the invention is exploited by the National Research Development Corp.

[31] 45 CFR 8.6 (b) (1960).

[32] 45 CFR 8.1 (b) (1960).

[33] 45 CFR 8.7 (1960): "Cancer chemotherapy industrial research contracts. Notwithstanding the provisions of § 8.6, the Surgeon General in the negotiation of contracts with other than nonprofit organizations for the cancer chemotherapy research program shall be subject only to such limitations and alternatives as the Secretary may approve for such program." And see, Patent Policy Statement of the Secretary applicable to Cancer Chemotherapy Industrial Research contracts, July 31, 1958.

research endeavor for which current appropriations are made is yet to be felt and that we are presently obtaining the results of past, less significant research appropriations. This would account then, not only for the small number of patents issued, but also for the comparatively few reported inventions. A total of twenty-eight patent applications were filed on behalf of this Department since 1950. On 9 patents issued to this Department since 1941, 31 licenses were issued. These figures, of course, cannot reflect the actual use of Government inventions, since many unpatented inventions have become part and parcel of the scientific progress of this nation.

IV. The Effectiveness of the Department's Policy to Meet its Objectives.

It is the conviction of the Department officials that its policy of making freely and generally available the benefits of research in lieu of relinquishing the patent rights to contractors is not only consistent with its program responsibilities, but is in the greater public interest. Additionally, the HEW policy provides the necessary flexibility to determine in each separate instance the relative equities of the Government *vis a vis* those of the employee, contractor or grantee, as the case may be.

Department officials are also of the opinion that the establishment of Government-wide, uniform criteria applicable to Government-supported inventions which would leave invention rights with the inventors, subject only to a non-exclusive, royalty-free license to the Government would not take cognizance of the different missions of the various Government agencies engaged in research and would frustrate the statutory mandate to make widely available to the public the results of Government-sponsored research in the health, education and welfare fields. It would confer upon Government employees, grantees, and contractors greater rights than are usually possessed by employees and contractors in private industry, since industry, as a matter of general practice, requires its employees, grantees, and contractors to assign all inventions conceived or developed which are directly or indirectly related to their assigned duties of employment or as specified in the grant or contract.

A policy which would proffer to the Government's employees the prospect of obtaining patent rights would not only discourage free interchange of information among researchers—and thus defeat the research objective—but would create inequities and diverse problems by conferring property rights upon one employee even though in the typical case in a modern laboratory, the invention is actually the result of collaborative group effort of many employees over a long period of time.

Perhaps of even greater significance, is the consideration that a contrary policy would create an incentive in the direction of private patenting and, thus, de-emphasize investigation and research in fields not likely to result in patentable inventions. This could seriously affect the entire research design so vital to the success of a comprehensive research program. Particularly in the health sciences, where the Surgeon General has a specific directive from the Congress to promote coordination and the practical application of research, the adoption of a contrary patent policy would seriously hamper this legislative purpose and

A PATENT LAWYER LOOKS AT CERTAIN FUNDAMENTALS OF A SOUND GOVERNMENT CONTRACT PATENT POLICY

Richard Whiting *

The Congress, through several of its committees, has carefully investigated and perceptively reported on the many complex factors which are involved in the decision of what to do about patents on inventions resulting from federally financed research.[1]

The press, on the other hand, has treated the subject superficially, it seems to me, to the point virtually of ignoring many of the factors involved and thus has arrived at a simple but unrealistic appraisal of the situation.

Without presuming to speak for the Government Patent Policy Study Committee, to which I shall refer, or any other bar group, I should like to state my personal observations of some of the fundamentals to be considered for proper appraisal of the question. What I have to say will come as nothing new to Congressional Committees which already have listened with patience to an array of patent lawyers, but it may be of some interest to those to whom the matter is one of first impression.

If the man on the street, reminded that the Government invests billions of dollars annually in research,[2] were asked whether the Government should acquire ownership of the patents on the inventions it buys and pays for, he would unhesitatingly answer in the affirmative. His conclusion would be dictated by a sense of fairness and by analogy to comparable dealings in industry.

It is common in industry to hire persons to make inventions under agreement to assign the patent rights to the employer.[3] The proposition that if one is hired to make an invention the patent should belong to the employer has its appeal as an inherently fair arrangement, since the contract of hire or for research has the making of the invention as its primary consideration. The converse, that an inventor who has been hired and paid to make an invention should be permitted to keep the patent and own it against his employer, seems inherently unjust. It would follow, and it usually does in industry, that if the inventor refuses to assign the patent on the invention he was hired to make, he may be compelled

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[1] See H.Rept. No. 1633, 86th Cong., 2d Sess., or H.R. 12049; Report of the Subcommittee on Patents and Scientific Inventions to the Committee on Science and Astronautics, on *Proposed Revisions to the Patent Section, National Aeronautics and Space Act of 1958;* Hearings Before the Senate Subcommittee on Monopoly of the Senate Small Business Committee, 86th Cong., 2d Sess., December 8, 9 and 10, 1959, on *Patent Policies of Departments and Agencies of the Federal Government.*

[2] See the National Science Foundation Publication 59-40, *Federal Funds for Science, VIII The Federal Research and Development Budget Fiscal Years 1958, 1959 and 1960.*

[3] Where a company rather than an individual is engaged to do the research, the custom as to assignment of the patent varies. See *In re Battelle Memorial Institute,* 127 U.S.P.Q. 289 Ohio Ct. C.P. (1960) where the patents were assigned; *contra* see, Hearings Before the Subcommittee on Monopoly of the U. S. Senate Select Committee on Small Business, 86th Cong., 2d Sess., December 8, 9 and 10, 1959, on *Patent Policies and Agencies of the Federal Government,* pages 446-452.

Government is not remotely interested either in incentive or in competition. It undertakes research for the purpose of solving its technological problems and of being free to use the results of the research. The patent right to exclude others is of no consequence as a motivation for Government research.

A second inducement of the patent system is the inducement to an inventor to disclose his invention, rather than to keep it secret. A cornerstone in the philosophy of the patent system has been that apart from the incentive to invent, the inventor should be offered an inducement to come forward with a written teaching to the world of the principle of his invention and a description of the best machine, process, or whatnot known to him by which his invention may be put into practical use. That teaching, in form a detailed disclosure, is a principal part of the patent document. The right to exclude derived from the patent furnishes the inducement to make the disclosure, with the consequent advance in the knowledge of the art. Courts have sometimes referred to a contract theory of patents under which the disclosure is the consideration moving from the inventor in exchange for the limited right to exclude as the consideration moving from the Government.[7]

But the Government in performing its research functions needs no such inducement. Obviously, patent considerations could properly have no bearing on the Government policy of disclosing inventions made in its behalf, or of keeping them secret, which is to be determined by other considerations, such as security.

Finally is the enticement to risk capital to invest in the promotion and exploitation of the invention. That this incentive exists and is an important motivating influence in the private commercialization of technologcal innovations, there can be no question, as the present controversy over patent rights would attest. But it is equally clear that such capital investment motivation has no place in the Government patent operation. It will do with its inventions whatever it considers in the public interest and will not be influenced in the slightest by a patent consideration, one way or the other.

4. What, then, *are* the patent needs of the Government in the performance of its procurement functions? Government purchasing is not affected by whether or not the Government acquires patents on the inventions which it sponsors. The Government has a sovereign immunity from injunction for patent infringement, as it has from any tort liability. By 28 USC 1498 it has consented to pay reasonable compensation for patent infringement, but that liability is effectively removed as to use for Government purposes of any invention growing out of its research, by the royalty-free license which contractors grant as a standard minimum requirement of all Government research contracts.

Thus, it is that the man in the street if asked whether the Government should own patents it pays for should pause to consider the question more intimately.

It may be, however, that the fault was not with his answer but with the question. Perhaps the question should be not whether the Government should own patents it pays for, but whether the Government should have contracted to

[7] See Fried. Krupp Aktien-Gesellschaft v. Midvale Steel Co., 191 F. 588, 594 (1911), cert. denied in 223 U.S. 728 (1912).

ing the invention to commercial acceptance and in the initial manufacturing and marketing operations to bring the commercial article to the consumer. The needed profit margin also depends upon the prospect that as soon as the article is brought out, it will be copied by others who have made no such investment and therefore can sell at a lower price. A patent is accordingly a factor in the exploitation of many, although, of course, not all, new products. To have vitality for that purpose, the patent must be owned privately and not by the Government.

The Congress, in its coming deliberations on these matters, may find situations in this unique area of Government patent rights which it feels require regulation of one sort or another. It is suggested that members of the bar have an opportunity to make a contribution, if regulation proves to be needed, in weighing the proposed remedy against the ill sought to be cured.

To illustrate, it has been said in the press that for the contractor to have the patent constitutes a policy of give-away to the contractor of a valuable property right, enabling him to reap unwarranted profits by high, monopolistic prices of the commercial adaptation of the Government research in sales to the taxpaying consumer who paid for the research in the first place. We have indicated our reactions to that proposition, but suppose we take it to be true. Let us assume that that is, in fact, an ill to be cured by legislation. The question is whether we would agree with the remedy prescribed by the press, namely, that the Government and not the contractor should for that reason have the patent.

We would agree that handing the patent right to the Government would be effective, but the reason for its effectiveness, in all likelihood, would not be because the article would be sold at a smaller profit, but, in some instances at least, because it would not be manufactured or sold at all. If excessive profits are the difficulty, the remedy should be specific and directed toward the profit question. The inquiry, properly focused, would be economic and the Congress would have to decide what less profitable arrangement could be substituted without diminishing the effective operation of the patent system in Government research.

What patent policy should govern the invention of unique importance to the private consumer, e. g. the dramatic protection against atomic fall-out invented under a Government research contract, where nothing short of immediate and wide public distribution will do? To decide requires first an appreciation that under our present patent law the Goverment has the right, akin to eminent domain, to manufacture and distribute any patented invention as it wishes without owning or being licensed under the patent.[8] The question then is what more is needed, and in deciding that, it is to be recognized that the hypothetical unique invention may not be the criterion by which properly to determine a Government-wide policy applicable to research having no such implications.

Perhaps it is not helpful to make the observation that the problem is complex, but it has proved to be, and that is due largely, I believe, to the difficulties in getting at the facts and examining them from the view of the interests of the various groups involved and affected. Apart from the Government, the research contractor, and the private consumer groups, whose interests we have touched on, not the least deserving of consideration is the inventor group, many of whom are research company employees and who, in the last analysis, should in some way feel the benefit of the incentive, whether or not in a monetary way, if it is to

[8] 28 U.S.C. 1498. See Crozier v. Krupp 224 U.S. 290 (1912).

TOWARD A SOUND NATIONAL POLICY FOR DISPOSITION OF PATENT RIGHTS UNDER GOVERNMENT CONTRACTS

*Elmer J. Gorn**

I. Introduction

The subject of the policies and programs of the United States Government with respect to intellectual property is one of extreme complexity. It involves the acquisition of rights with respect to inventions, trade secrets and copyrights from various sources including private contractors, universities, non-profit institutions, and Government employees, and the manner in which the Goverment uses such acquired rights. This paper will discuss one aspect of such policies and programs, namely, that which deals with the disposition of the rights to patents on inventions made by industrial contractors in carrying out work under contracts with the United States Government. Even within this aspect, there exists such a welter of apparently irreconcilable statements and claims that it will be helpful, at the outset, to define some of the terms which are being used in the current debate.

II. Nature of Patents and Trade Secrets

There are two separate principal economic tools which have been devised in the field of intellectual property for the stimulation and protection of technological creativity. These are patents and the legal protection afforded to trade secrets. While the two tools have a few common characteristics, they are for the most part diametrically opposite in nature and they must not be confused if we wish to think objectively about this subject.

A trade secret is first of all a secret which may be in the possession of one or several persons or groups of persons. Should the knowledge which constitutes the secret become generally known to that portion of the public interested in using such knowledge, its secret status disappears and it no longer is given the protection of the law. Secondly, such knowledge must relate to some aspect of trade, such as a formula or pattern, machine or process of manufacturing, or any device or compilation of information used in one's business and which may give to the user an opportunity to obtain an advantage over competitors who do not know or use it.[1] It requires only sufficient novelty over what is generally known to give it the character of an effective secret. "Proprietary information" and "proprietary data" are terms which have been used a great deal in recent years. "Proprietary data" is defined in the Armed Services Procurement Regulation, Section IX, as being limited to documentary forms of technical information. However, both "proprietary information" and "proprietary data" are forms of trade secrets and possess all of their characteristics.

A United States patent, on the other hand, must be granted and published before any exclusive rights to the invention involved are acquired by its owner. Once thus made public, the patent gives to its owner merely the right, for a term of seventeen years, to exclude others from making, using, or selling the

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[1] Mycalex Corp. of America v. Pemco Corp., 64 F Supp. 420 (Md. 1946).

one which does not depend for its existence and growth upon profits from its sale of goods or services. Included in the latter category are universities and foundations. Although industry supports and draws enormous value from such non-profit organizations, they cannot be considered as members of industry for the purpose of analyzing the problem of the disposition of rights to inventions made under Government contracts.

IV. Industry Opposes Government Taking Title to Contractors' Inventions

Ever since the Space Act of 1958 [3] was enacted with a requirement that virtually every invention made in the performance of any work under any contract with the National Aeronautics and Space Administration shall be the exclusive property of the United States, industry has left no doubt as to its unanimous opposition to such disposition of the contractors' patent rights. Large numbers of individuals representing professional and industrial associations and industrial concerns have testified before Congressional Committees and have published articles voicing such opposition in no uncertain terms.[4] These persons represented all kinds and sizes of businesses including small companies. In hearings [5] conducted by Senator Long, questions were asked of two small businessmen, which were evidently intended to elicit testimony in support of giving to the United States exclusive title to inventions made under Government contracts. While it was clear that these small businessmen were interested in obtaining technical information or know-how of the nature described as "trade secrets" above, they were completely disinterested in the disposition of the title to patents.[6] Certainly no small business representative has come forward to protest against the Government giving its contractors the commercial rights to patents on such inventions. It is quite evident that whenever we find a creative company with a history of making inventions with commercial potential, we encounter very strong opposition to the principle set forth in the Space Act of 1958, whereas when we find a company which does not make inventions, we find at most that it is disinterested in the manner in which rights to contractors' inventions are treated.

In considering the non-profit organizations, the author has been unable to find any record of how they stand in this matter. No representative of any university or other non-profit laboratory responded to Congressman Mitchell's invitation to testify before his subcommittee. In hearings on amending the Space

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[3] 72 Stat. 426 (1958).

[4] See for example, hearings before the Subcommittee on Patents and Scientific Inventions of the House Committee on Science and Astronautics, 86th Congress, 1st Sess. (1959). See also hearings before a Subcommittee of the Senate Select Committee on Small Business, 86th Cong. 1st Sess. on The Effect of Federal Patent Policies on Competition, Monopoly, Economic Growth and Small Business (1959).

[5] *Id,* Senate Small Business Committee Hearings.

[6] *Id,* p. 39.

"Senator Long. In view of the experience you have had in patent policy and in dealing with Defense, what would your recommendation be? Would you have a suggestion to make as to how you think the patents resulting from a R. & D. contract ought to be handled?

"Mr. Peirez. I think—I do not know, I may be the wrong man to ask this of Senator, because I do not think the patents in and of themselves are the prime factor."

Id, p. 64. "Mr. Stern. . . . A patent is not the backbone of most small businesses."

form the work, financial stability and reputation for reliability, and efficient operation resulting in lower costs.

These are the kinds of assets which are usually acquired only through the expenditure by the industrial concern, over a period of years, of much time, money and effort. In many cases these particular assets constitute the principal base upon which such concern relies for its continued economic existence and growth.

Anyone who is stricken with a serious disease, and seeks the services of a physician who has established a reputation as an expert in the field, expects to pay such a physician something more for his time and advice than would be paid to a pharmacist for filling the prescription given by the physician. Logic would seem to indicate that, when the Government requires the special capabilities outlined above to be found in a contractor before he can obtain a research and development contract, the Government should pay something for them. We shall see, however, that this is not done in practice and, in general, the Government pays nothing for any of these special values.

VI. Government Pays Nothing for Making Inventions.

What does the Government pay when it buys the creativity of a contractor under a research and development contract? If we turn to the Armed Services Procurement Regulation (ASPR E-211.5), we find that "If the contemplated end items are essentially development items—whether or not the contract is labelled a development contract—a fixed price type contract, whether firm fixed-price, fixed-price with escalation or fixed-price subject to price revision, with a ceiling, may prove impossible of performance within the contract price and may result in non-delivery of acceptable end items and in disaster to the contractor." Obviously, we cannot look to the fixed-price development contract for payment of the kind of return which a true purchase of creativity would require. As a matter of fact most research and development work is placed under cost-reimbursement type contracts.

A cost-reimbursement type contract may be a "cost contract" under which which the contractor receives no fee; a "cost-sharing contract" under which the the contractor receives no fee and is reimbursed only for an agreed portion of his allowable costs; a "cost-plus-a-fixed-fee contract" which provides for a negotiated fee in addition to allowable costs or; a "cost-plus-incentive-fee contract" in which some increase in the fee may be obtained depending on the extent to which the contractor is able to reduce the total allowable costs below target costs. Of course, only in the latter two types of contracts known as CPFF and CPIF contracts can the contractor expect to obtain any profit whatsoever. In the other types of cost-reimbursement contracts, since the contractor invariably incurs costs which are not allowable under Section 15 of the Armed Services Procurement Regulation, all such contracts represent a cash loss to the contractor.

Let us now look at the CPFF and CPIF contract experience. Mr. Coggeshall, Chairman of the Renegotiation Board, testified before a Senate Subcommittee,[12] with respect to a study made by the Board of 25 contractors whose total refunds through December 31, 1959 were the highest under the Renegotiation Act of

[12] Senate Procurement Subcommittee hearings, *Supra,* Note 10 Part II, p. 118 *et seq.*

ment work, the average contractor must use a much higher percentage of non-governmental facilities and therefore the return as a percentage of net worth is less than in other types of Government work where the return on sales is also higher. Of course, where the contractor makes no profit on sales of research and development work he also has zero return on the net worth involved. No matter how large or small the base, zero percent of the base is still zero.

When the facts are studied fairly and objectively, it is completely clear that in the profit sense the Government pays *nothing* for the making of inventions or the generating of new technological knowledge under its research and development contracts. Thus, it pays exactly the same or even less for an imaginative and creative execution of a research project than it does for the most routine and non-creative work. As one of the more candid Government agents admitted orally, the Government pays nothing for the creativity of its industrial contractors, but as long as industry is willing to sell its creativity without collecting anything by way of profit for it, the Government is not going to force its agents to pay for it. For a number of excellent reasons, which cannot be detailed here, it would be impossible for industry to adopt a position where it could command a fair price from the Government for such creativity. It is sufficient to point out that, at the present, the Government does not pay and, in the foreseeable future, does not propose to pay contractors anything for the making of inventions under the contracts which the Government places with industrial concerns.

VII. Reasons Why Industry Takes Government Research and Development Contracts.

If industrial concerns get so little money out of their Government research and development contracts, the obvious question arises as to why they take them. In many cases the Government finds there is keen competition between industrial companies for such contracts. There are a number of reasons for this. Some of these reasons will be discussed below, although not in order of their importance or significance.

There is first of all the patriotic motive. There are undoubtedly more company managements than the public is aware of which feel that their companies have new ideas which would be of value in the defense of the Nation and therefore that their companies must try to make concrete forms of these ideas available to the Government, whether or not the companies make any profit from doing the development work. While this may not be the only, nor the most important, motive in any case, it would be unrealistic to overlook it entirely.

Secondly, a strange inversion of the patriotic motive is to be found in the fear of public disapproval. Some companies, which do have a contribution to make in the governmental use area and which might be tempted to refuse to take research and development contracts because of the lack of any compensation to such companies, hesitate to refuse to do so because of their fear of such public disapproval. Usually, the larger the company, the more powerful is this fear. This is only one of the enormous pressures which the United States Government can and does exert, not only to get its research and development work done by those which it selects, but also to get such work done at, what often is, an un-

such inventions, is a drive to extract from the contractor, not only the information generated under Government contracts, but also all of the contractors background information, which he may have acquired at his own expense and by his own effort, with respect to anything which the Government buys, so that the Government may turn the information over to the contractors' competitors for the purpose of procuring the same goods from other sources. When this is coupled with the taking of title by the Government to the contractors' inventions, we find a virtually complete destruction of all hope that the contractor will be able to derive any commercial benefit from his Government work. As previously indicated, this article will not be able to discuss the data aspect of the problem in any greater detail.

When we examine the motivations other than money payments under Government research and development contracts, we find that none of them involve "payment" by the Government to the contractor for his creativity. These motivations merely give to the contractor those tools of free enterprise which he can profit from only by the exercise of the initiative, drive and the undertaking of risks which those who believe in our free enterprise system consider to be among the best aspects of that system. In attempting to preserve each of these motives, with the notable exception of the fear motive, the contractor is not attempting to take anything from the Government or from the public. The only things involved are those which the contractor, himself, has created. But for his creativity they would never have existed. All that the contractor asks is that he be permitted to retain some control over his creations, but only for non-governmental purposes, so that he may be able to build his commercial business on the basis of generating new and improved commercial products which will benefit the public as well as the contractor.

By now it should be clear that the argument that the Government should take title to the contractors' inventions made in doing work under a Government contract, because the Government has "paid" for them, is false because it is based on a false premise. The Government does not pay for such inventions at all. As a matter of fact, it already gets a great many valuable rights to such inventions without paying anything for them.

It is also clear that the United States Government has built up such enormous economic power and possesses such formidable tools of public pressure that, if Congress were to insist upon the Government taking title to its contractor's inventions, no company doing business in a field in which the Goverment buys any substantial amount of goods or services could resist. Yes, the Government has the power to take such a step and still continue to get its research and development work done, at least in part, by private industry. However, to do so would be unconscionable, but what is more important, it might well be a first step in the destruction of the American free enterprise system.

Despite the fact that the proposal for the Government to take title to its contractors' inventions has been in existence for many years, there is virtually no sentiment in favor of the proposal except within limited Governmental and Congressional circles. The unanimity of industry's opposition to this proposal has been described above. This leads one to wonder at the fervor with which the Governmental advocates of Government ownership are pressing their position and to conclude that such fervor arises from a mistaken concept of the

will be pointed out below that the contractor must have some effective commercial protection before he can afford to undertake such changes.

Under the proposal that the Government shall own the inventions, the contractor gets no commercial protection and so he must build his commercial future on some other basis. The supply of creative scientists and engineers is limited and therefore the contractor may feel that he must assign his best people to do work which will enable him to support his commercial growth. To the extent that the Government work is assigned to the less creative people, inventions needed by the Government will be reduced and the rate of progress in developing the military capabilities of the Nation will be restricted accordingly. However, faced with the probability that he may have to go out of business if and when Government business falls off, the contractor will probably be compelled to make this choice. If it were clear that some overriding public good would flow from such a situation, then Congress might be justified in requiring the Government to take title to the contractors' inventions. However, it seems clear that no such public good will result but rather the opposite appears to be true.

The patent stimulus operates, not only to generate inventions, but also to induce businessmen to undertake to do the work necessary to translate the inventions into new or improved products to be placed on the market and sold to the consuming public. Once an invention has been "made", in the sense that a full size model has been built and successfully tested, much work must be done before the public generally can buy the product which it represents. It must be engineered into a form which can be made by modern production methods at such a cost that it can be sold profitably at a price which the public is willing to pay. Usually special tools, jigs, patterns, machines and the like must be devised to carry out its manufacture. A demand must be created by public education, advertising and other types of sales efforts. Almost invariably the cost of transforming a completed invention into a saleable product greatly exceeds the cost of making the invention itself.

If, after a business has incurred all of the above expense, any competitor is free to copy the device, the copier, not being burdened with the development expense, may well be in a position to sell the copies at far less than the originator can afford to do. This would make it virtually impossible for the originator to recover his investment, much less make a reasonable profit on it. However, without patent protection, anyone is free to do such copying merely by buying one of the devices on the open market. Certainly it would be foolhardy for anyone to invest risk capital and effort in developing a new invention which faces such a situation.

If, however, the business organization is able to obtain commercial patent rights to the invention, then if someone were to copy the commercial product, the originating company could either compel the copier to take a license and pay a sufficient royalty to give the originator a chance to sell his own goods at a sufficient profit to recover his investment, or otherwise to obtain a sufficient income to justify the risk which the originator has taken. Alternatively, the holder of such patent rights could sue the copier for infringement and ask the court to enjoin further infringement and award damages for the past in-

in the world may make and sell anything to, or for use by, the United States Government without paying any attention to any patent which the original contractor may obtain on such invention and the Government pays the patent owner nothing on account of such activity no matter how extensive it may be.

What additional rights does the Government obtain when it takes full title to the patent? Theoretically, it obtains the right to exclude manufacturers from making, using or selling goods which incorporate the patented invention in their structure or manufacture. Actually the Government, which now owns thousands of patents, has never exercised that right of exclusion. Instead it has always offered royalty-free licenses to anyone and everyone who wished to practice the inventions involved. The reasons for this practice are clear and compelling. The possibility of the United States Government suing its citizens to stop them from making, using and selling goods, is so repugnant to our way of thinking that no attempt to do so has ever been undertaken.

Since all that a patent gives is the right to prosecute such a suit, and since the Government has never exercised that right, the taking of a patent by the Government gives to the patent no more effect than the publication of an article in a technical magazine. Everyone is free to use the information it contains and no one is concerned with being sued for such use. Obviously, under these circumstances, the patent incentive disappears and the positive values of that incentive are destroyed.

Over the years, a large number of schemes have been proposed under which the Government would administer its patents in some other way than by refraining from enforcing them by suing infringers. Such schemes are too numerous to describe or to analyze in this article. It is sufficient to point out that the political, social and economic difficulties involved in each such plan have been so great that nothing has come of them. Certainly until the Government makes some other use of the thousands of patents it already owns, it is futile to speculate that it somehow will devise a more effective use of the tens of thousands of additional patents which are now proposed to be taken from Government contractors. Obviously, we can look forward to a continuation of the practice which reduces each Government owned patent to a mere publication.

It is quite clear that the license, which the Government now takes from its contractors, is all the patent right which the Government needs and is all it can effectively use.

X. Specires of Misuse in Private Ownership of Patents.

The advocates of Government ownership of contractors' patents have raised a number of additional issues. Such advocates claim that by permitting contractors to retain commercial rights to their patents, the Government is supporting the creation of antitrust monopolies, is giving big business the tools to oppress small business, is forcing the public to pay more for the goods it buys, and is encouraging the suppression of new inventions. These are all horrendous sins and, of course, no one wants to express himself as being in favor of sin and against virtue. However, recognizing, as we should, that the Government does not pay its contractors to make inventions, it becomes clear

the implications to our economic system flowing from adoption of a policy of giving title to the Government.

XI. Inflexibility Harmful in Dealing with Government Contractor Inventions.

One of the issues which have been raised in considering what specific legislation Congress should adopt in the area under discussion is whether that legislation should prescribe one invariable rule which all Government agencies must adopt with respect to title to patents arising out of Government contracts. Many industry members are urging an invariable rule that the Government should never take any greater rights than are now provided in Section 9-107.2 of the Armed Services Procurement Regulation. Conversely, the Atomic Energy Act, the Space Act of 1958 and several bills introduced in the last session of Congress generally require the Government to take complete and exclusive title to all such patents.

Both extremes of inflexibility are basically unsound. The conditions and circumstances, under which the various Government agencies operate in contracting to have work done, differ widely. Furthermore, human imagination is incapable of foreseeing all of the possible circumstances which may arise. Any inflexible rule makes it impossible to take new and unexpected circumstances into account in dealing with this matter on a fair and equitable basis. However, to adopt a rule of complete flexibility would leave the Government agents, who must negotiate the contracts, with no guide in this very difficult area. Some guiding principles are sorely needed.

This is the dilemma which faced the House Committee on Science and Astronautics under the chairmanship of Representative Overton Brooks. The author of this article believes that the solution proposed by that Committee in the Bill HR 12049, the "Brooks" bill, is a proper solution to avoid the extremes described. It establishes the principle that the contractor should retain the commercial rights to his inventions *unless* there are sound and overriding needs for greater rights in the United States in the interest of the national security or the general welfare. The author believes that the statement of Congressional intent submitted with that bill goes too far in specifying circumstances under which the Government should take title, but industry generally seems to be convinced that, if that is the price which must be paid to induce Congress to pass the "Brooks" bill, industry would be willing to support it and to seek to live under its requirements.

XII. Program for Developing Sound National Policy for Government Contractor Inventions.

It is submitted that progress can be made most rapidly by the following program.

1. Reintroduce and promptly pass the Brooks Bill in the form as approved by the House of Representatives in the last session of Congress.

2. Have the Congress undertake a thorough and objective study of the entire subject during which all interested members of the public and of the

MANAGEMENT OF GOVERNMENT-OWNED INVENTIONS

Robert C. Watson *

The present Congress may well, and no doubt will, again attempt to devise a formula by means of which patent rights for commercially exploitable inventions developed as a result of the expenditure of Federal funds for research and development may best be divided, in the public interest, between the Government which furnishes the money and the research contractor which does the work. Committees of both House and Senate interested themselves, during the last Congress, in this question, testimony was taken, opinions of industrialists concerned, and many others, were received, but no new law was passed or policy statement agreed upon.

The problem under discussion was not a new problem. Laws providing procedures for determining title to inventions financed with the public funds supplied by several agencies to research contractors had previously been enacted but the remaining agencies were, and are now, free to exercise individual judgments in drafting research agreements.

Thus the Government, the largest corporation in the world, has no single over-all and certain policy defining the relative rights of Government and research contractors with respect to patents covering inventions financed with public funds, and no central management unit to implement any Government-wide policy which may be adopted. Dissatisfaction with restrictions upon its freedom of action in the area of patent rights caused NASA to seek relief in the last Congress, and its effort has stimulated widespread interest and debate. The problem will not solve itself if ignored nor become less difficult to solve with the passage of time.

While the value of the patent rights heretofore granted for inventions arising out of publicly-financed research has not been established quantitatively, the number of inventions developing yearly will no doubt increase as the funds expended become larger.

In 1959 the Government spent $5.4 billion for this purpose, this amounting to 57% of the total amount ($9.4 billion) spent by the nation in research and development, and in 1960 the total will no doubt be found to have been substantially higher. These funds were given, for the most part, to research groups in the aircraft and electrical equipment industries; but in each of five other industries between 25% and 50% of the total amount of research and development funds expended were advanced by the Government.[1] Although by far the greatest amounts have heretofore been and are now being expended by the Department of Defense and the Atomic Energy Commission, respectively, it may be reasonably expected that, in future years, increased sums will be spent by other major agencies of Government.

The several agencies which are charged with the responsibility of planning programs of research, must present these plans to the Congress and request

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* At the time of preparation of this article, Commissioner of Patents, U. S. Patent Office.

[1] National Science Foundation Report, Reviews of Data on Research and Development, December 1960.

Because the holder of the patent can exclude others from the practice of the invention which he has made, he can interest and protect capital and establish a business which may enable him in a reasonable time to recover his initial investment and also make a satisfactory profit. He is then in position to finance further developments, to provide employment for others, and to give the general public something of value, oftentimes something of the greatest importance to its well-being. Our technological proficiency, our excellent military posture and our high standard of living have been brought about in large part by the past beneficial operation of our patent system. Those who witness the inventor's successes are stimulated and improvements made by many who are thus encouraged to invent often follow in rapid succession—with resulting public advantage.

A patent is a public asset of great value when it is used as it is intended to be used and the fact that its holder may profit substantially because of his freedom from competition for a limited period is a happy circumstance which justifies the patentee's effort and encourages others to become active. The patent itself sells nothing and the public is always the ultimate judge as to whether or not the invention is worthwhile since it will not be accepted if not beneficial or if too highly priced.

When it is not put to the use intended, as when it is held by Government and the invention covered thereby is made available to all, the patent has but little greater value than any other printed disclosure of that invention.

As a result of past research and development activities by contractors who received public funds for their services, many inventions have been made for which patents have been issued. Some of these patents became the property of the contractor and some were assigned to the Government. While it is to be hoped that, in the future, research contracts will be so drafted, whenever possible, that the contractor will receive the resulting patent if an invention is made, it is only reasonable to expect, in the light of past experience, that there may be circumstances in individual cases which cause title to the invention developed by a contractor to be taken by the United States. Assuming that this is a reasonable surmise, and with the additional knowledge that many patents by Government employees will be assigned to the Government in the future, as in the past, the number of patents to which the United States has title should of course increase. It is already the holder of about 10,000 patents, more patents by far than are held by any single corporation or other patent owner.

Can those patents to which the Government has or will acquire title be used more effectively to promote the public interest than by merely calling attention of the public to their existence and inviting any interested person to exploit the disclosed invention without charge? That method has long been used with conspicuous lack of success. At least it has not generally caused capital to be risked in attempts to commercialize these inventions. The public benefits much more when it receives the patented thing than it does when it is merely given opportunity to read about it.

The alternative is to assign to individuals, if this is politically possible, those inventions and patents to which the Government has clear title, the document of transfer to divest the Government of responsibility of enforcing

3. The Board should, if it decides that the invention is to be patented, cause a patent application to be filed and prosecuted or, if it decides that the invention should be published and not patented, should determine when and where the publication should take place. These functions may well be performed by its own staff.

4. The Board should be empowered to sell patents, or grant exclusive or non-exclusive licenses, under such conditions as it may, in the public interest, and possibly subject to prescribed standards, deem to be necessary or desirable.

5. The Board should keep records of all kinds relating to Government-financed research including records of inventions developed as a result of the performance of such research, and of the disposal of any patent rights which may be granted for such inventions; should inform the public of its activities and be an information center to which any member of the public may apply in order to obtain information about Government-financed research and inventions developed as a result of such research.

6. The Board shall transmit to the Congress, annually, a report of its activities.

7. The Board should, upon the request of an Agency or Contractor, be authorized to review the patent provisions of any contract previously concluded between such Agency and Contractor and determine its meaning, such determination to be binding on the parties unless and until modified by order of court.

If the reader concludes that the proposals set forth above bear a close relationship to the proposals advanced by the National Patent Planning Commission in its Second Report, entitled "Government Owned Patents and Invention of Government Employees and Contractors" he will be correct in his judgment. The National Patent Planning Commission, headed by Dr. Charles F. Kettering thoroughly understood the nature of the problems associated with the disposition of Government-owned patents, both those patents covering inventions made by employees of Government and those patents acquired by Government as the result of the work of research contractors. The Chairman, Dr. Kettering, was a most practical individual and, while the problems faced in 1960 with respect to the disposal of Government-owned patents and inventions are much greater because of the large increase in expenditures by Government for research, they do not differ in kind from the problems faced by the Kettering Committee. However the suggestions set forth above differ from those of the National Patent Planning Commission in these, among other, respects:

1. The proposed Board would not dictate to the several agencies the provisions of the contracts to be made with research groups, the Agency Head responsible to the Congress for the performance of the research having the last say in this respect. However, the Board would work with and fully advise all contracting officers.

2. The present proposal is that the Board or central management group be given the authority to review all inventions to which the Government takes title, as soon as those inventions are made and title acquired

A GOVERNMENT PATENT POLICY FOR EMPLOYEE INVENTIONS

Wilson R. Maltby *

I. The Objective of a Patent Policy in Relation to the Inventor.

One can hardly contribute usefully to a developing national policy without advocating definite action toward a worthy goal, based, it may be, on a viewpoint not yet fully stated. Specifically, the Government employee will be considered.

The viewpoint here urged concerns personal motivation so that the public may gain from expanding, rather than diminishing, incentives for those who we hope will contribute improvements to a growing economy. The action urged is legislative enactment of provisions to enlarge these incentives for making innovations, discoveries, and inventions.[1] The goal is a fuller use of the creative abilities of American engineers and scientists, especially those who now have scant and fleeting impetus from our patent system, because they are the employees of Government [2] or industry. As such they may be under obligation to surrender all rights in their most important inventions if these are related to their assigned duties.

Our present national policy for promoting science and the useful arts may not reach a majority of those creating the inventions now patentable.[3] Those

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Editor's Note: This article was prepared prior to the issuance of Executive Order 10930 of March 24, 1961 (26 Fed. Reg. 2583—daily issue of Mar. 28, 1961) which abolished the Government Patents Board and transferred its functions to the Secretary of Commerce.

[1] The author is persuaded that the historically strong incentive of the U.S. patent system was a major force in building up of the American economy, and would like to see it both restored in the public esteem and extended to subject matter not now regarded as patentable. The provisions here advocated are in supplement to the patent system. They are directed to encouragement of employees beyond salary, since salaries, particularly under Civil Service and military pay plans, do not reward even the outstanding producers of new ideas, innovations and discoveries. The employee of industry may similarly go largely unrewarded for his improvements and inventions used by the Government.

[2] *The Government Employees' Incentive Awards Act,* 68 Stat. 1112 (1954), 5 USC 2121-23, was passed in recognition of this need. But this act, for a number of reasons, has not become a strong force for encouragement of the type of innovations, discoveries or inventions with which this discussion deals. During the Hearings on H.R. 7316, May 14, 1952, Chairman Archie M. Palmer, representing the Government Patents Board, recommended including in any resulting legislation; " 'all meritorious creative contributions, including inventions and discoveries of basic principles, which are useful in the performance of any governmental function or operation,' " and a central Inventions Awards Board within some existing executive agency was recommended to carry this out. *Hearings before Subcommittee No. 2 of the House Judiciary Committee on H.R. 7316,* 82d Cong., 2nd. Sess., ser. 16, at p. 34 (1952).

The act passed in 1954 placed in the Civil Service Commission the rule making function. Under present regulations those contributions directly related to the employee's duty may not be the subject of an award; the function is primarily local rather than under a board; the vast majority of awards are for minor or trivial, rather than significant, contributions; originality is not a prerequisite, often evaluation is by personnel or "industrial relations" officers rather than scientific or patent personnel; and because it is an act relating to civilian employees, military personnel are not included, and no provision is made for awards to employees of Government contractors, even though their work may be entirely for the public benefit as is that of direct employees of the Government.

[3] See *Distribution of Patents Issued to Corporations 1938-55, Study No. 3 under S. Res. 167,* 84th Cong., 2nd Sess. (1956), which shows about 40% of patents are now issued to individuals, while nearly 60% issued to corporations (including the Government). Mr. Robert C. Watson, Commissioner of Patents, reported to the American Patent Law Association at its meeting on

It seems in the public interest to include in any emerging national policy more effective means for stimulating the source of all ideas. This source may be more in the motivated imagination of the individual than in the corporate management or the directorship of a laboratory of the Government. If so, mere declaration of a policy on ownership either by Government or industry hardly reaches the core of the present need.[8] So long as we are in a struggle for survival through technical and scientific innovations the incentives of the past, while exceedingly successful, may not be enough.[9]

Two classes of inventors (enlarged to include innovations and scientific discoveries) are especially in need of further recognition, the *employees* of the *Government* and of *industry*. An interesting comparison may be drawn between the rights of the Government employee and those of the employee of industry. The former, under our executive policy, in a majority of cases, is permitted to derive a benefit from his invention, if he can find a commercial market, while his fellow-worker in industry finds no such hope so long as he is subject to an employee agreement to assign inventions to his employer. The Government employee is not subject to such an agreement. Instead, rights under his inventions are subject to provisions of Executive Order 10096 [10] which provides for a decision on the ownership of each invention, based on a stated executive policy and on equitable considerations which have been spelled out in court decisions. However, it should be kept in mind that the question of a public policy for Government employee inventions involves considerations which are not necessarily part of the legal reasoning of court decisions. In the absence of any contract or agreement the private employee is, of course, subject to court-established principles generally similar to those applying to Government employees.

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[8] The lone inventor may find reward in patenting his inventions under United States laws designed for his encouragement, tipping the scales in his favor as he seeks to compete with established industry. But advanced industrialization and the trend to development by large groups or laboratories have submerged the individual and often isolated him from these benefits, for he does not necessarily own any patent rights in his inventions whether he be an employee of industry or of the Government. The employee of industry may be required to assign his rights, either because of his contract of employment or because of the court decisions which apply the time-honored doctrines of the master-servant relationship. The employee of the Government likewise may or may not be required to assign his rights to the Government under the present policy. Furthermore, his inventions are often of application only in Government programs and may not have a ready commercial use. In most such cases the Government is entitled to free use and he may not collect any royalties except for non-governmental uses.

[9] For a critical review and some pertinent recommendations see Posnack, *Inventions, Patents and Society, and Evaluation and Re-evaluation,* 20 Fed. B.J. 263-73, at 271-273. Elsewhere much has been written of the decline in the stature of the inventor, both in the public esteem, and in financial benefits arising from his inventions. It is said that the professional inventor has nearly vanished from the American scene. A changing economy may require emphasis on aspects of personal contribution not now recognized for protection or encouragement under existing patent laws. The need for new means to this end may be as great now as when the Congress first passed a patent law to help build up an infant American economy.

Cf. Machlup, *An Economic Review of the Patent System,* S. Res. 236, 85th Cong., 2nd Sess., Study No. 15 (1958), which expresses uncertainty as to the value of the patent system. See also Melman, *The Impact of the Patent System on Research,* S.Res. 236, 85th Cong., 2nd Sess., Study No. 11 (1958), which asserts that the number of research scientists and engineers increased between 1941 and 1954 from 87,000 to 194,000 and the number of technical personnel from 42,000 to 691,000 while the number of patents granted decreased.

[10] Ex.O. 10096, 15 Fed. Reg. 389 (1950) 3 CFR 292 (1949-1953 compilation), states a uniform policy for the executive agencies of Government and provides for an advisory *Board* and an administrative *Chairman* to effectuate the policy.

Numerous analyses of the problem are available in publications devoted to patent law. The contrasting views are often expressed either as the "title theory" or the "license theory." [16]

Conflict within the Government over these questions has a long history. Several leading court cases have served as guides but relate to specific factual situations, leaving to adiministrators the problem of applying or distinguishing each case as the facts appear in infinite variety. No uniformity of approach emerged and different agencies applied the court rules with widely differing results. In an effort to resolve the problem the National Patent Planning Commission, under the chairmanship of Charles F. Kettering, was directed to study the question and recommend a policy.[17] The Attorney General was later requested to make recommendations, for which an extensive study was made. His report [18] reviewed the practices of the agencies and the various proposals for legislative action, none of which had been enacted into law. He recommended the establishment of a central agency, under the President, charged with Government-wide coordination to eliminate conflicts of policy and to establish and administer procedures for the uniform treatment of all employee inventions. His views met strong opposition on policy. Nevertheless, Executive Order 10096 [19] was signed to establish a Government Patents Board, with members appointed by the respective heads of ten of the agencies most concerned with the problem. It placed all authority for carrying out the prescribed function in a Chairman [20] appointed by the President, the Board being advisory.

III. Procedure for Rights Determinations Under Executive Order 10096.

A. Introduction.

There was thus established a governmental policy for allocation of rights in employee inventions, except as otherwise provided by law.[21] In any summary of

[16] For a comprehensive review of each theory and a middle ground based on an analysis of court decisions, as well as the need for legislation to resolve the basic issues see Finnegan & Pogue, *Federal Employee Invention Rights—Time to Legislate*, 55 Mich. L. Rev. 903-66 (1957), 40 J. Pat. Off. Soc'y, 252-89 and 322-54 (1958). For a different view on legislation see Forman, *Federal Employee Invention Rights—What Kind of Legislation?*, 40 J. Pat. Off. Soc'y, 468-81 (1958). See also Forman, *Patents—Their Ownership and Administration by the United States Government* (1957), and Part I, *United States Patent Ownership Policy and Some of its Administrative Implications*, 38 J. Pat. Off. Soc'y, 380-424 and 478-500 (1956).

[17] Ex.O. 8977, Dec. 12, 1941. A report was submitted in three parts in 1943, 1944 and 1945, respectively, advocating a policy generally within the "license theory."

[18] *The Report and Recommendations of the Attorney General to the President* was published in three volumes in 1947. It advocates the "title theory," and states *inter alia* in the Summary (Volume I, P. 2):

> ". . . [T]he ownership of patent rights is not a necessary form of incentive to the great majority of Government scientists and technicians."

It further recommends avoidance of any system of financial rewards, promotions or salary increases to employees on account of their making patentable inventions, for several reasons, but states that (at p. 3):

> "2. A general system of cash bonuses, promotions and salary increases for meritorious suggestions or ideas, regardless of whether they are patentable or not, would be free of these objections and may tend to remedy any inadequacies in the salary structure.
> 3. A valuable form of incentive and award for outstanding scientific contributions and suggestions within the Government would be public, official and professional recognition of meritorious contributions."

[19] *Supra* note 10. For historical development see Forman, *Patents Their Ownership and Administration by the United States Government, supra* note 16.

[20] Chairman Archie M. Palmer, June 1950-June 1955; Chairman Benjamin B. Dowell, July 1955-Nov. 1958; and Chairman Robb S. McLaughlin, Jan. 1959 to date.

[21] The Atomic Energy Commission is excluded in the Executive Order. Two other agencies are construed as excluded because of provisions of the acts creating them: The Tennessee

instructions issued [30] or approved [31] by the Chairman, and makes a preliminary determination of the rights of the inventor and of the Government, and notifies the inventor of this determination. The employee has a right, within 30 days of notification, to appeal from such determination to the Chairman,[32] who may approve, reverse or modify the agency determination.

If the agency determines that the Government should leave any rights in the employee,[33] a report is made to the Chairman for his review,[34] both on the right of the Government to an assignment of all rights and on the right to assert a royalty-free license for all governmental purposes,[35] or otherwise leaving all equitable rights in the employee.[36] The general requirements for reporting are set out in Administrative Order No. 5 as supplemental by Procedural Instructions.[37] But if the agency requires an assignment to the Government of all rights under the invention and no appeal is taken by the employee, the Chairman has no further duty to safeguard the interest of the Government, or of the inventor, and a report of the facts by the agency is not required.[38]

The Executive Order also provides [39] that when Government is entitled to full ownership of an invention the agency concerned shall either file a patent application thereon or make a full disclosure thereof to the Chairman, who may cause such an application to be filed,[40] or may cause it to be published.[41] Such a report [42] is reviewed by the Chairman to determine whether the Government interest is thus protected, usually without a decision on the substantive right of the

[30] Ex.O. 10096 (note 10 *supra*), para. 4 (b), provides that after consultation with the Government Patents Board the Chairman shall formulate and submit to the President for approval such proposed rules and regulations as may be necessary or desirable to implement and effectuate the policies, together with the recommendations of the Government Patents Board. Administrative Order No. 5, 37 CFR 300.1 to 300.11 (hereafter cited as A.O. 5 § —.) sets out the substantive provisions of Ex.O. 10096, and the present basic procedure. It was signed by the President, April 26, 1951. See also *Revised Procedural Instructions* issued pursuant thereto, Jan. 10, 1955.

[31] Each agency prepares its own implementing regulations or instructions to carry out the intent of the Order and these are subject to the approval of the Chairman, Ex.O. 10096 (*supra* note 10), para. 6.

[32] A.O. 5 § 300.7 provides that the employee may appeal either from a determination that the Government is entitled to all rights or to only a free license under the invention. The agency may already have secured the employee's concurrence, but if not, a 30 day period is provided for appeal from the agency determination, after which he need not be granted further consideration. Accordingly, the agency holds the determination for 30 days after notification and thereafter forwards it to the Chairman.

[33] Whether under Ex.O. 10096, para. 1 (b) or para. 1 (d); (A.O. 5 § 300.6 (b) 2, 4).

[34] This is required by A.O. 5 § 300.6 (c), and referred to as a "Report 6(c)."

[35] The Chairman also reviews the equitable right of the Government to the license if it is decided that no right of assignment should be asserted. Ex.O. 10096, para. 1(b), *infra* note 74.

[36] If there is no basis in the reported facts for asserting any rights in the Government the entire right, title and interest is left in the employee *subject to law,* Ex.O. 10096, para. 1(d) *infra* note 74.

[37] See note 30 *supra.*

[38] Elimination of the reporting of facts in such a case was intended to ease the administrative burden when no contest as to rights was in prospect and a patent application would be filed subject to a recorded assignment. A.O. 5, *supra* note 30.

[39] Ex.O. 10096, para. 2 (a), *supra* note 10.

[40] In the absence of funds or staff for this purpose the authority is seldom exercised except by forwarding such disclosures to possible interested agencies for their filing if deemed appropriate to their purposes.

[41] Under current procedures publication is at the instance of the agency or of the employee who may be seeking professional recognition.

[42] A.O. 5 § 300.8 (e); referred to as "8 (e) reports."

to the Chairman, and a copy is provided for the employing agency. No form is prescribed for this appeal and the employee may prepare it himself or seek the help of an attorney. In many cases the appeal from the agency determination is forwarded through the same office which prepared the original determination of rights.[52] If, upon review of the employee representations the agency concludes that the inventor is entitled to retain ownership of an invention [53] previously considered to be assignable to the Government, it may prepare a new determination and a report [54] to the Chairman for his review as though no determination to take title had been made. If, however, the agency is still of the view that an assignment should be required, its reviewing official, or the Liaison Officer,[55] may advise the employee as to the procedures for an appeal, and advise him in preparing a complete appeal statement. This statement of facts and reasons is forwarded to the Chairman, with a copy to the agency, which files a statement of its views in response thereto.[56]

D. Determination By The Chairman.

The Chairman is provided in each appealed case with copies of the original agency determination, the appeal statement of the employee and the agency response. Henceforth, such a case is treated as a disagreement between the agency and its employee, each party having a right to present whatever additional factors it believes to be pertinent. When no disagreement as to the facts appears, the Chairman may decide the issue on the record before him, or may request additional information to clarify any doubtful points. In case of dispute as to the facts, the Chairman may set an informal hearing at which both parties may appear and present their views with any supporting documents deemed important. His decision, however, is not limited to facts thus presented and he may seek information from any other available source. His decision statement analyzes the factors and applies the policy of the Executive Order consistent with pertinent court decisions. The decision is administratively final,[57] but he may reconsider or grant a further hearing at his discretion where an adequate reason therefor is presented,[58] or he may decline to reopen the case. No decision of the Chairman has been reviewed by a court.[59]

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[52] The reason for this lies in the fact that the attorney or administrative office charged with the determination seeks to treat all employees fairly and is willing to undertake all work of investigating and restudy of a case necessary to satisfy the inventor of fair consideration. Equally significant is the need to secure the open and frank disclosure of the circumstances under which the invention was made, and the inventor is often the sole custodian of the pertinent facts. The attorney or official in charge of the case may serve first as an investigator in setting down the facts, then in a quasi-judicial capacity to apply the legal principles to the facts in the agency report to the Chairman.

[53] A number of agencies have internal review boards which consider the circumstances of each reported invention and formulate the agency determination.

[54] *Supra* note 34.

[55] Each agency appoints a Liaison Officer to transmit all reports, receive decisions of the Chairman, and serve as the coordinating official for the agency.

[56] A.O. 5 § 300.7 (b), referred to as a "7 (b) report."

[57] Ex.O. 10096, para. 4 (d).

[58] Several presentations of this type have been permitted where the reasons for the Chairman's decision were questioned or new facts were brought in, but no decisions once rendered after appeal have yet been abated or withdrawn upon such reconsideration.

[59] In the Hearings, *supra,* note 22, the Chairman stated his understanding that the right to such an appeal could not be denied on legal principle.

The reasons for the agency determination are of primary importance and constitute the body of the report. Since the Chairman is charged with uniform application of the policy, he requires a sufficiently detailed account of circumstances under which each invention was made to permit a decision *de novo* in every case. In a majority of all cases submitted the agency has determined that the Government is not entitled to an assignment, but already has an executed license of prescribed type. A full review of the factors which would require the reservation of a license is therefore unnecessary, except as they may also bear on the right of the Government to an assignment of all rights. A report simplified in the interest of economy and omitting non-pertinent details may then be made as provided for Special 6 (c) Reports.[67]

The duty to establish and administer a uniform policy is accomplished primarily through consultations and decisions rendered by the Chairman. The number of his decisions now exceeds 3500, of which about 80 were on appeal or determination to publish a Government-owned invention in lieu of filing a patent application, or upon request for reconsideration of a prior decision. The agency determination has been reversed in some 200 cases and modified [68] to some degree in a slightly larger number of cases. The high percentage of concurring decisions indicates a growing uniformity of practice not existing prior to the Order,[69] and the result of application by the agencies of the principles clarified in earlier decisions of the Chairman. Since the agencies do not regularly report those cases in which they have determined that the Government should assert title,[70] unless an appeal is taken, figures are not available to show how uniform their practice in that respect may be.[71]

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reduction to practice was necessary (1) to determine the operability of the invention, or (2) to test its utility to the government, or (3) to determine the interest of the Government in its use for governmental purposes.

"(c) When the invention was made, wholly or partially, during working hours, with a contribution by the Government of facilities, equipment, materials, funds, or information, or of time or services of other Government employees on official duty, and there is a presumption that the Government may be entitled to assignment of the invention, each of these criteria shall be either specifically explained or negated. When there was no contribution by the Government to the making of the invention, each of the above criteria shall be specifically negated, to avoid any question as to the sufficiency of the report.

"(d) When the invention does not bear a *direct* relation to the official duties or a specific written or oral assignment of the inventor, the agency shall state the precise relation, if any, the invention does have to the duties or assignment of the inventor. The mere statement that "the invention does not bear a *direct* relation" is not sufficient.

"(e) Reports shall clearly indicate whether (1) title to the invention be left in the inventor subject to a license to the Government pursuant to paragraph 1(b) of Executive Order 10096, or (2) the entire right, title and interest in and to the invention be left in the inventor pursuant to paragraph 1 (d) of Executive Order 10096."

[67] *Id.*, § V.

[68] Many of these modifications arise in cases in which the agency did not determine whether the Government would be justified in requiring a royalty-free license, because one had already been obtained, but in which the facts reported presented a clear case. Such decisions, though not essential, are nevertheless made by the Chairman in the interest of providing a maximum of guidelines for future agency determinations.

[69] *Supra* note 18. The Attorney General's finding was that a very wide divergence in practice occurred between agencies, and even within some agencies, leading to the conclusion that there was then no recognizable policy. See also note 16, *supra*.

[70] A.O. 5, *supra*, note 30, signed by the President, effectively waived the requirement for regular review or the reporting of such agency determinations.

[71] In some departments and services research and development personnel may usually be limited to work specifically assigned. Inventions coming out of such work, and that therefore bear a direct relation to the duty assignment, fall clearly within the first principle of Part II hereof. Inventions in those activities are subject to assignment to the Government in a dispro-

requirement that, when *any one* of the factors named therein is found applicable to an employee invention, the Government *shall* obtain the entire right. It was clear that such an interpretation would run afoul of prevailing court decisions [75] and that a constitutional question would need resolution under such an interpretation.[76]

Furthermore, paragraphs 1 (b) and 1 (d) must obviously be considered in applying the provisions of paragraph 1 (a). In effect, they must be read as modifications of the title requirement and the paragraph read instead in its entirety. Therefore, each Chairman has sought guidance from pertinent court decisions in determining whether the contribution of the Government as measured by paragraph 1 (a) criteria is sufficient equitably to justify a requirement of an assignment of the entire right to any such invention. These views were the subject of many meetings of the Board,[77] and the advisability of construing the Executive Order in this way met with widespread, though not universal, approval.

Accordingly, it has been the practice of the Chairman to treat each reported case as requiring the balancing of the equity of the Government against the equity of the employee. The small number of appeals and petitions taken from the decisions of the Chairman may indicate considerable success in his endeavor to treat the opposing equities fairly and impartially.[78]

B. The Chairman's Application of the Order's Criteria.

The Chairman does not consider the alternative reasons for assertion of title recited disjunctively in paragraph 1 (a) *as individually sufficient* and, therefore, reads them together. For example, the mere making of an invention during working hours is not construed as justifying asserting full rights in the Government, nor is a contribution by the Government of facilities, equipment, materials, funds, information, or the services of employees on official duty. If, however,

ordinate, or review Government financed or conducted research, development work, or both, or (iv) to act in a liaison capacity among governmental or non-governmental agencies or individuals engaged in such work, or made by an employee included within any other category of employees specified by regulations issued pursuant to section 4(b) hereof, falls within the provisions of paragraph (a), above, and it shall be presumed that any invention made by any other employee falls within the provisions of paragraph (b), above. Either presumption may be rebutted by the facts or circumstances attendant upon the conditions under which any particular invention is made and, notwithstanding the foregoing, shall not preclude a determination that the invention falls within the provisions of paragraph (d) next below.

"(d) In any case wherein the Government neither (1) pursuant to the provision of paragraph (a) above, obtains entire right, title and interest in and to an invention nor (2) pursuant to the provisions of paragraph (b) above, reserves a non-exclusive, irrevocable, royalty-free license in the invention with power to grant licenses for all governmental purposes, the Government shall leave the entire right, title and interest in and to the invention in the Government employee, subject to law.

"(e) Actions taken, and rights acquired, under the foregoing provisions of this section, shall be reported to the Chairman in accordance with procedures established by him."

[75] Leading cases are carefully analyzed in Finnegan & Pogue, note 16, *supra.*

[76] Hearings, *supra,* note 22, pp. 25-26.

[77] The minutes of Board meetings are preserved in the files of the Chairman. They show wide variations of viewpoint and the Chairman's procedures evolved in the light of these discussions.

[78] Note should be made of the fact that the criteria, upon examination, appear to justify a less favorable view toward the rights of the employee than is taken by the Chairman so that the employee may be led to believe that he has little to gain by an appeal, lest a stricter view be taken, while, from the agency viewpoint, the decision of the Chairman is administratively final and binding upon the agency, he may be requested to reconsider.

In the matter of deciding whether the Government should receive a license as specified in paragaph 1(b), or no rights as in paragraph 1 (d), consideration is given to whether the Government would be entitled to a license under "shopright" principles developed in the pertinent court decisions. The Order provides no specific guide, except that the Chairman takes reported contributions of any of the types included in paragraph 1 (a) as adequate basis for the assertion of a license under paragraph 1 (b), unless these are not significant in the making of the invention.[80]

When no factors reported indicate any significant contribution by the Government of time or other named factors the Chairman holds that title should be left with the inventor "subject to law." [81] Because some employees have mistaken the meaning of such a decision the Chairman now avoids its use and employs other decision language whenever the reported facts show a license or right due to some specific factor reported. Accordingly, fewer decisions are now of the 1 (d) form.[82]

V. What Changes of Policy are Suggested by Experience?

In looking at the results of the policy and the problems remaining we note that complete uniformity has not been achieved,[83] and could hardly be expected.[84]

A further problem of concern to each Chairman has been the question of the *objective of any policy which declares inventions the property of the Government,* if to do so makes the disclosure of other inventions and their utilization by the public more unlikely as many experts assert.[85] *The ultimate success or failure of this policy may depend upon what use is to be made of the ownership rights gathered in the hands of Government. But on this vital matter there is*

[80] The question of when an invention is "made" for purpose of the decision has been of significance. Under the pertinent court decisions the reduction to practice of an invention is regarded as part of making it. Some invention reports are made to the Chairman before this has occurred and his decisions must consider the equities then existing. Furthermore, sometimes the disclosure of a complete and clearly operable invention unrelated to the inventor's duties is built and tested without his consent or knowledge, and to assert a Government right because of unauthorized Government action beyond his control would obviously be inequitable. See also *Interpretations and Opinions No. 1 of March 5, 1951,* which provided that any inventions conceived and adequately described in writing prior to the date of the Order would be excluded from consideration thereunder. That definition is not now regarded as controlling.

[81] See *Interpretations and Opinions No. 4 of Mar. 11, 1954* for the meaning of *subject to law.* Such a decision does not negate any right derived from purchase, statute or other principle of law, e.g. 28 USC 1498, 35 USC 266, 35 USC 4, 42 USC 1811, 16 USC 831(d).

[82] The majority of the reported cases are subject to provisions of 35 USC 266 with a license already granted. The decision may then state that title is left in the employee subject to the license already granted.

[83] *Supra* notes 50, 71.

[84] Complete success is necessarily limited by the fact that different administrators see the facts differently and apply the rules according to their individual backgrounds. The Chairman receives his reports from officials who are generally overburdened with administrative detail and with insufficient time for investigation of all aspects of each case. What is not reported cannot enter into the Chairman's decisions, unless through some insight from prior related circumstances. The factual reporting and agency determinations show a high degree of conscientious effort to treat all fairly and to present the pertinent facts for decision on the merits of each case.

[85] This view is widely held, e.g., concurring opinion of Judge Frank in Picard v. United Aircraft Corp., 128 F.2d 632, 642 (2d Cir. 1942), cert. den. 317 US 651 (1942); Remarks of the Commissioner of Patents, Hon. Robert C. Watson, *Report of Army Patent Conference,* p. 143; and others documented by Finnegan & Pogue, *supra* note 16, pp. 946-52 and notes 141, 143, 145, 147. See also notes 15, 26, *supra.*

Awards Act.[91] One example is found in the Bundestag (Diet of German Federation) law of July 25, 1957.[92] It provides for payments for inventions of employees and proposals for technical improvements whether in the civil service, military service or in private industry. These payments are conditioned on the degree to which the employer retains control of the inventions and proposals. This law provides for detailed rules to be issued by the Federal Minister of Labor for determining the amounts to be paid at least as to those inventors in private enterprise.[93]

Several Eastern European countries whose industries are not wholly socialized have adopted very interesting measures for encouraging inventions, and extending employee awards to include innovations and discoveries.[94] These measures seem to have aided or produced such results as the conversion in a few years of agrarian economies into exporters of technology.[95]

Our own recent efforts at encouraging inventions among employees of the Government are feeble in comparison with those indicated above and do not extend to all of the private sources of even our presently recognized fields of patentability. Some concern over this matter is evident in both the Senate [96] and the House of Representatives.[97] It is not clear whether the pertinent German Federation experience has been much examined, but it seems quite applicable to the

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[91] 68 Stat. 1113 (1954) 5 USC 2121-23. This Act is limited in coverage and the awards not usually effective. Its time limits usually exclude consideration of inventions. See also note 2, *supra.*

[92] *Supra* note 4.

[93] *Bundesanzeiger;* No. 156 of Aug. 18, 1959.

[94] Katzarov, *The New Structure of the Protection of Industrial Property in Eastern Europe,* 42 J. Pat. Off. Soc'y, 596-620 (1960).

[95] *Id* at 612, e.g., Roumania and Bulgaria; at 611 he states:

> ". . . the State has taken, in the countries of Middle Eastern Europe, very important steps towards creating the best possible conditions for the development of creative activity. . . . Such measures have not been taken in vain. Already large numbers of workers bend their efforts toward possible innovations . . . and spend their time on research. . . ."

and at 599-602 shows that most such Middle Eastern European countries have moved in this direction.

[96] In introducing a general awards bill (S. 898) Senator Leverett Saltonstall said, 105 Cong. Rec., 1661:

> "Reward for constructive effort has been a basic premise of the free enterprise society. . . . [T]he inventor has been compensated for it inadequately, or in some unfortunate cases not at all. . . . We cannot expect to exploit the scientific barriers of the future by simply designating a group or an agency of the Government to be responsible. We must have the contribution of all our talented citizens wherever they may be. . . ."

[97] In a recent article discussing procurement regulations and the contributions of Government and its contractors, Congressman Erwin Mitchell said:

> "The free enterprise system which has made the United States the wealthiest and most powerful nation in the world is based upon competition. The ability of a manufacturer—small or large—to compete successfully against another is based upon the legal protection of his basic ideas and the national recognition of his proprietary rights and know-how for manufacture.
>
> "Incredibly enough, while our Government is fighting desperately to uphold and maintain the cause of free enterprise throughout the world and to stimulate the greatest possible advances in our production technology, some Government-sponsored inequities appear to be destroying the very ability of industry to compete.
>
> * * * *
>
> "In this era of greatly complex devices and engineering feats in fabrication, all too often the contributions to the invention made by the inventor and by his employer are disregarded. . . ."

Mitchell, *Patents Rights-Path to Progress,* 16 *Aerospace* No. 7, Aug. 1960.

provements. This would require legislation of comprehensive nature, including financing, and should be based on extensive expert testimony.

4. In addition to the improved incentive structure now urgently needed the present policies require some clarification by the Congress. If the Government is to adopt a "title" policy or a modified title policy, and assert ownership of inventions financed at public expense, *some* policy for their use should be declared, whether by a Government corporation or other agency charged with promoting utilization of patents, or by declaration that Government-owned patents are dedicated to the public. Such a declaration of policy seems essential to an adoption of a national policy on the criteria which will indicate whether such inventions are, or are not, the property of the Government, and such policy would aid considerably in the formulation of the criteria themselves. The declaration of what use is to be made of exclusive patent rights acquired is a *policy issue* in considering employee inventions, as it is for contractor inventions.

To examine the license and title policies in operation, we had to go to the experiences of the Department of Defense and of the Atomic Energy Commission. The much controverted policy of the National Aeronautics and Space Administration has been in effect only since 1958; hence NASA's experience is too short. All of the other federal agencies have little patent activity—from contract R&D. Some of these agencies have hundreds of titles to employee inventions and to inventions stemming from R&D carried out under grants. But apart from DD and AEC, the number of licenses and titles from contract R&D with profit-seeking organizations is so small that it is hard to see a serious problem of public policy. The number is also too small for meaningful generalizations on the results of the two policies.

To examine the operation of the license policy of the Department of Defense, we decided to use a sampling procedure. DD has had many thousands of R&D contracts; to look at all of them would take much time and effort. We had two choices in selecting a sample. One was to take a sample of R&D contractors, and to find out how many of them acquired title to patented inventions, what kind of inventions these are, how they have been utilized, what have been the benefits received by the contractors, and so on. But we chose a simpler and more direct method, which was to go to the patented inventions themselves, and to take a sample of them. It was possible to do this because the Department of Defense had supplied the Commissioner of Patents with lists of patents or patent applications growing out of technological developments financed under contract by DD. For the patents represented on the lists, DD had received confirmatory licenses or assignments during the period from July 1, 1951 to December 31, 1957. From the thousands of patents, a random sample was selected. The sample is small, but statistically adequate.

A questionnaire was sent to the business firms, research organizations, and universities owning the patented inventions that turned up in the random sample. The questionnaire had four groups of questions. One group was about the contractors themselves—their sizes, their R&D activities, and their patent activities. A second group of questions was about the sampled patented inventions. Had they been put to actual commercial use? If so, with what results? If not, for what particular reasons? A third group of questions had to do with contractors' attitudes and opinions. How important do they consider the patent rights in R&D contracts? How valuable are these rights? Would they refuse R&D contracts containing the title policy? Other questions sought responses on industry's attitudes toward conceivable modifications of the license and title policies. Finally, the DD contractors owning the sampled patents were invited to submit case histories of inventions (not necessarily those turning up in the sample) originating from federally-financed R&D, inventions that later acquired important commercial use.

To analyze the patent policy of the Atomic Energy Commission, the sampling procedure was not feasible. Instead, we examined the abundant materials published by the Commission on the operation of its patent policy.[1] But the literature expressing opposition to the Commission's policy contains hardly any specific materials to give strong factual support to the opposition. To see if

[1] The major source is *Selected Materials on Atomic Energy Patents*, Joint Committee on Atomic Energy. Congress of the United States (Washington, D. C.: GPO, 1959), Vol. I.

The improvement of technology means new products and processes, improvements on existing ones, and reductions in costs of production. Improvement occurs through innovations, and through imitation of innovations. Innovations include much more than inventions, just as inventions, as a group, include more than patented inventions. Hence the importance of the patented inventions coming out of federally financed R&D should not be exaggerated.

A distinction can be drawn between general technology, on the one hand, and specific technologies on the other. The term general technology refers to the "useful arts"—broadly, and without distinction among particular branches. From its beginnings, the federal government has given itself to the task of promoting the progress of the useful arts. For more than a century and a half, the patent system has been the foremost means toward this end. But even in the nineteenth century, the federal government did more than to maintain the patent system. The Military and Naval Academies diffused engineering knowledge, and in other ways, scientific and technical activities were encouraged. In the twentieth century, the federal government has of course done still more to advance general technology. The National Bureau of Standards was created in 1901. During the 1920's, the Department of Commerce fostered the movement toward standardization in industry. But there is no need to recount every activity of the federal government in support of basic research, applied research, and product development to demonstrate long-continued federal promotion of general technology. The great upsurge has come of course in the period since the end of World War II, with many billions of federal funds going into the accelerated growth of research and development.

The specific technologies relevant to government patent policies are in (1) the civil uses of atomic energy; (2) agriculture; (3) the bituminous coal and commercial fisheries industries; and (4) narrow fields of applied research, e.g., cancer chemotherapy and saline water. In one way or another, for longer and shorter periods, and with large and small efforts, these specific technologies have been promoted by the federal government.

A specific technology can be promoted through procurement. As a purchaser of complex items, such as military aircraft, the federal government can foster technical improvements through R&D programs under which contracts are made with private organizations, as well as through R&D in government laboratories. The immediate goal is better weapons, and the wider goal is the advance of technology that will result in still better weapons in the future. But where the federal government does not purchase the products of an industry, the general practice is to conduct most of the R&D in government laboratories, and to rely on only a small volume of contract R&D.

The reason for distinguishing between general technology and specific technology is this: One of the means of promoting general technology is the (private) patent system. Another is the license policy in R&D contracts. This policy channels private efforts over the broad front that is general technology; the license policy leaves initiative in private hands. But where there is government action and initiative, the title policy becomes one of the instruments of furthering a specific technology. Whether the license policy is better suited to the promotion of general technology, and whether the title policy is better in promoting a specific technology are problems of central importance in our study.

Energy and other committees of Congress, the Atomic Energy Commission has forestalled possibly serious adverse political criticism through its no-preferred-position policy.

Much of the discussion of the patent policies of federal agencies has revolved about the question of the desirability of a uniform policy. To make the license policy the uniform policy for all agencies would of course require the reversal of several pieces of legislation adopted in 1954 and later years. To have all agencies follow the title policy, as has been proposed in Congress, would be the greater reform. Such an action would mean a reversal of policy for a much larger volume of R&D activity, and would affect many more contractors.

A uniform policy need not be identical with either the present policy of the Department of Defense, on the one hand, or the present policy of the Atomic Energy Commission, on the other. A uniform policy for all agencies could be one assigning titles and licenses to the government in accordance with a uniform set of criteria.

The principal advantage of uniformity would seem to be that federal agencies could compete for the services of R&D contractors on equal terms, equal at least in the disposition of patent rights. This would mean also that industry could not play one agency off against another. Each agency would have the same opportunity of achieving economy and efficiency in procurement. On the other hand, a uniform policy (uniform criteria for disposition of titles and licenses) might operate so as to yield differential effects by industries or by classes of products. If this should happen, agencies would not then be in equal positions.

But since federal agencies do not pursue exactly the same objectives, a uniform policy, because it is an instrument, might not be appropriate for some agencies. The Department of Health, Education, and Welfare was compelled to set aside its own uniform policy of taking title, when it embarked on its program of contract research in cancer chemotherapy.

Our evaluations of the license and title policies proceed from the criteria just mentioned. Of each of the two basic policies it can be asked, Has the policy contributed to the advance of technology? Has the policy best supported the mission of the agency? Has the policy contributed to the economical and efficient procurement of R&D? Has the policy resulted in undesirable side effects?

II. The Patent and Technical Information Interchange Agreements [4]

A. *Why and with Whom were They Negotiated.*

The effectiveness of any international exchange of technology generally depends to a great degree upon the wholehearted cooperation of the industries of the countries involved. Initially, United States industry was concerned that the rights of American owners of patents and technical information might be ignored in the build-up of defense production in foreign countries under the Mutual Security Program. Although Section 517 of the Mutual Security Act of 1951 [5] declared that the policy of the Government was to protect these proprietary rights and to provide compensation to the owners in the event of damage thereto, nevertheless assurances in this respect were lacking from the various foreign governments. In order to remedy this deficiency, the United States commenced the negotiation of bilateral technical property agreements with most of the countries forming the North Atlantic Treaty Organization as well as with Japan and Australia. The original basis for these negotiations was Section 402 of the Mutual Defense Assistance Act of 1949, which provided that the President shall conclude agreements with countries receiving assistance and that these agreements shall contain "Such . . . provisions as the President deems necessary to effectuate policies and purposes of this Act and to safeguard the interests of the United States."[6] One of the provisions normally included in the Mutual Defense Assistance agreements commits the two governments to negotiate, at the request of either of them, arrangements respecting the furnishing and use of patents and technical information in implementation of the North Atlantic Treaty.[7] Pursuant to this provision, bilateral agreements dealing with the interchange of patents and technical information for defense purposes have been concluded by the United States with various free nations. The agreement with Portugal signed at Lisbon, October 31, 1960, (TIAS 4608), is the latest of this series which includes agreements with France,[8] Italy,[9] the

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[4] The basic source of information for this section was an unnumbered memorandum of the Department of State entitled "International Exchange of Patents and Technical Information for Defense Purposes,", dated September 15, 1960.

[5] Presently, Section 506 of the Mutual Security Act of 1954, as amended, 22 U.S.C. 1768.

[6] 22 U.S.C. 1573.

[7] For example, Article IV of the Mutual Defense Assistance Agreement between the United States and France, January 27, 1950, 1 UST 34, TIAS 2012, 80 UNTS 171, reads as follows:

> The two Governments will, upon request of either of them, negotiate appropriate arrangements between them respecting responsibility for patent or similar claims based on the use of devices, processes, technological information or other forms of property protected by law in connection with equipment, materials or services furnished pursuant to this Agreement or furnished in the interest of production undertaken by agreement of the two Governments in implementation of pledges of self-help and mutual aid contained in the North Atlantic Treaty. In such negotiations consideration shall be given to the inclusion of an undertaking whereby each Government will assume the responsibility for all such claims of its nationals and such claims arising in its jurisdiction of nationals of any country not a party to this Agreement.

[8] Signed at Paris and entered into force March 12, 1957; 8 USTS 353; TIAS 3782; 279 UNTS 275.

[9] Signed at Rome and entered into force provisionally October 3, 1952, definitely December 16, 1960.

inter-governmental Technical Property Committee, which will be discussed in detail in Section II D, Administration of the Agreements.

C. *Channels for Exchange of Privately-owned Patent Rights and Technical Information.*

1. *Through the Use of Commercial Channels.* The agreements set forth the policy that, in so far as possible, privately-owned technical information and patent rights should be made available for defense production through existing commercial relationships or through the creation of such relationships between the owner and the user in the other country.[24] To the extent that normal commercial channels are used for the exchange of technology, it is intended that the owners of technology will secure provision for adequate compensation through contractual arrangements with the user.

The emphasis of this provision is on private initiative. As was hoped, when the agreements were drafted, private firms have, in fact, taken the lead in developing commercial relationships in this field. In many cases, however, the governments are involved in some way in the development of commercial relationships. This is necessarily true because of security reasons and the frequent need for accord between government procurement specifications and the particular technology used in manufacture. Moreover, in individual cases, where the governments are aware of an evident need for particular technology to achieve defense production objectives, they may urge specific firms to negotiate appropriate arrangements.

The governments are also concerned in many instances with the terms of private agreements as they affect defense costs and defense objectives. In this regard, there are two principal respects in which private companies can be helpful to the governments.

First, royalty payments or other compensation should be reasonable. While it is the desire of each government that private owners receive fair and adequate compensation, the governments naturally also wish to assure that the royalties are reasonable charges on government procurement costs.

Second, consideration should be given in establishing patent licensing patterns to the desirability of flexibility in the use of defense production facilities. The requirements of the NATO community can be more efficiently and economically met if individual firms are able to produce for the military forces of the NATO countries generally than if they are restricted to production for a given nation. This is particularly important in the light of military needs for standardization of equipment.

Similarly, it is also frequently desirable that industrial firms in the various NATO countries be in a position to produce for the armed services of other free countries and/or United States offshore procurement. All of these factors were involved in the negotiation of the licensing agreements between the Lockheed Aircraft Corporation, the General Electric Company, and the Government of the Federal Republic of Germany covering manufacture of the F-104G Starfighter aircraft. This was also true in the license negotiations for NATO coordinated production of the Hawk and Sidewinder missiles.

[24] Article III, Agreement with Italy; Article I, other Agreements.

D. *Administration of the Agreements.*

Each of the agreements provides for the establishment of a Technical Property Committee to be composed of a representative of each government.[30] These committees are charged with the general responsibility for considering and making recommendations on any matters relating to the agreement brought before them by either of the governments, on its own behalf or on behalf of its nationals. One of the specific duties of the committees is to assist, where appropriate, in the negotiation of commercial or other agreements for the use of patent rights and technical information in the Mutual Defense Program. For example, the U.S.-German Committee was very active in the negotiation of the licensing agreements between Lockheed Aircraft Corporation, the General Electric Company and the Government of the Federal Republic of Germany covering manufacture of the F-104G Starfighter aircraft in that country. The Technical Property Committees have also played a very active part in the license negotiations involved in the NATO coordinated production of the Hawk and Sidewinder missiles. Other functions of the committees are set forth in some detail in the agreements.[31] These committees have proven to be an effective mechanism through which problems relating to the interchange of patent rights and technical information for defense purposes can be readily identified and solved.

Within the United States, the task of supporting the work of the Technical Property Committees has been focused in the Department of Defense. Coordination with other agencies is achieved through the Interagency Technical Property Committee for Defense, composed of representatives of the Departments of Defense, State, Commerce and Justice, the Government Patents Board, and the International Cooperation Administration. A representative of the Assistant Secretary of Defense for International Security Affairs is the Chairman of this Committee. An Industry Advisory Committee established by the Department of Commerce furnishes advice, upon request, to the Interagency Technical Property Committee

Department of Defense Directive No. 2000.3, dated March 11, 1959, clearly spells out Department of Defense policy with respect to the international exchange of patent rights and technical information for defense purposes. In this directive are laid down the specific principles and conditions under which the release of technical information to foreign governments shall take place.[32] It, also, contains in Section V, a brief explanation on settlement of claims for compensation resulting from interchanges in furtherance of the purpose of the Mutual Security Act of 1954, as amended.

III. International Patent Relations. [33]

Any explanation as to how the interchange of patent rights and technical information is being facilitated by these agreements must necessarily include

[30] The author was the United States Representative on all of the Technical Property Committees in Europe 1957-1960.

[31] Article II, Agreement with Italy; Article VI other Agreements.

[32] Section IV, DOD Directive 2000.3, Mar 11, 1959.

[33] For an excellent discussion of the impact of international patent relations on foreign policy, see Patent Study No. 5, Vernon, *The International Patent System and Foreign Policy* (S. Doc. No. 63, 85th Congress, 1st Sess.) prepared for the Senate Subcommittee on Patents, Trademarks, and Copyrights as a part of its study of the United States patent system.

first application, he is entitled to claim his original filing date in any of the other countries. This protects an inventor against foreigners hearing of his invention and beating him to filing corresponding applications abroad. It is in connection with this provision that military security has its greatest potential impact.

IV. Impact of Military Security

A. *General.*

The concealment from other powers of any information which might be useful to an enemy or potential enemy, has always been a primary article of policy of every organized State. Such information, of course, includes knowledge of improvements in the arts of war and developments in the equipment and material of armed forces; but until comparatively recent times, the latter kind of information did not bulk very large among the various matters over which it was felt necessary to spread the cloak of official secrecy. However, with the increasing mechanization of armed forces and the progressive widening of the fields in which science and technology have been enlisted in the services of those forces, the picture has changed considerably. As a result, the areas of science and industry in which new developments may be subject to official secrecy have been expanding continually over the last 50 years, and at a rapidly increasing tempo.

When military security requires that publication of inventions be prohibited, it comes into direct conflict with a fundamental principle of the patent system. Not only do "letters patent" mean open letters in which the sovereign publicly proclaims the grant of some privilege, but in the special case of patents for inventions, the grant is founded on a bargain between an inventor and the State by which, in return for the right to exclude others from making, using or selling the invention over a limited period, the inventor agrees to make a complete public disclosure of his invention. This enables others to benefit from the invention, perhaps through stimulation of new ideas from its divulgence, and in any event, by use of the invention after patent expires.

Within the boundaries of a particular country, the conflict between military security and the patent system is generally resolved by allowing inventors to go ahead and file patent applications on all their inventions even though they may involve classified material. It is only after an application is filed that security has any material effect on the normal domestic processes of a country's patent system. Then, if it is determined that an application has security implications, steps are taken to prohibit its further disclosure and to withhold the grant of a patent.[40] This results in an even greater impact on the international patent system, since for example, an American inventor, having applied for a United States patent on his invention, may find that he is prohibited *even from applying* for a corresponding patent in all other countries because his Government has determined that further disclosure of the invention would be detrimental to national security. In order to fully understand this problem it is necessary to consider in some detail the operation of our own Invention Secrecy Act.[41]

[40] This procedure varies in different countries. The granting of a patent is deferred until secrecy has been lifted in Canada, United States, France, Greece, United Kingdom or the patent may be granted, but without publication as in Belgium, Italy, Norway, Netherlands, Turkey, and Denmark. For a detailed report on this subject, see NATO Unclassified document AC/94-D/29 (Revised), October 9, 1957.

[41] 35 U.S.C. 181-188.

sence of such emergency, an application in secrecy must be reviewed yearly and a renewal requested in order to keep it in secrecy.[48]

Except when authorized by a license obtained from the Commissioner of Patents, no invention made in the United States may legally be the subject of an application for a foreign patent prior to, or within six months after, the filing of an application thereon in the United States.[49] Thus, six months is allowed for determination by the defense agencies as to whether foreign filing of the invention would be detrimental to national security. The publication or unauthorized foreign filing of an application covering an invention under a secrecy order incurs severe criminal penalties [50] as well as forfeiture of the right to a United States patent.[51]

The Invention Secrecy Act creates in an applicant, his successors, assigns, or legal representative, whose patent is withheld by issuance of a secrecy order on his application, a right to compensation for the damage caused by the issuance of such order and/or for the use by the Government of the invention, resulting from his disclosure. He may avail himself of this right—

a. By filing an administrative claim for damages, with the head of the department or agency who caused the order to be issued, between the date he is notified that his application is in condition for allowance except for such order and six years after a patent is issued thereon; or

b. By bringing suit in the Court of Claims after issuance of a patent on such application.

Under *a*, the head of the department or agency is authorized to settle in full, or, if full settlement cannot be effected, to make an award not to exceed 75 percent of the sum which he considers to be just compensation. In the latter instance, claimant may bring suit against the United States in the Court of Claims or the United States District Court for the district of which he is a resident, "for an amount which when added to the award shall constitute just compensation."

The remedy of *b* above, is available only if *no* administrative relief has previously been sought.

C. *Agreements for Reciprocal Filing of Classified Patent Applications.*

In recent years, there has been a considerable increase in the amount of research and development information being exchanged among the various NATO countries. The Weapons Production and Mutual Weapons Development Programs have also resulted in the interchange of great quantities of technical data relating to modern weapons. Probably the major part of the technical information concerned in each of these areas has, or will, come from the United States. There may be, and in fact usually are, disclosed in this information numerous inventions covered by United States patent applications which, due to security implications, have been placed in secrecy under the provisions of the United States Inventions Secrecy Act. As has been previously pointed out when an application is placed in secrecy under the provisions of this law, the applicant must obtain permission from the United States Government in order to file a corres-

[48] *Ibid.*
[49] 35 USC 184.
[50] 35 USC 186.
[51] 35 USC 185.

technical data, may only be transferred or exported on a government-to-government basis or under other special procedures established by the cognizant military agency.[56]

V. Conclusions.[57]

The interests of common defense, collective security, and international peace have brought about a tremendous increase in the flow of technology between nations of the free world. To some extent, this has been due to a corresponding increase in governmental participation and support. However, in addition to furnishing the technology necessary for government sponsored programs, private industry, on its own initiative, is going ahead with an increasing number of commercial licensing arrangements in Western Europe and other countries of the free world. From this voluntary expansion in international exchange of technical information through regular commercial relationships we have every indication that the Patent and Technical Information Interchange Agreements are serving the major purpose for which they were intended.

Completion of arrangements which permit reciprocal filing of classified patent applications with most of the NATO countries has removed a major barrier to the free exchange of information important to our common defense. The promptness with which industry has made use of these arrangements is further evidence that the administrative machinery which has been set up in connection with the agreements is accomplishing its intended objective by creating and maintaining a favorable climate in which patent licenses and know-how will be freely made available in furtherance of the Mutual Security Program.

[56] *Ibid.*

[57] These conclusions are documented in greater detail in Study No. 24 "Patent and Technical Information Agreements", by Department of State (Elias C. Rodriguez, International Business Practices Division). This study was prepared at the request of Senator Joseph C. O'Mahoney, Chairman, Senate Subcommittee on Patents, Trademarks and Copyrights.

[58] Between the time of preparation of this article and its publication, the following agreements for reciprocal filing of classified patent applications have been published in the treaties and other International Acts Series: Belgium, TIAS 4488; Denmark, TIAS 4521; France, TIAS 4386; Federal Republic of Germany, TIAS 4369; Greece, TIAS 4476; The Netherlands, TIAS 4332; Norway, TIAS 4187 and 4552; and Turkey, TIAS 4456.

haphazardly. By the summer of 1953 Karl Lachmann of the United Nations Secretariat had prepared a report recommending specific methods whereby a series of taxation reports might be completed. Finally, funding was provided through the generosity and foresight of the Ford Foundation, with an initial grant of $300,000, followed by subsequent annual grants and supplemented by contributions from more than a hundred corporations.

Although it does not appear to be spelled out anywhere in words of one syllable—the language of diplomacy usually being one of graceful or genteel generalities—the themes behind all this appear, to this reviewer, at least, to deal with some of the great fundamentals of society and to include the following: (1) international trade and investment provide a bulwark of world peace; (2) anything which removes barriers from or encourages international trade and investment [2] is good; (3) international trade and investment will be encouraged if the businessmen in country A know something about the tax system of country B where they expect to do business; and (4) the choice of a tax system for a particular country is something which will definitely help or hinder its development and economic growth, and is absolutely vital to its economic future. Thus it is particularly important for the newly-developing countries to have an intelligible source of information about the tax systems of other countries, and to be able to pick and choose tax devices used by other countries in light of their experience. Indeed, it is perhaps not too much to say that just as some of them appear to need medical, agricultural, economic, educational, etc. aid, they also need tax aid as one of society's great fundamentals.

In any event, these appear to be the grand objectives of what we have in *Taxation in Sweden,* the fifth volume of the series. The first one was *Taxation in Great Britain,* and it was followed by Taxation in Mexico, Brazil, and Australia, with India soon to appear and with some thirty altogether being contemplated. All these books have been or will be prepared pursuant to a uniform format, outline or structure, which covers the entire field of taxation so comprehensively as to be applicable to the tax system of any country. Moreover, this uniform structure is not vague, woozy or ambiguous, but rather, carefully thought out, and hard, solid and concrete.

Thus Part I of the volume on Sweden consists of a "Description of the Tax System," which mentions such interesting nuggets of information as that the income tax in Sweden goes back to the Sixteenth Century, and concise statements of the history of Sweden written from every relevant aspect. Part II consists of an "Analysis of the Income Tax," where the authors get down into the "nuts and bolts" of income taxation in Sweden. And since it is written pursuant to the uniform format described, Section 6/3, for instance, deals with "Accounting Periods." If anybody wants to know what the accounting periods of the income tax in Great Britain, Mexico, Brazil, Australia and India are, presumably they need only shoot, with the precision of a rifle, for Section 6/3 of any one of those volumes. In this way the lawyer for the American businessman can go to a single section number of each volume and there find answers,

[2] The importance of international investment is indicated by the Commerce Department's survey, "U.S. Business Investments in Foreign Countries," (Government Printing Office, 1960) which finds that by the end of 1959 private U.S. direct investment abroad had reached the total of $29.7 billion, up from $11.8 billion in 1950. More than 2800 U.S. companies had direct investments in more than 10,000 firms abroad.

at least, that to encourage international trade and investment is to bolster world peace, and that, in its own way, even though it may appear to deal only with the relatively dull subject of fiscal management. "Taxation in Sweden" is a step in that direction.

Reviewed by F. Trowbridge vom Baur *

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comprehensive multivolume treatises and the brief and limited pamphlets or law review articles. The book may serve as the final word for a peripheral issue not warranting extensive research, as a source for swift verification or as a source from which to initiate further study. By reading the whole of a chapter, the practitioner is able quickly to perceive his problem in context before he restricts himself to his own narrow issue.

Reviewing the book within this framework makes it difficult to raise criticisms which are not picayune or hypercritical. Nevertheless, some random comments are in order. The reader may find that some conclusions or observations are a bit too broad. The writers indicate, for example, that *all* transactions must have a "business purpose." This is certainly true in many areas but not yet a general rule.[2]

A footnote applicable to a section dealing with choice of forum (concerning the treatment afforded net operating loss carryovers in the various courts) states that sections 381 and 382 of the 1954 Code have resolved the ambiguities which plagued the courts under the 1939 Code. This is questionable.[3] The reader may also discover that some of the observations concerning the Internal Revenue Service and its agents are somewhat naive. It is debatable, for example, whether the agents are familiar with all the cases and rulings and are the experts the Freemans would have us believe. Often the agents appear as ignorant of the cases as the taxpayer and usually are guided solely by old GCM's, rulings or materials provided them in such publications as *Tax Briefs for Revenue Agents and Office Auditors.*

However, gnomical statements appearing in any text are usually regarded with suspicion by the reader and little harm is occasioned by their presence in this material.

The treatment afforded a few of the subjects is somewhat deficient. But it must be appreciated that space considerations probably foreclosed refinements of the rules. Thus, it might have been pointed out in discussing the making out and filing of tax returns that the delegation of the task to another, even an expert, will not shield the taxpayer from penalties.[4] Speaking of the advantages and disadvantages of filing a consolidated return warranted noting that the necessity of changing accounting methods may be a blessing.[5] In elucidating on the rules concerning overpayments the requirement that it must appear that the person seeking the overpayment actually made it before an overpayment will be determined by the Tax Court, was not spelled out.[6] In considering the question of pleadings, the text does not adequately emphasize that the Tax Court has recent-

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[2] Tarleau, *Continuity of the Business Enterprise in Corporate Reorganizations and Other Corporate Readjustments,* 60 Col. L Rev. 792 (1960); Lee, *"Debenture or Stock?" Business Purpose as a Test,* 6 Howard L. J. 135 (1960); *L. Lee Stanton,* 34 T.C. 1 (1960); *Morris R. De Woskin,* 35 T.C. No. 44 (Filed Nov. 28, 1960).

[3] The following materials illustrate the problems: H. R. 13104, 86th Cong., 2d Sess. (introduced by Mr. Mills, Aug. 23, 1960); Proposed Regulations Section 269 (Proposed Dec. 10, 1960); Proposed Regulations Section 382 (Proposed Dec. 28, 1960); Germain, *Carryovers in Corporate Acquisitions,* 15 Tax L. Rev. 35 (1959); *Kolker Bros., Inc.,* 35 T.C. No. 38 (Filed Nov. 21, 1960); *Irving-Kolmar Corporation,* 35 T.C. No. 77 (Filed Jan. 31, 1961); *Army Times Sales Company,* 35 T.C. No. 75 (Filed Jan. 31, 1961).

[4] *James W. England, Jr.,* 34 T.C. 617 (1960).

[5] As an illustration of the difficulties encountered in changing accounting methods, see *Michael and Helen S. Drazen,* 34 T.C. No. 109 (Filed Sept. 22, 1960).

[6] *Claire Morse,* T.C. Memo. 1960-73 (Filed April 13, 1960).

FEDERAL PROCEDURE FORMS, *2nd Edition*

by

John Guandolo

Buffalo, New York: Dennis & Co. 1961. 2027 pp. $75.00

In the course of each proceeding in any of the various federal forums, the attorney involved is presented one or more times with the mostly mechanical problem of drafting and utilizing properly a form in order to invoke the procedural step he deems necessary to effectuate his legal function on behalf of his client. How does he arrive at the form to be employed—particularly if the case, proceeding or procedure is the first of its type he has handled? Does he check the dockets of similar proceedings, ask a friend who handled a similar matter, search his own files for something he can revise, or compose one from his general knowledge of pleading? Whatever method the attorney uses has a common denominator with the others—time.

The saving for the attorney of this valuable commodity, time, is the commendable goal of the author. His success on behalf of any single user of this collection will, of necessity, vary with that individual attorney's needs. However, although varying in degree, every attorney should find valuable assistance from the author's comprehensive, painstaking efforts. To that end, the author has performed a remarkably fine service to the profession.

The first edition of this work was published more than a decade ago in one volume containing 1427 forms. The new edition is in three volumes containing 1741 forms. The original encyclopedia and alphabetical arrangement has been retained and its simplicity and convenience to the user has been greatly enhanced by a much-improved index.

The author has completely revised the material retained from the first edition. He has generally expanded internally the fields of practice originally covered and has eliminated or revised many of the forms in those fields. In addition, new fields of practice have been added to the coverage. This reviewer is also pleased to note that provision has been made for pocket parts. The value of a work of this nature depends to a large extent on its currency—particularly in the area of administrative agency practice where the burgeoning of federal regulation leads inevitably to a continuing proliferation of forms.

Before making final comment, it would be best to briefly examine the contents of the set.

Part I covers "Civil Actions" in the district courts, and its 686 pages of forms grouped into 151 different sections represent a considerable expansion over the first edition. It contains an excellent selection of forms for almost very conceivable procedural step involved in the usual types of civil actions from their inception to judgment—and in appropriate instances, beyond. Included are samples of particular forms for use in actions arising under a number of specific federal statutes, such as the Federal Tort Claims Act, Interstate Commerce Act, and the antitrust laws. Also included are forms for particular causes of action as varied as stockholders suits, actions for wrongful death, and complaints for recovery of federal income taxes erroneously and illegally collected.

omissions. However, this reviewer feels that the author, considering the nature of the undertaking and the problems of selection involved, has struck a fine balance in his coverage. The selection also displays a regard for the spirit of the Federal Rules and the simplified rules of practice and procedure of other federal forums. It is a valuable work and it is to be hoped that the author and publisher will keep it so through the indicated issuance of pocket parts.

Reviewed by Robert S. Burk *

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