

## Letters

### Patent System

I would like to comment on the article "Patents and inventive effort" [*Science* 133, 1463 (1961)]. First, may I say I was impressed by the unscholarly character of the article. While Machlup's analysis of the statistical details set forth impressively in the tables was straightforward, the phraseology and tone employed in the first several paragraphs and in the concluding paragraph indicated the author's bias rather than scholarly objectivity.

My specific comment concerns his references to the "faithful," in which category I fall, though I do not admit to the "faith alone" derogation of the author. Machlup, in common with many of his contemporaries and predecessors, seems to have the concept that the patent system is a force in our highly complex economic society that can be isolated from all other forces and measured. He and others have spent much effort in attempting to do this, and have rushed into print when they have developed sets of statistics and discovered correlations which may be adverse to the United States patent system. They pounce upon these and draw conclusions without penetrating more deeply to see if a more refined and thoughtful analysis of some of the data could tell why the correlations, or lack thereof, exist. Rather, they hurriedly publish papers based on inference and conjecture, which soon are accepted as authoritative documents and conclusive studies. Machlup's sole factual contribution in his paper is a tabular presentation of information well known and widely discussed heretofore.

The "faithful" base their judgment on many years of experience of intimate working with the patent system. From this they have derived knowledge of how the patent system itself is integrated into, and operates within, the

very complex larger economic system that governs the advancement of technological industry in the United States. They recognize that it is only one factor in this development, sometimes playing a major, and sometimes a minor, role. It may be impossible to isolate the patent system from this highly complicated free enterprise system, and prove conclusively by a series of tables that it is indeed important. Nevertheless, knowledge of the part that it plays has convinced them that patents are a real factor in our overall economy. It is curious that so many students of our patent system seem unable to comprehend simple facts about our economic system.

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The article by Fritz Machlup requires comment.

Machlup's argument appears to be this: Small industrial firms have said that patents are useful, but large firms whose competition is "oligopolistic" say that patents are not useful; therefore the American patent system should be abolished.

If this conclusion be true, then patents must not be useful to society; and if we accept this, it must follow that the word of the "oligopolies" should be given weight over that of the smaller firms and individuals in deciding whether the patent system should be retained.

The stationariness of the rate of patenting might be explained by a rise in oligopolism. But an equally good explanation would be what Roberts has called "the persistent weakening of the patent system by court decisions since 1930" [Walter Van B. Roberts, *Inventors and Inventions* (McGraw-Hill, New York, 1957)].

There is no evidence that oligopolistic

industrial research has produced more than such work in the smaller organizations which Machlup admits do advocate patents. The reverse appears to be true. The automobile and the electrical power equipment industries, for example, have produced little useful novelty for two or more decades.

Much non-oligopolistic competition prevails in the more technical industries, and it seems reasonable that their expressions of favor toward patents are based on experience at least as much as "faith."

Machlup must mean that (i) all industry is oligopolistic, or soon will be, or (ii) only oligopolistic industries should be considered in regard to patent policy. If the first is true, he should say so; if the second, he should explain why.

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I feel it is unfortunate that the article, "Patents and inventive effort," was published as it was. Machlup leaves the definite impression that he does not favor the present patent system, although he doesn't seem to have quite the courage to state his feelings so bluntly. But the really important fault in the article is the lack of any discussion of the crucial point of secrecy versus publication via a patent. A most basic and important concept in the establishment of the patent system is that the inventor obtains exclusive rights for a limited time in exchange for his publication of his invention. This publication stimulates others to new and improved inventions and thus is greatly to the general public interest. Literally thousands of inventions and contributions to the development of civilization have been stimulated by published patents. Without some patent protection, secrecy would certainly be much more widespread and it seems certain that such secrecy would greatly slow down technological progress. This important point should be understood by Machlup and *Science* readers.

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The Machlup article is one of the most interesting probes of the patent system that has come to my attention, and I believe it follows a fairly clear path toward the truth—as far as the author goes. I would agree on points that could be restated: (i) that it is

easier to demonstrate the importance of patents as lures for venture capital than as incentives to inventive effort, and (ii) that, by and large, patents assume more importance to individuals and small corporations than they do to large corporations.

Certainly large corporations are going to continue their research, patent system or no. But the point of perspective which I find lacking in this article is the significance of patents to the founding of entirely new industries which are starting from scratch and have no research organization or anything else. Perhaps the classic example of this is the aluminum industry, which could not have come into being when it did without the Pittsburgh bankers, who would not have put up the enormous initial outlay required without patent insurance to protect the money. Of course the aluminum industry has a rather peculiar aspect to its beginnings, because it had to start big—couldn't start small. This was because of the enormous electrical power requirements to operate reduction pots. But I would think that the system which did give us the aluminum industry and may some day give us another new industry of equal significance has paid its way for all time.

So what remains to be said after one reads Machlup is: True, one cannot demonstrate the need for the patent system to keep research laboratories of existing industries working and inventing, but the system can very well be the *sine qua non* of industries and enterprises outside the scope of activity of existing research facilities, government and private.

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Hinkley, who counts himself among the "faithful," believes that I am biased, apparently because I stated that no evidence has been found one way or another concerning the effects of patents upon inventive activity. If this is "bias," I must plead guilty; but I still hold that a scholar should search for evidence. Hinkley is clearly wrong when he says that I "rush into print" when I "have developed sets of statistics and discovered correlations which may be adverse to the United States patent system." One of the main points of my article was to show that certain statistical relations which others had developed did not, as they had thought,

demonstrate the absence of a positive effect of the patent system upon inventive effort.

Fleming jumps to the conclusion that I want to see the American patent system abolished. Linnell believes that I lack the courage to state that I do "not favor" the present patent system. In my monograph (*Study No. 15, Subcommittee on Patents, Senate Committee on the Judiciary*) I stated explicitly that "it would be irresponsible, on the basis of our present knowledge [of the economics of patent protection], to recommend abolishing" the United States patent system. Nowhere in my article did I make a value judgment either for or against the patent system. Linnell is right in that I did not discuss in my article the question of "secrecy and disclosure." There are also many other important issues which I did not cover in that brief article. A discussion of the secrecy issue can be found in my monograph.

Robertson points to the role of patents in the emergence of new industries, such as the aluminum industry. This is an important matter, because it suggests that the effects of the patent system upon inventive activity in existing industries are not really relevant in an evaluation of the system as a whole. More thought will have to be given to the questions (i) what evidence there is to support the hypothesis that new industries could not emerge without the aid of patent protection, and (ii) whether certain changes in the system could be revised to make it even more effective in promoting entirely new industries. To ask these questions is not to suggest that the answers might more likely be one way than another.

One final point. Hinkley believes that "many years of experience of intimate working with the patent system" can help the practitioner to understand its effects upon the operation of the economy as a whole. This I must deny. Perhaps I may illustrate this denial by reference to other areas. No amount of experience in banking can give the banker an understanding of the effects of credit policies upon the economy as a whole. Not even the longest career in trade-union affairs and collective bargaining can teach the union secretary how union activity affects average real income of the total labor force. Neither the importer nor the business man competing with imports can learn from experience what effects tariffs may have upon real national income. If practical experience

were sufficient to teach us what we want to know, science would be superfluous. Needless to say, practitioners may also be scholars and researchers, and their achievements in these endeavors will be recognized as such to the extent that their findings are based on good evidence.

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## Econology and Word Coinage

As a linguist, I am horrified at the coinage *econology*, proposed by John L. Kennedy in his review of Siegel and Fouraker: *Bargaining and Group Decision Making* (*Science*, 14 July 1961, p. 95), to designate a border discipline between economics and psychology. If we must invent new terms at the drop of a hat, why not do so with proper regard to the structure and "spirit" of the English language? Since *-ology* (but not *-nology*) is a well-established English suffix, anyone attempting to interpret this neologism is bound to analyze it as *econ-* plus *-ology*. But what is *econ-*? Granted that this form would make one think readily of economics, as it is intended to; however, by the same token it would mislead one into falsely analyzing *economics* as *econ-* plus *-omics*. Such an analysis would, of course, fly in the face of etymological facts, *economics* having been constructed out of Greek *oik(os)* "household" and *-nom(os)* "arranging, managing." More important, this would introduce confusion into the future handling of another well-established English "ending," namely, *-nomy* (and *-nomic*), as in *agronomy*, *taxonomy*, giving rise to a competing *-omy* (and *-omic*). Heaven forbid, the chain reaction thus started might even produce a faulty fission of *atomic* into *at-* plus *-omic*, causing havoc with the negative prefix *a-*.

I think I have a better suggestion, if a new label for certain interdisciplinary endeavors of economists and psychologists seems desirable: *psycho-economics*. This coinage would be more self-explanatory than *econology*, and it would be solidly patterned after such recent "hybrid" formations (already well entrenched in current scientific discourse) as *psycholinguistics*, *psychobiology*, and similar ones.

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