fication of terminals, more efficient use of equipment and facilities and economies of other kinds through elimination of duplication of effort.

In merchandising, the larger unit in the form of the department store, the mail-order house and the chain store, has come to occupy an important and prominent place in the period 1919-27. Chain store sales in 1927 were over double those in 1929 in the case of candy, five and ten cent and drug chains, nearly four times as great in the case of grocery chains, and over five times as great in the case of wearing apparel chains. In some cases, such as gasoline distribution, chains are operated by manufacturing concerns, an example of increase in size of corporate unit by combination of economic functions. The advantages of the chain as compared with the small unit store are partly those resulting from large-scale buying power, by which concessions can be obtained from the manufacturer, and more efficient methods of management and operation can be developed for standardized merchandise. The success of the mail-order houses reflects in part these same factors and in part the advantages of catalog merchandising as compared with display merchandising. The competition of specialty stores selling style goods is felt by mail-order houses, chain stores and department stores, as personal service seems to be provided more satisfactorily by the smaller unit.

Summarizing tentatively the material on size of unit, it seems clear that one can determine what size of concern and what size of establishment will be most efficient for a given purpose only by a careful analysis of the exact type of work to be done. Standardization is associated with the large unit, individualization with the small. In fact, I should like to suggest that the possibility of an effective large unit depends on the possibility of sufficient standardization of work to be done to permit statistical control. To bring out my point here, consider the possibilities of constructing a country-wide organization for operating in real estate. I do not see how a standard report could be devised by which the central administration could tell whether an operator in a distant town had taken proper advantage of the existing opportunities for the purchase and sale of farms, stores, dwellings and vacant lots. It has proved possible, however, to reduce to report form data which will show whether a chain grocery store or a telephone exchange, a railroad division or an electric power and light central station is functioning efficiently.

But perhaps I am poaching on Mr. Williams' field. The problem is an especially interesting one for anyone associated with a large company and the material in this report stimulates one's thoughts along various lines.

3. The third major question on which the material in the report throws light is stated to be: Granting that larger units are frequently more efficient, what are the conditions under which such large units can be created by merger of existing smaller units with reasonable prospects of success? Mr. Thorp, in the section on the Changing Structure of Industry, states the results of a searching examination of reported facts as to mergers. From one point of view, the most significant point that he makes is that the number of concerns which considered merging but never reached the final stages is enormous. Because of wide general and stock market interest, any merger was likely to receive a great deal of publicity, while the reverse process of separation to secure greater concentration on a single function attracted relatively little attention.

While the general impression that almost every concern has recently merged or is about to merge is not borne out by the facts, there has been a strong movement toward mergers of either the parallel or the vertical type. Noteworthy instances are the combinations of motion picture producers, distributors and exhibitors, the formation of large chains of retail stores and department stores by the combination of small chains or of unit stores, hotel chains, electric and gas public utilities, and banks. The summaries for manufacturing and mining show that the net reported number of concerns disappearing as the result of merger was 760 in 1920, dropped to 319 in 1922 and rose to almost 1,000 a year in the three latest years. The movement is strongest when general business is active and drops when business declines. The summaries for public utilities show an increase in number of companies disappearing from 285 in 1922 to over 1,000 in 1926 and nearly as many in 1927 and 1928.

Recent material as to the success of consolidations is scanty. A study of pre-war consolidations by Professor A. S. Dewing showed that the results of the consolidation period of about 1900 were not very successful for the ten years after consolidation.

The earnings of the separate plants before consolidation were greater than the earnings of the same plants after consolidation. After another investigation the Federal Trade Commission concluded that "there is but little to indicate that the result of combining the plants of wholesale baking companies into a single organization is a lower cost of bread per pound produced."

While the report thus gives some basic information as to mergers, it does not provide an answer for the question as framed, which is really the question faced by business men who are considering merging. The difficulty, as I see it, is that the most pertinent material does not get published in statistical form. I believe more light on this particular question would come from a frank discussion under the auspices of a group such as the Taylor Society, in which various insiders could make generalizations without stating specifically for record that Bank A resulting from a merger is carrying quite a load of superfluous vice-presidents but does not have on its staff the first-class specialist in foreign exchange that it really needs; that Industrial Merger B is proving very successful because price-cutting millionaire X is now inside the fold and can be restrained from doing harm; that Merger C of Electric Light and Power Plants will have to pass through a long seasoning period because several plants were acquired at a very optimistic valuation and because considerable employe and community ill-will was created by the ruthless discharge of superfluous engineers and executives. After a series of frank discussions, it might be possible to formulate the conditions for a successful merger along some such lines as the following:

a. The units merged must form a logical economic entity, which will really gain by having a common general staff, common operating methods, a common sales force and/or a common purchasing department.

b. The financial basis of mergers must not involve fixed interest obligations in excess of developed earning power.

c. The directors and principal officers of the merger must know their business, with enough grasp of changing economic factors to adjust their policies to current developments.

d. The merger must secure a high-grade general staff to formulate plans and methods. If the officers and employes of the merged companies do not contain such men, they must be secured elsewhere; some of them, at least, should have familiarity with the business.

e. The merger must show an obvious improvement in service before it raises its prices.

f. All former employes of the merged units must be treated equitably.

g. The merged concern must have good luck as respects such items as fluctuations in the prices of their raw materials and in consumer demand for their product, deaths of the principal officers, earthquake, fire, pestilence and stock market panics.

4. Enough has been said in connection with other topics to make clear the implication of the report on the question: "What is the importance for a business organization of technical, operating, marketing, financial, and general management research"; namely, that research of all types is necessitated by the rapid rate of change in the economic structure if a business organization is to keep abreast of its direct competitors and other concerns that are after a share of the consumer's dollar. It is unnecessary to enlarge on the necessity for technical research to improve the design of a product. This report, however, seems to me to bring out more especially the need for research of somewhat different types. Changes of methods of operation, including a changed attitude toward personnel problems, necessitate research along such lines. Changes in distribution of buying power, both as between geographic locations and as between economic classes in the community, and the fickleness of public fancy, necessitate marketing research. The development of new financial methods, changing tax laws and public regulation compel research into financial problems and the rapidity of change, intensity of competition and complexity of current economic developments make appropriate something which we may call general management research—investigations intended to facilitate decisions as to general policies.

It may be suggested that my comments imply a high-brow development which smaller companies cannot carry out. I admit that conditions will not always permit full-time assignment of a competent staff to each of these functions. What is called for seems to be at least a recognition of the need and assignment of some qualified person to each of these lines as occasion requires.

5. Taking up more in detail question 5: "What