introduced at the finished product level, drug prices would decline until they were more in line with production costs for the active ingredient.

Preparation of finished dosage forms.—The simple technology of the preparation of most finished dosage forms, the low operating costs of these processes, and the modest capital requirement for such facilities, renders this stage of the industry ideally suited for workably competitive market performance. The processes involved for most dosage forms are technologically routine and elementary, tabletting and bottling being particularly trivial operations technically. (After all, every pharmacist is taught—and taught well—to do such compounding operations on his own premises. It is both amusing and dismaying to observe industry attempts to convince the general public that there is some magic in the preparation of even the simplest dosage forms, which is by implication a secret known only to the major brand name firms.) It has been shown by evidence presented at drug hearings both in the United States and Canada that for the typical drug, "factory costs" (producing the active ingredient and making and packaging the dosage forms) are a minor part of the wholesale price. There is no purely economic reason why numerous small firms could not contract out the manufacture of the active ingredient and then tablet and package the finished dosage forms on the basis of a quite moderate total investment. Brisk price competition between many small sellers of drugs might develop if production costs were the only barrier to entry. And this in fact is the prevailing mode of market behavior for those small firms which produce generic name drugs for which tight patent control could not be achieved over their manufacture and/or the sale of their bulk powder. These firms can either produce or buy the bulk powder at the low prices which result from competition among bulk suppliers. These firms then tablet, package and sell the drugs at low prices representing their low costs of production. But in most markets these generic drugs compete with their presumed brand name equivalents, and it is likely that the true production costs of the brand name sellers are even lower than those of the generic firms. But does this mean that the large firms choose to undersell the small generic houses? By no means, they charge prices up to ten or more times as high. But does this not mean that they are not able to make any sales at these high prices? Again, by no means. They outsell the lower-priced drugs ten or twenty to one. To an economist who has been trained to expect that quantity sold is inversely related to prices charged, this is a dumbfounding situation. The answer of course, as is well known, is related to sales promotion tactics.

Sales promotion outlays.—Any spokesman for the domestic drug industry will tell you that its outstanding accomplishments have been in the area of research. But any well-informed expert on marketing is much more likely to tell you that the drug industry's real expertise lies in the area of sales promotion. And indeed the relationship of the marketing budget to the research budget suggests as much. But the myth seems to persist in the general mind that research budgets exceed advertising budgets, despite repeated demonstrations that the latter is several times as high, as can be verified by even a superficial examination of the financial statements of any large drug firm. It seems to me that public education can sometimes be furthered more effectively, therefore, by witty ancedotes or epigrams than by mere statistics. For example, in my experience, Dr. A. D. Console seems to have done more than anyone else to expose to salutary ridicule the dubious nature of much drug industry "research" in his memorable statement during the Kefauver hearings; "They stress that there are many failures for each successful drug. This is true since it is the very essence of research. The problem arises out of the fact that they market so many of their failures." [21] The same device can be used to put drug prices, research costs, and sales promotion outlays in perspective. During the recent Canadian drug hearings, one participant observed: "for every dollar the drug industry spends on research, they spend four dollars telling you about it, and charge you ten dollars more for listening." If anything, this witty statement errs on the side of moderation. Research costs apparently amount to something less than one-fifteenth of sales price, and somewhat less than one-fourth of sales promotion outlays.

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[21] Hearings on Administered Prices, *op. cit.*, part 18, pp. 10372–10373.