Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to appear before the subcommittee to testify in support of S.414. I appear as former Chairman of the Committee on Government Patent Policy. With me today is Norman Latker, former Chairman of the Subcommittee on the Government Patent Policy Committee.

Allow us to begin by inviting you to indulge with me in a bit of whimsical speculation upon a familiar Biblical story. In the original version of this story, the ill-fated Samson reveals to Delilah that the secret of his super human strength lies in his unshorn locks. Delilah wastes no time in confirming the truth of this revelation the next time Samson sleeps.

From our knowledge of human physiology, we are aware that, absent divine intervention, there exists no correlation between the length of one's hair and the strength which one possesses. Samson's contemporaries, we must suppose, were no less well informed on this point than are we. A close reading of the story indicates that, between the time of his birth and his meeting with Delilah, Samson had never experienced a haircut. Since Samson had neither theoretical nor experimental evidence for tying his undisputed strength to the length of his hair, we are justified in asserting that his information on the subject came directly from God.

Query: If God had not made this direct revelation to Samson, how many haircuts would we expect him to have had before he stumbled upon the true secret of his strength?

Before you answer this question too hastily, let me emphasize an obscure point in the original story. After Samson's hair has been cut, but before he becomes aware of the fact, he rises from sleep, note that the Phillistines are menacingly near, and announces that he will dispatch them in the same way he has previously dispatched so many of their countrymen. In short, Samson does not <u>feel</u> the loss of his strength; he discovers his condition only when he calls upon his strength and finds that it is missing. Many days might elapse between a routine haircut and such a discovery. Every event between the last need for exceptional strength and experience of its loss would qualify for examination as a potential cause. While the haircut itself would be included in this category, so also would the brand of hair tonic applied by the barber, the proximity of the barber shop to known and suspected deposits of, say, uranium, and so on. Indeed, the haircut itself would probably place well below the phases of the moon in the list of suspects because haircuts generally were known to have no strength-reducing effects on the population at large.

God has not spoken to us on the true secret of our historic preeminence in high-technology commerce. I suggest that there is no single element which can lay exclusive claim to being the secret of U.S. technological success. And yet, in that collection of elements which, taken together, offer a convincing explanation, there exists one whose importance has so escaped recognition that it alone can be described as "secret." This element consists of the intellectual property system generally, of which the patent system constitutes a major part.

There are two reasons, it seems to me, why the importance of the patent system to our industry and in particular to our international trade has received so little recognition. You may be surprised to learn that our Founding Fathers, while they provided in the Constitution for the patent system, had no notion whatever of the fundamental role which it would play in our modern society. They designed the patent system to perform a single function; in fact, it performs two functions superbly. And the second function, wholly unanticipated by the authors of the Constitution, has assumed an importance well beyond the first. The intended purpose was to promote the progress of service and the useful arts by holding forth to inventors the opportunity of financial reward in exchange for disclosure of new inventions. The profit incentive was expected to add substantially to the

number of disclosures arising from pre-existing inducements such as fame, professional recognition, desire to better society, etc. Had they concluded otherwise, our Founding Fathers would, undoubtedly, have omitted the patent clause from the Constitution. It is important to note that the Founding Fathers did not consciously frame the patent system to promote the domestic and international commerce of the United States. They assumed that market forces would be sufficient to pull the truly promising inventions into commerce, while ignoring the less promising. This assumption is, undoubtedly, true over the long term. Yet, in the short term, it is demonstrably false. And in commerce, where the race is to the swift, it is the short term that counts.

We now know that the surest way to delay commmercialization of an important invention is to dedicate it to the public. Penicillin constitutes a classic case. The amount of penicillin produced in the twelve years following Fleming's Nobel prize-winning, but unpatented, discovery was insufficient to save the life of the one patient who received it all. Had Fleming patented his invention, it would have been brought to the public years earlier, with the saving of countless lives. He discovered too late, and to his profound regret, that the patent system is more important to the commercialization process than to the invention process. Thousands of inventions are made each year that go

unpatented. Only a handful of these reach the marketplace in the short term. A patented invention which is made freely available on a non-exclusive basis is indistinguishable from a non-patented invention. In other words, our existinmg Federal policy insures that half of the R&D dollars spent in the U.S. each year are doomed to repeat Fleming's folly.

Samson would have had great difficulty in understanding how a simple haircut can affect one's physical strength. We seem to have experienced no less difficulty in understanding how a patent can serve any function other than that of promoting the progress of science and the useful auto.

How, exactly, does the patent system promote our domesticand international commerce? Allow me to illustrate.

Fleming published the results of his work on penicillin in 1929. His right to apply for a patent in Great Britain (and in most industrialized countries of the world) expired on the date of publication. Since his contribution to the progress of science and the useful arts culminated with his publication, he could offer no further consideration to the commonwealth in exchange for the grant of a patent. Note here that the patent system does not confer a reward after the act of invention; it offers an inducement prior to the act of disclosure. Now suppose that a few years later, after

recognizing his mistake in not having applied for a patent, Fleming decides to rectify his error by asking the British Parliament for private relief legislation. What might he say to convince Parliament that it was in the public's interest, rather than merely in his interest, to excuse the late filing of his application and to allow him to obtain product claims on penicillin? He would tell the truth. He would indicate that entrepreneurs were unwilling to invest the substantial risk capital necessary to build a penicillin plant because they feared that within a few weeks or months, long before they could recover their investment, penicillin would be synthesized. If he held a patent on penicillin, with product claims, Fleming could guarantee the security of their investments by licensing the production of synthetic penicillin on terms which would permit the amortization of pre-existing plants. Thus, he would argue, the immediate benefits to Great Britain, without the expenditure of public funds, would be the creation of a penicillin industry, new jobs, greater tax revenues, improvements in balance of trade, plus the saving of countless lives. Indeed, all these things would have been possible if Fleming had filed patent applications around the world prior to his initial publication. This is the second, unrealized function of the patent system, one that has little to do with progress in science and technology, except as a source of additional research funds, but a great deal to do with domestic and international commerce.

In speaking of Samson earlier, we noted the possibility that a considerable period of time might intervene between a routine haircut and his awareness of a loss of strength. Obviously, the longer the interval, the less likely Samson would be to discover the true cause. Let us add to Samson's difficulties by supposing that his loss of strength is not absolute and instantaneous, but gradual and extending over a period of many years. We would then have a second explanation for our prolonged failure to note the relationship between changes in patent policy on the one hand, and changes in our economy on the other.

Consider the case of another Nobel-prize winning invention: the transistor. This one had two advantages from our point of view at the outset: it was an American invention (Bell Telephone Laboratories) and it was patented. However, in 1956, the Justice Department thought it would be a good idea if AT&T were to transfer its entire transistor technology and associated know-how to any foreign firm which would be willing to offer the American consumer, and indeed any consumer anywhere, some lower-priced alternatives to the radios, television sets and phonographs manufactured in this country. In order to insure that the foreign manufacturers would not be inconvenienced by the trans-oceanic shipping charges which American firms had no need to face, the Justice Department decided that the principal American firms (GE, RCA

and Westinghouse) should continue to pay royalties to AT&T, thus reducing your and my telephone bill, while the foreigners should pay nothing, thus reducing your and my telephone bill not at all.

Somehow, the significance of this new patent policy was not apparent to the thousands of people then employed in our consumer electronics industry. It took twelve years for the industry to die. By that timne, the haircut had long since been forgotten, to say nothing aboutthe name of the barber.

We are indebted to Ted Sorensen for the enrichment of our literature by his artfully drawn comparison. Some people see things the way they are and ask "Why?"; others see things the way they have never been and ask "Why not?". The first of these groups is generally thought to be populated by scientists; the latter by visionaries. It is regrettable that Mr. Sorensen did not identify the one group in our society which asks and answers both questions: our inventors.

Our task this morning is to join their ranks. I hope that we now know the <u>why</u>, just as, for different reasons, Samson knew the why of this extraordinary strength. Let us now examine S.414 and dwell on the <u>why not</u>.

Our present fragmented patent policy places ownership of most federally-funded inventions in the hands of the government, rather than in the hands of the inventing organization. Licenses under these federally-owned patents (assuming a patent is sought and obtained) are, for the most part, made freely available to any and all comers, domestic and foreign. The effect of this policy is to nullify the second (or commercialization) function of the patent system, and to cast doubt upon the necessity for the first. (Does the government induce itself to disclose its inventions to the public by holding out to itself the promise of a patent by which it can make no money?)

S.414 asks the rhetorical question: Why not allow small businesses and universities to retain patent rights in their government-funded discoveries, with the hope and expectation that the commercialization of these discoveries will thereby be facilitated.

Insofar as university and small business inventions are concerned, S.414 is intended to, and will, correct the devastating effect of our present government patent policy upon commercialization. In future years, S.414 will be remembered as a turning point in our attitude towards intellectual property, evidencing not merely but awakening to the problem, but our firm determination to remain first in a peaceful but brutally competitive world.

Japan has announced its intention to capture various elements of the computer market in the 1980's. No one suggests that this is an idle boast. In fact, many in this country believe that we should emulate "Japan, Inc.", -- that our government should join in the planning and management of specifically-targeted commercial pursuits, with the objective of insuring the dominance of our industry in international trade. Such an approach, I fear, would end many of the freedoms we now enjoy, and is unlikely to be successful in any event. The first casualty would be our pluralistic approach to problem-solving; centralization of control means the prioritization of available strategies, and the elimination of funding for those at the bottom of the list.

S.414 is a much sounder approach than "Japan, Inc". It assure the continuation of the nation's pluralistic approach by entrusting to our innovators (at least those associated with small businesses and non-profits) the burden of commercialization as the price of ownership. In addition, S.414 will motivate contractors to utilize the world's patent system, thereby maintaining the base of our technological leadership.

To suggest that the private sector is in a position to ignore the innovations generated by government research and development, and still remain competitive, overlooks the fact that

the government funds half ofthe nation's research and development. Further, Government participation in basic research is increasing as the private sector shifts to applied research, much of which is necesary and to meet Federal regulations. The increased presence of Federal funds supporting life sciences and energy research in the non-profit sector is especially important to those industries involved in the delivery of new products and processes relating to such technology. Increased funding will naturally result in many of the best preliminary leads being encouraged by government funds. Passage of S.414 is especially important if we are to gain industrial aid in their commercialization.

Also of importance is the Bill's bringing together of industry and the non-profit sector during the entire innovative process. This should result in more independent assessment and mastery of the innovative process by industry, working closely with universities as equal partners.

S.414 cannot but serve to emphasize the importance of the technology transfer units already in place in many universities. These groups track science and technology, establish property protection on university discoveries, and then locate those who would apply their portfolios to solve the problems of our society.

I have been disturbed by the number of inventions in the Government's patent portfolio which have never been licensed. I wonder if it would be feasible to amend S.414 to permit the contractors covered by the Bill to retrieve their as-yet-unlicensed inventions. Some major inventions within the portfolio may well reach fruition under S.414, if it is thus amended.

I also have some concerns over the payback provision of Sec. 204. I understand the motivation underlying this section. My fear is that the costs of administration will far surpass the amount of the Government's recoupment. Perhaps the various Departments of Government could be given the discretion to dispense with the application of this section, or compromise the Government's claim, whenever it appears that such action will result in a net financial benefit to the Treasury.

One final suggestion. No other country in the world requires its citizens to license their privately-funded inventions to foreigners, for manufacture abroad and importation to the country responsible for the invention. We have done as frequently. I object to this practice and will continue to make my objections known. Nevertheless, I do not intend to distract your Committee from its consideration of S.414 by pressing the issue at this time. Instead, I merely suggest

that, in the event an invention covered by S.414 should pass into the ownership of a firm which operates under a compulsory licensing decree, the S.414 invention be deemed to be outside the coverage of that decree.

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