Thus, as patented specialties occupied a growing prominence in drug markets, and as the high costs and cumulative nature of research effort induced specialization by drug firms, drug markets increasingly became oligopolized by the few large firms specializing in each of the different areas of research and production. While the exact order of firms in a market may change, the positions of leadership are effectively preserved for the large firms specializing in that area. Concentration thus tends to be both high in degree and stability. Even in the case of those older (and a small number of newer) products not protected by exclusive patents, large firms, with their trade-named specialties and their successful promotion campaigns, have come to dominate sales.

As an example, in antibiotics—the largest of the various ethical drug classes—there are but ten prominent sellers and even they are unevenly participative within the area. Only six of them are important manufacturers of broad-spectrum antibiotics, and only five (including three of the broad-spectrum oligopolists) engage in the manufacture of the leading medium-spectrum products. There are many firms producing products which contain the older, unpatented penicillins, but an estimated 70 percent of all such sales are accounted for by Lilly, Wyeth, Abbott, and Squibb, four of the ten major firms. Comparable concentration is to be found for other antibiotics, including streptomycin and dihydrostreptomycin, penicillin-dihydrostreptomycin combinations, and penicillin-sulfa combinations. A similar pattern of high concentration can be found in the manufacture of hormone-drug products, mainly the cortical steroids, where seven firms dominate the market.

The same high degree of concentration is to be found in virtually every other product area in the industry. In the most recent study of market concentration in the drug industry, the four largest firms in each of 13 major product areas accounted for between 60 and 80 percent of sales, sometimes substantially more and rarely less.

The main characteristics of the ethical drug industry—its emphasis on specialties, its large research and selling effort, the growing patent protection afforded its developments—have changed the structure and nature of rivalry very much since the penicillin era. But high concentration and a changing nature of competition are one thing, and undesirable market performance and the need for corrective policy changes are another. Judgments based only on industry structure and the over-all nature of rivalry may be unwise; thus, it is to an examination of the various dimensions of the performance that is conditioned by these factors that we must now turn.

II. INDUSTRY PERFORMANCE

There are many dimensions and facets to the performance of industries and the markets in which they function. Perhaps it is best to consider those of the ethical drug industry and its markets as being of two main types. These groupings, as noted earlier, may be called product and market performance criteria, respectively.

A. Product performance

On the product side, the main concerns are the efforts to develop new and better drugs, the increasing availability of these drugs, and their impact on life and health.

The large outlays by the industry for research and development have already been discussed. In both absolute and relative terms the industry is justly proud of its emphasis on basic and applied research. While certain qualifications concerning both the magnitude and quality of this effort may be in order, on the whole the industry's research input is impressive.

The results of this activity have been substantial. In the sixteen year period 1948–63, the total new products introduced amounted to 5,386.[7] Most of these new products were duplicate items of products already on the market, new dosage forms of previously known drugs, or new compounds. 618, however, contained chemical entities not previously known (as did an indeterminate number of the new compounds).[8] All of these, including the duplicate single products, may

[7] Study of Drug Purchase Problems and Policies, U.S. Department of Health, Education, and Welfare; Washington, D.C., U.S. Government Printing Office, 1966, p. 11.
[8] Ibid.