ties hopefully will spur further efforts in that direction. Better and more accessible information from professional rather than industry sources may reduce the impact of advertising on physicians, thus reducing the magnitude of its use. Higher FDA standards for new drugs will reduce the appearance of new items of little need, thus eliminating mis-directed research and development expenditures and the promotional outlays and abuses that sometimes accompany them. These and other changes need to be effected for an improved industry performance. The net result of these changes can be the selection of items by physicians on the basis of price rather than company identification.

The pertinent question remaining is how to reduce the patent barriers to entry without dangerously weakening the incentives for research and development. The economic philosophy behind our patent system is that monopoly grants of a temporary nature and of limited scope, while perhaps creating imperfections that temporarily mitigate price competition, serve as inducements for rivalry in research and development which provide long run benefits to consumers that more than offset the temporary mitigation of market price competition.

Antitrust decisions have defined the limits of patent protection by condemning tying restrictions and other devices which owners of patents valid in one market have used to reduce competition in other markets. Flagrant abuses of patent rights, such as practiced by the United Shoe Machinery Company, have led to imposition of compulsory licensing on the offending firm. While compulsory licensing has been imposed to date only as a punitive measure on flagrant violators of the antitrust laws, the special importance of the drug industry to society's well-being and the critical flaws in its structure and behavior warrant the adoption of special drug-patent policies that include compulsory licensing as a general condition. This policy is a necessary condition for improved industry performance in terms of costs, profits, and also in the critical matter of prices. Together with other policy changes already adopted or proposed, that induce physicians to prescribe generically, compulsory licensing may also be a sufficient condition for improving substantially the market performance of the industry.

It is doubtful that the continuation and advancement of drug research would be impaired by such modification of drug patents. The industry is characterized by rapid product turnover and obsolescence; studies have shown that the greatest portion of sales of any product is likely to occur in the first few years after its introduction. Company price policies explicitly include these considerations, and most, if not all companies, estimate quite conservatively the market life of their products, taking three years as the average period to recoup outlays and earn a profit. If licensing were required after the first three years of a product's life, the period taken as the estimated life expectancy, entry into the market and the price competition it would create could contribute to lower prices and profitability after the patent holder has earned a profit justifying his innovation. Of course, the beneficial results would be confined to those products with a commercial life greater than three years. Although product turnover is swift, data on product sales indicate that the majority of sales in any recent year represents those of products that had been on the market longer than three years. For them, the patent holder would continue earning profits, though at a lower rate, on his own finished-product sales and those of licensees, and consumers would be able to buy at lower prices. In regard to the impact of the proposed policy on research and development activity, it might generate even greater effort by inducing swifter turnover. In any case, a realistic period of exclusive patent use and a fair royalty rate afterward seem unlikely to deter research and innovation.

Another view of the role of drug patents raises a question as to the need for any exclusive use period. The contention that none is necessary is based on the fact that a drug patent gives its owner a monopolistic position in either of two markets, that of bulk sales or that of dosage-form products. To the extent that he sells a drug in bulk or licenses is manufacture, he shares the market for finished products; if he retains his monopoly in the latter, he cannot reap profits from bulk sales or licensing. Compelling bulk sales or licensing would require the patent holder to rely on the bulk market for his innovational profits, and would promote price-competition in the finished product market at the time when the item is introduced, rather than after a few years as in the above scheme. In this plan, the royalty rate would have to be higher than in the previous scheme,