

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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