Principles, Politics, and Patent Policy

In a discussion of the Kefauver drug bill in "Science and the news" (*1*), your commentator concludes with the statement: "the basic issue at this point in the drug inquiry [is] . . . What is the relationship between the patent system and the economics of research and how would that relationship be affected by the senator's proposed revision?" Your commentator has not dug deeply enough and has limited his question to a very small part of a series of incidents bearing on the patent system.

The Supreme Court of the United States has always regarded (*2*) the grant of a patent as a reward to one who has benefited the public by a novel creation. The Constitution of the United States, as a basis of our patent system (*3*), sets out the inducement for such reward.

The reward theory is based on the apparent and well-established belief that an inducement for early disclosure outweighs any disadvantage in according a property right for a limited number of years (*4*). Other industrial countries, such as the Netherlands, Switzerland, and Germany—after much debate and vacillation (*5*)—have followed the lead of the United States in recognizing this principle.

In more recent years, members of one school of thought have been vociferous in direct or indirect attacks on this principle. These attacks have appeared in many forms, such as denial that a patent constitutes a personal property right; allegations that the grant of a patent takes something away from the public; and insistence that there must be commercialization of patented subject matter for a patent to continue to be effective, that patented subject matter should be shared with commercial competitors, that selected industries should be circumscribed in obtaining or using patent rights, that areas of invention, apart from private initiative and enterprise, should belong to the government, and that even partial contribution of government dollars to private efforts in research or development should be cause for depriving private enterprise of potential patent rights. Some in this school would go even further by proposing that earlier independent patent rights and accumulated know-how be swept in, on one basis or another, insofar as they relate to the subject matter under consideration.

All things considered, there are ever-increasing signs of mounting attacks on the U.S. patent system and of desire on the part of individuals to eliminate or whittle down the reward motive supportive of the patent grant. In enlisting the support of some legislators, certain politicians and economists, by their testimony or writings, make it abundantly plain that they are moved more by emotional attitudes or academic beliefs than by facts. Actual and proposed legislative acts in response to such motivation can only serve to prevent the public from obtaining the benefits of early disclosure.

It is time, if not past time, to revert to fundamentals. What is the main drive behind these attritional legislative acts or proposals? Who can be expected to benefit from them? Is the public aware that patent legislation is becoming more and more a form of punishment rather than of reward? Is it clear that pending proposals to charge more for patent applications, to add new taxes on patents, to limit the life of selected patents, to require that patent assets be shared, and to deny grant of, or title to, patents in prescribed areas are all forms of penalty?

The attritional effect, besides affect-

ing industrial concerns, will be felt in time by the individual inventors. In the case of free-lance inventors, their burdens will be increased and their incentives lessened. In the case of inventors within industrial establishments, it may be predicted that they will have fewer opportunities to disclose and to receive new knowledge, and that the stimulation and challenge supplied by the patent system as originally conceived and constituted will thus be diminished.

In "Patents and the corporation (1958)," a report by students at the Harvard Business School, there is reference to a survey which was undertaken of 288 U.S. corporations. It is clear from this report that the importance of a patent varies with the branch of industry, the stage of growth of the company, and the proposed end use of the patent. Seven out of 91 companies indicated that patent protection plays a very important role in their decision to undertake research and development, while a majority indicated it was of some significance. Thirty-four of these companies named profits gained through exclusive sales of products developed through research and development as a most important source of revenue for supporting research and development programs, while 14 named such profits as a second most important source of revenue.

Let us consider the case of compulsory licensing on a reasonable royalty basis. According to the report cited above, out of 91 companies, 18 would decrease their research and development effort under such legislation, three would discontinue their effort, and 21 would patent only inventions which would necessarily become known to competitors. The willingness to undertake research and development would lessen with increase in the need to rely upon secrecy.

Since technological secrecy results in a serious waste of scientific manpower and since an overall reduction in the research and development effort has an inhibiting effect on advances into new channels of inquiry, the price paid for the changes proposed in the patent system would be too high.

To put it mildly, it is time to ask whither are we bound. It is time to oppose legislative proposals that emasculate, step by step, our patent system. It is time to stop changing our patent system into one that is punitive and/or one that involves increasing risks. The present steady erosion of our patent sys-

tem can only lead, in time, to its eventual demise and to the loss of its favorable effects. Thus, through inaction, the system can be destroyed by proponents of unproved economic or social theories. Let us make sure that reason and reward prevail, instead of revolutionary revision and punitive measures.

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References

1. *Science* **134**, 1349 (1961).
2. *Seymour* v. *Osborne* (1870).
3. *U.S.* v. *Dubiler Condenser Corp.* (1933).
4. *Pennock and Sellers* v. *Dialogue* (1829).
5. G. Doorman, *J. Patent Office Soc.* **30**, 225, 258, 347 (1948).

Diet and Fallout Hazards

Over and above the long-term hazard from long-lived isotopes, such as strontium-90 (half-life 28 years) and cesium-137 (half-life 33 years), there is the more immediate hazard from a number of short-lived isotopes, such as, for example, iodine-131 (half-life 8 days). It is the purpose of this letter to suggest a relatively simple modification in the dietary pattern that will appreciably reduce the hazards from the short-lived isotopes.

A large part of the radiation from fallout isotopes consists of β-radiation. Because of its short range, β-radiation becomes of significance primarily when ingested in food. Because the β-radiation is thus incorporated in human tissue, its short half-life becomes a hazard rather than a help, since the radiation is concentrated in the immediately surrounding tissue. Further complication is provided by the body's inclination to concentrate certain elements in specific tissues. Many of these tissue-radioisotope links are known (the concentration of iodine by the thyroid is a good example). Others, however, may yet be discovered. The hazard arises from the abnormal concentration of an isolated isotope in a small tissue mass.

A considerable reduction in the radiation hazard from short-lived isotopes can be achieved by simply taking advantage of the short-lived nature of the radiation. As an example, iodine-131 has a half-life of 8 days. This means that in 56 days the radiation is only $(\frac{1}{2})^7$, or 1/128, its original value.

The solution, therefore, involves a simple modification of the established nutritional pattern of eating foods that are as fresh as possible to a pattern of