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MONOGRAPH No. 35

LARGE-SCALE ORGANIZATION IN THE FOOD INDUSTRIES

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MONOGRAPH NO. 35

LARGE-SCALE ORGANIZATION IN THE FOOD INDUSTRIES

A. C. HOFFMAN

II

ACKNOWLEDGMENT

This monograph was written by

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The Temporary National Economic Committee is greatly indebted to this author for his contribution to the literature of the subject under review.

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(Signed) JOSEPH C. O'MAHONEY,
Chairman, Temporary National Economic Committee.

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LETTER OF TRANSMITTAL

Hon. Joseph C. O'Mahoney,
Chairman, Temporary National Economic Committee,
Washington, D. C.

My dear Senator: The growth of large-scale food corporations is one of the most important marketing developments of recent years. It has affected the marketing structure, the competitive relationships—even the actual mechanics of processing and distributing food products. The Bureau of Agricultural Economics naturally has had considerable interest in this development, and for several years has been carrying on research intended to show how farmers were affected by it and how it is related to their marketing problems.

This monograph was written by a member of the Bureau's staff. It is based partly on his research for the Bureau, and partly on work which he did independently in connection with his doctoral thesis. It is being made available for publication by the Temporary National Economic Committee because it represents one of the first attempts to bring together the salient facts regarding large-scale food distribution. We believe it contributes to a better understanding of this development and its implications for farmers and consumers. The conclusions, however, are solely those of the author, and his connection with the Bureau of Agricultural Economics does not necessarily imply its endorsement of them.

H. R. Tolley,
Chief, Bureau of Agricultural Economics,
Department of Agriculture.

October 7, 1940.

CHAPTER I

INTRODUCTION—THE TECHNOLOGICAL BASIS OF BIG BUSINESS [1]

The outstanding characteristic of modern business enterprise is the tendency toward large-scale organization. To some extent at least, it is to be found in practically all parts of the economy, even in those heretofore regarded as the special province of the small business firm. Among the last to show it were the food industries, where it has come only within the last several decades.

It is not uncommon to regard big business as something new and belonging only to the last century. As a matter of fact, it runs back as far as the recorded history of mankind. Since commerce began, commercial organization has alternated between specialization by function and the integration of trade activities. The small, specialized business unit has dominated the trade of one era; the vast, far-flung corporation, the trade of another.

Gras tells us that the framework of modern big business has been sketched no less than three times during the past 2,000 years.[2] Among its earliest prototypes were the enterprises carried on during the times of the Roman Empire by a group of tradesmen known as the "Negotiators." Through their banking and money-lending activities, these enterprisers came into control of substantial segments of the commerce of their times and were not without resemblance in this respect to some of our modern capitalists.

Following the dissolution of the Roman Empire, trade was carried on for centuries by small peddlers and individual craftsmen of one kind or another. Neither the social nor the economic conditions of the earlier Middle Ages were conducive to large-scale business.

During the later Middle Ages, however, there arose a second precursor of big business—the sedentary merchant. Some of these merchants attained great financial power and conducted enterprises which were sizable even by modern standards. Among the better known of them were the Fuggers, the Baumgartners, the Medici, and the Welsers who operated in continental Europe during the fifteenth and sixteenth centuries. Beginning usually as merchants of one kind or another, they were led naturally into the fabrication, transportation, and financing of the goods which they handled, just as are many of our modern corporations.

Equally significant as early examples of big business were the joint-stock companies organized in England during the several centuries just preceding the industrial revolution. Illustrative of these were the Russia Co., the East India Co., and Hudson's Bay Co., all of

[1] This manuscript was written during 1938. Revisions have not been made to include subsequent data and developments.

[2] N. S. B. Gras, "The Rise of Big Business," Journal of Economic and Business History, May 1932. Much of the earlier historical material used here has been obtained from the writings of Mr. Gras, although the implications and conclusions drawn from the material are largely the writer's.

which were engaged in trading, shipping, and manufacturing enterprises on a large scale. As was the case with the merchant-financiers already described, these companies represented an institutional adjustment to a new set of basic conditioning factors.[3] Greater trade intercourse was developing as a result of the exploitation of resources in hitherto unknown parts of the world. As markets became wider and commercial relationships more complex, the opportunity—even the necessity—grew for men to pool their resources in order to carry on commercial enterprises on a correspondingly larger scale.

When the industrial revolution was ushered in with the nineteenth century, the existing institutional patterns were again universally and almost completely shattered. The application of power and the use of machinery opened up new vistas in virtually every field of economic endeavor. New modes of production brought with them new types of commercial organization. Large amounts of capital were necessary to finance factory production, and a kind and degree of skill unknown to the sedentary merchant was required for the conducting of business enterprise. Accordingly, says Gras,[4] "* * * it became necessary for the diversified business of the sedentary merchant to be unscrambled. The new type of businessman was a specialist who could command capital in new enterprises and obtain technological knowledge in fresh endeavors."

Since that time, however, the swing once more has been away from specialization and toward diversification and integration of business activities. The size of business organization has been vastly increased, both by the horizontal combination of like enterprises and by the vertical integration of functionally different ones. In some industries the tendency has been rapid, in others it has lagged. Usually it has come first in those industries in which the technological forces back of it have been especially impelling and in which competition and uncoordinated action have led to increasingly chaotic conditions. Conversely it has lagged in industries where processing operations have been comparatively simple and in which competition has not been so inordinate.

IN THE FOOD INDUSTRIES

The food industries are among the last fields of enterprise to which corporate mass methods have been applied. There are several reasons for this, chief of which is the fact that the technological processes necessary for the preparation and marketing of food products have been until recently comparatively simple. With few exceptions these processes did not lend themselves to, or at least did not particularly invite, the application of large-scale methods.

Within the past 25 years, however, new processes and new techniques have been perfected which do so lend themselves. For instance,

[3] Adam Smith appears to have misunderstood the historic role of the early stock companies in the evolution of commercial organization. Of them he says (Wealth of Nations, book V, ch. 10), "Except for the four trades above mentioned (banking, insurance, the making and maintaining of canals, and the providing of a supply of water for municipalities) I have not been able to recollect any other in which all the three circumstances requisite for rendering reasonable the establishment of a joint-stock company concur." That the amounts of capital required even in his time for certain manufacturing enterprises and for the carrying on of overseas trade were beyond what commonly could be raised by individuals and private companies seems not to have impressed Smith. In support of his claims against the joint-stock companies he cites the number of financial failures among them, the negligence of their managements, and their general inefficiency. For a refutation of some of these claims, and for what seems to the writer a better understanding of the reasons for, and the economic significance of, these joint-stock companies, see W. R. Scott, Joint Stock Companies to 1720, vol. I, especially ch. 22.

[4] Gras, op. cit., p. 401.

the canning and preserving of fruits and vegetables, once a household function, is now done mainly in factories on a corporate scale. New methods and new types of machinery for milling wheat, baking bread, manufacturing milk products, and handling fresh fruits and vegetables, have tended to increase the size of the business units in these fields. Often these newer processing techniques have been developed by big corporations, so that it may appear at first glance that the line of causation runs from the size of the business enterprise to the mode of manufacture. In a more fundamental sense, however, these techniques are evolved from the existing social fund of knowledge and scientific discovery, the use and application of which can be made more easily by large enterprises than by small ones.

Technological innovation also has been an important factor in the changes which have taken place in the distribution and retailing of food products. The automobile, for example, has extended the shopping radius of consumers and lessened their need for credit and delivery service, thereby contributing to the growth of cash and carry chain-store systems. Even more important has been the greater ease and facility of communication, which has made it possible to extend the supervision of business enterprise over a wider scope and range of activities.

Largely as a result of this latter factor, the whole concept of business management is being revised from that laid down by most of the older economists. They recognized the principle of the division of labor as applied to the mechanical processes of production, but they did not always see that this principle can be made to apply to the function of management as well.[5] One of the most interesting and important aspects of modern big business is its subdivision of duties associated with the managerial function. It is this specialization of tasks in coordinating and controlling business enterprises which has permitted them to grow beyond what Marshall described as the biological limits to their size.[6]

The greater range of activities over which efficient management can now be extended in the field of marketing is due in no small part to the instruments and conveniences provided by modern science and invention. Without the telephone and the telegraph it would obviously be impossible to conduct enterprises as ramified and fast moving as a large chain-store system. Less obvious in their influence but not less important have been the numerous devices—the typewriter, the cash register, the computing machine, etc.—for standardizing and mechanizing the tasks of business management. Without seeking to exaggerate the role of these mechanical aids, it should be emphasized that without them the division of labor and delegation of responsibility which are necessary for the management and control of large-scale enterprise would be difficult, if not impossible.

THE CENTRAL THESIS

This brief review of commercial history and of the forces back of it leads to the thesis that business patterns are largely determined by material factors such as the prevailing mode of production, the

[5] Cf. M. J. Copeland, The Managerial Factor in Marketing, Facts and Factors in Economic History, Harvard University Press, Cambridge, 1932, pp. 596-619.

[6] Alfred Marshall, Principles of Economics, eighth edition, Macmillan & Co., Ltd., London, 1920, book IV, ch. XIII.

facilities for transportation and communication, and the size of the trade area (itself largely resultive). If this is true, there is at least a strong presumption that recent corporate developments in the food industries as well as elsewhere represent the natural and inevitable adjustment of economic institutions to the basic factors which condition them. It would be an oversimplification to insist that technological forces are all that is involved. In some instances corporate mergers and combinations have been engineered for purposes of financial manipulation and extortive gain and have had no real basis in operating advantages or economic efficiency. The greater error, however, is not to recognize that large-scale organization may have a more fundamental impulse than is sometimes thought to be the case.

CHAPTER II

MASS RETAILING OF FOOD PRODUCTS

The growth of the grocery chain is the most interesting and in many ways the most significant large-scale development in the food industries. From a place of comparative insignificance before the World War, corporate grocery chains have grown to the point where they are retailing today approximately 40 percent of all food products sold through retail outlets. Several of these systems operate on a national basis, and one of them does an annual business of nearly $1,000,000,000. It is noteworthy that this development has come in a field of enterprise thought to be particularly unadaptable to corporate mass methods.

Large-scale retailing has taken several forms. Most important are, of course, the corporate grocery chains. Among independent retailers, however, a similar tendency is to be noted in the formation of voluntary chains for the cooperative purchase of supplies. Such chains employ much of the mass technique used by the corporate chains, but with important differences subsequently to be noted. Another recent form of mass retailing is the so-called supermarket, which might be described simply as a gigantic retail unit in comparison with former standards. The extent and character of each of these developments in mass retailing will form the subject matter of the present chapter.

THE CORPORATE CHAINS

In the course of its development, the corporate grocery chain has passed through three distinct periods. The first phase, covering the years prior to 1900, might be described as one of pioneering. In this early period a few small systems were experimenting with multiple-unit retailing and were perfecting the principles of management and operation which were later to serve as the basis of mass distribution.

First in the field was the Great Atlantic & Pacific Tea Co., which dates its origin from 1859. Beginning with a single store in that year, the founders of the system built it into a chain of 25 stores by 1865. Next to be started was the Jones Brothers Tea Co. (now the Grand Union Co.) in 1872. Most of the other well-known grocery chains date their existence from the latter part of the nineteenth century, but in no instance were any of them sizable organizations according to present-day standards.

Even in these early days the grocery chains emphasized rapid turn-over, low overhead, and cash sales. For the most part, new stores were added out of the profits of the enterprise. The scale of their operations was not such as to permit the newly formed chains to integrate the function of wholesaling, nor to institute many of the methods of mass distribution which were to come later.

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The second period, dating roughly from 1900 to the outbreak of the World War, was one of development. In these years the existing chain systems broadened their base of operation while new systems, attracted by the success of the older ones, were formed. Many of the smaller systems started in this pre-war period were subsequently absorbed by the larger systems in their program of expansion. Almost without exception these early twentieth century chain-store developments were slow and conservative, being financed for the most part out of profits accruing from the business.

The third stage began with the close of the World War. It was characterized not only by a rapid increase in both the number and size of chain systems, but also by vertical integration. All the large chains and many of the smaller ones now carried on their own wholesaling operations, and a few of them went actively into the field of processing food products for their stores. The Great Atlantic & Pacific Tea Co., for instance, established its own bakeries, built several milk plants, organized a subsidiary for procuring fresh fruits and vegetables, and arranged for the manufacture of food products under its own brand. Earnings were no longer sufficient to finance the new scale of operations and most of the larger companies secured additional capital by the sale of securities. In general, however, these securities were closely held and did not figure prominently in financial and stock-market transactions.

The five leading grocery chains at the present time are the Great Atlantic & Pacific Tea Co., Safeway Stores, Inc., The Kroger Grocery & Baking Co., First National Stores, Inc., and the American Stores Co. Table 1 shows the number of retail units operated by each of these companies for the period since 1920. The Atlantic & Pacific Tea Co. is, of course, the largest of the chains with more than 15,000 stores located in all parts of the United States. This company operates more retail units than the other four leading systems combined.

TABLE 1.—*Number of retail units operated by the 5 leading grocery chains, 1920–36*

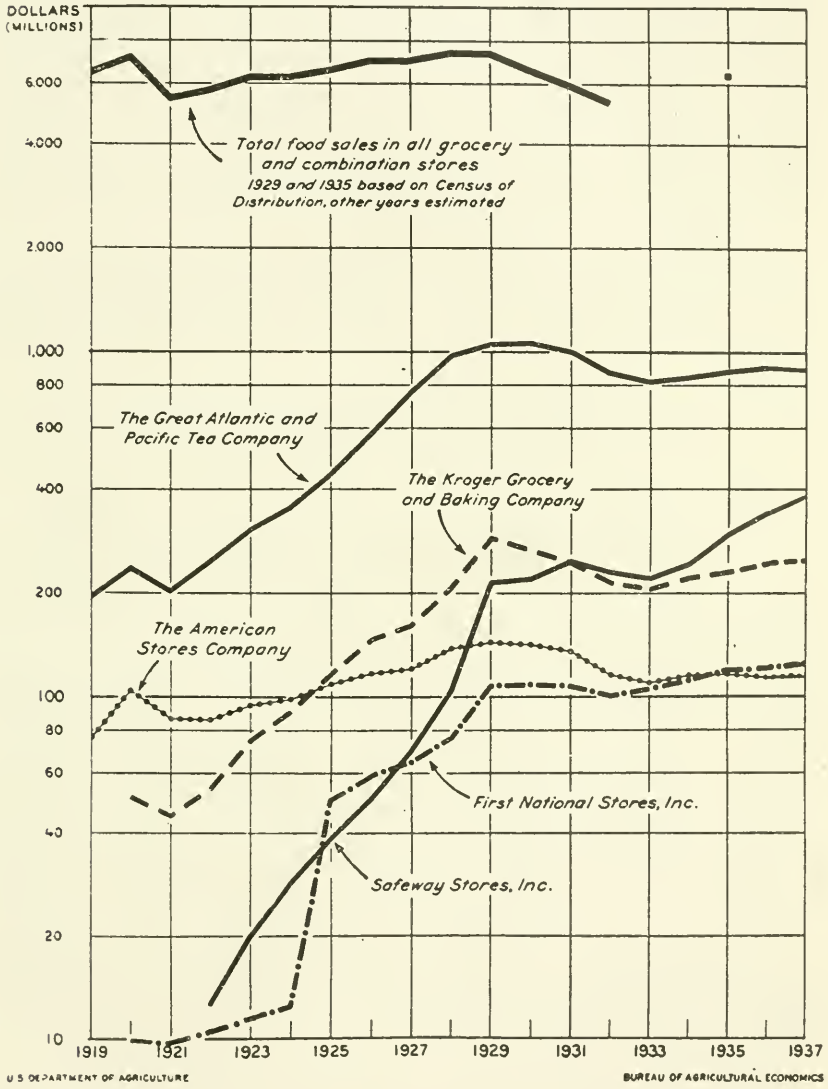
Year	The Great Atlantic & Pacific Tea Co.	The Kroger Grocery & Baking Co.	American Stores Co.	Safeway Stores, Inc.	First National Stores, Inc.
	Number	*Number*	*Number*	*Number*	*Number*
1920			1,243		
1921	5,217		1,274		
1922	7,350	1,413	1,376		
1923	9,303	1,800	1,475	309	
1924	11,421	2,127	1,630	439	
1925	14,034	2,856	1,792	580	
1926	14,811	3,369	1,983	766	1,681
1927	15,671	3,749	2,133	915	1,717
1928	15,177	5,260	2,546	2,020	2,002
1929	15,418	5,575	2,644	2,066	2,549
1930	15,737	5,165	2,728	2,691	2,548
1931	15,670	4,884	2,806	3,527	2,546
1932	15,427	4,737	2,977	3,370	2,705
1933		4,400	2,882	3,291	2,653
1934		4,352	2,859	3,201	2,623
1935		4,286	2,826	3,405	2,556
1936	Over 15,000	4,212	2,816	3,364	

Compiled from the company statements as reported in Moody's Manual of Investments: Industrials.

Despite the rapid growth of these companies, they operate only a small percentage of the total number of retail grocery outlets. The United States Census of Distribution reported a total of 307,425

CHART I

SALES OF FIVE LEADING GROCERY CHAINS COMPARED WITH ESTIMATED TOTAL SALES OF ALL GROCERY STORES



Data from Table 2.

grocery and combination stores [1] in 1929, and 354,971 in 1935.[2] The total number of stores operated by the 5 leading grocery chains

[1] Bureau of the Census, Fifteenth Census of the United States, 1930, Distribution, vol. I, Retail Distribution, pt. 1, table 6.
[2] Bureau of the Census, Census of Business, 1935, Retail Distribution, vol. IV, p. 13.

in these years was about 28,250 and 28,100, respectively. The 5 big chains thus had about 9 percent of all retail grocery units in 1929 as compared with less than 8 percent in 1935. The proportion of the total grocery business which they did, however, has not declined since 1929 because they have followed a policy of increasing the volume of business per store rather than increasing the number of stores.

Dollar sales of the same five systems since 1919 are shown in chart I. The chart also shows an estimate of the total sales of all grocery and combination stores, based on the United States Census of Distribution.

All five systems showed a tremendous growth in volume of business during the 1920's, most of them having increased it at least fivefold. Their combined sales were about $409,520,000 in 1922 as compared with $1,805,000,000 in 1929. The increase in their proportion of total grocery sales was from 7 percent in 1922 to 25 percent in 1929.[3] The Atlantic & Pacific Tea Co., largest of the chains, had about 14 percent of the total grocery business in 1935.

Since 1930 the sales of the big chains have moved up and down from year to year in accordance with changes in the supplies and retail prices of food products. The proportion of the total business done by them has remained about constant since the beginning of the depression.

TABLE 2.—*Sales of 5 leading grocery chains compared with estimated total food sales of all grocery and combination stores, 1919–37*

Year	Estimated total food sales, all stores [1]	Sales of —[2]				
		The Great Atlantic & Pacific Tea Co.	The Kroger Grocery & Baking Co.	The Ameri-Stores Co.	Safeway Stores, Inc.	First National Stores, Inc.
1919	$6, 470, 456, 000	$194, 647, 000		$76, 402, 000		
1920	7, 132, 207, 000	235, 303, 000	$50, 706, 000	103, 059, 000		$9, 873, 000
1921	5, 441, 065, 000	202, 434, 000	44, 851, 000	86, 068, 000		9, 625, 000
1922	5, 735, 177, 000	246, 941, 000	53, 754, 000	85, 866, 000	$12, 468, 000	10, 491, 000
1923	6, 249, 872, 000	302, 383, 000	74, 339, 000	94, 580, 000	19, 947, 000	11, 477, 000
1924	6, 249, 872, 000	352, 093, 000	90, 125, 000	98, 179, 000	28, 532, 000	12, 499, 000
1925	6, 543, 984, 000	440, 023, 000	116, 235, 000	108, 886, 000	38, 692, 000	48, 977, 000
1926	6, 985, 151, 000	574, 087, 000	146, 009, 000	116, 902, 000	50, 537, 000	59, 082, 000
1927	6, 985, 151, 000	761, 403, 000	161, 261, 000	120, 665, 000	69, 574, 000	64, 446, 000
1928	7, 352, 791, 000	972, 799, 000	207, 373, 000	137, 312, 000	103, 304, 000	75, 885, 000
1929	7, 352, 791, 000	1, 053, 693, 000	286, 611, 000	143, 346, 000	213, 496, 000	107, 635, 000
1930	6, 543, 984, 000	1, 065, 807, 000	267, 094, 000	142, 770, 000	219, 285, 000	108, 197, 000
1931	5, 955, 761, 000	1, 008, 325, 000	244, 371, 000	135, 226, 000	246, 784, 000	107, 634, 000
1932	5, 294, 010, 000	864, 048, 000	213, 160, 000	115, 454, 000	229, 173, 000	100, 893, 000
1933		819, 617, 000	205, 692, 000	109, 387, 000	220, 157, 000	105, 813, 000
1934		842, 016, 000	221, 175, 000	114, 365, 000	242, 966, 000	111, 323, 000
1935	6, 352, 420, 000	872, 244, 000	229, 908, 000	115, 867, 000	294, 698, 000	119, 575, 000
1936		907, 371, 000	242, 273, 000	113, 388, 000	346, 178, 000	120, 683, 000
1937		881, 703, 000	248, 444, 000	114, 566, 000	381, 868, 000	124, 295, 000

[1] Total net sales of food in grocery and combination stores for the years 1929 and 1935 were compiled from the U. S. Census of Distribution for these years. For other years sales in such stores were estimated by means of an index number based on estimated consumers' expenditures for food. (Robt. R. Doane, The Measurement of American Wealth. Table XXIII.)

[2] Moody's Manual of Investments: Industrials. 1936 data for The Great Atlantic & Pacific Tea Co. and First National Stores, Inc., compiled from reports published in Commercial and Financial Chronicle.

In addition to the five largest chains mentioned above, there are numerous other sectional and local systems which taken together are a factor of considerable importance in the grocery trade. The 1929

[3] Does not include sales of fruit markets, delicatessen stores, meat shops, and miscellaneous food retailers.

Census of Distribution showed that those chains, classified as national systems, had about 21 percent of the total grocery business; the sectional chains, 8 percent; and the local chains, 10 percent.

On the whole the small grocery chain is less important today than it was 10 or 12 years ago. Much of the expansion of the big systems was accomplished through the acquisition of smaller chains with units in a particular city or territory which the former wished to enter. It is the opinion of the writer that, barring higher chain-store taxes and other legal impediments to their development, the trend will be in the direction of fewer and larger chains rather than toward an increase in the number of small ones.

COOPERATIVE AND VOLUNTARY CHAINS OF INDEPENDENT RETAILERS

Another phase of large-scale retailing has been the organization of voluntary and cooperative chains of independent retailers. Such chains are of two types: (1) The wholesaler-sponsored chain in which the wholesaler takes the initiative in bringing about a closer merchandising affiliation with a group of independent retailers; and (2) the cooperative chain wherein the independent retailers own and operate a wholesaling enterprise on a cooperative basis. In both types the objective is fundamentally the same, namely, to integrate the wholesaling and retailing functions more closely and to provide the independent enterpriser in the grocery field with whatever advantages there may be in large-scale buying and wholesaling operations.

Voluntary and cooperative chains differ greatly in the character of their operations and the services which they render to their member stores. Some of them are closely-knit, coordinated organizations which provide the retailer with nearly all his grocery stocks and assist him actively in the management and operation of his store. In organizations of this sort the methods of wholesaling and retailing take on many of the characteristics of the corporate chains. At the other extreme are the loose associations which provide their members with little else than a common name and whose methods of operation are essentially the same as those of the completely unorganized independent.

The extent to which independent retailers have united themselves into some sort of voluntary or cooperative organization is indicated by table 3. According to the figures compiled by the American Institute of Food Distribution, there were 508 wholesaler-sponsored groups and 164 retailer-owned chains in the United States in 1936. These organizations had a combined membership of more than 100,000 independent retail stores. The 1935 Census of Business shows a total of around 304,000 independent grocery and combination stores for the country as a whole. Thus approximately one-third of this total number are affiliated with voluntary or cooperative groups.

TABLE 3.—*Number of voluntary and cooperative chains in the United States, 1936*

Type of organization	Number of organizations or groups	Number of retail members
1. Wholesaler-sponsored, or voluntary chains	508	77,889
2. Retailer-owned, or cooperative chains	164	23,604
Total, both types	672	101,493

American Institute of Food Distribution, Inc., Group Selling by 100,000 Retailers. Compiled from table 1, p. 52.

It would be incorrect to infer from these figures that mass retailing methods similar to those of the corporate chains are being applied by one-third of all independent retailers. It is probably correct to say that up to the present time most of these cooperative groups have done comparatively little to standardize retail store operations and to provide their members with those merchandising aids and services which are the basis of mass retailing.

So long as the ownership and management of the retail unit is vested in the hands of an independent operator, the complete integration of the functions of wholesaling and retailing and the standardization of retail practices characteristic of the corporate chains will be difficult to obtain. The voluntary chains have made great progress in this direction and the future holds the promise of much more. But the complete application of standardized large-scale methods—whatever their advantages and disadvantages—will probably never be made by the great majority of independent retailers regardless of their organizational and cooperative efforts.

THE SUPERMARKET

A very recent and highly significant development in the field of grocery retailing is the supermarket. It is difficult to lay down any exact definition of a supermarket or to classify any particular retail establishment as being in this category. As the term is currently used, it applies to a retail unit which aims toward a reduction of retailing costs by means of a large volume of business and a minimum of service to consumers. Most supermarkets are operated on a self-serve basis, offer no credit and delivery service, and are located in city districts where rents are comparatively low. Measured by the standards of the average grocery store, their volume of business is tremendous. Their sales commonly run up to three or four hundred thousand dollars per year. The appeal which such stores seek to make to the consumer is one of lower prices for those who demand a minimum of retail services.

The increase in the importance of the supermarket during the last few years has been no less than phenomenal. Within 2 or 3 years several thousands of them have been established in all parts of the country and it is estimated that in 1937 they were doing about 7 percent of the total retail grocery business.[4]

The first retail markets of this sort were established by newly formed companies operating only one, or perhaps a small chain of them. While none of the supermarket companies as yet has a business comparable with that of the leading grocery chains, they are expanding rapidly and have begun the process of vertical integration which characterized the growth of the older chains.

The chains themselves have begun to emulate the supermarket by establishing similar retail stores of their own. This they have been led to do for two reasons: (1) To meet the competition of the new supermarket companies, and (2) to reduce the burden of State chain store taxes based on number of retail units. All of the big grocery chains are experimenting with big store units of this type and are installing them as rapidly as possible. The time is probably not far

[4] Hector Lazo. The Future of Food Distribution, Washington, 1937, p. 35. (Pamphlet.)

off when a large percentage—perhaps the major part—of their sales will be made in the supermarket type of store.

There are two phases to mass retailing. One is integration of wholesaling and other distributing functions with that of retailing, which will be discussed in the next section. The second is the operation of the retail store itself. The tendency of the corporate chains, and more recently of the supermarket companies, has been rapidly and unmistakably in the direction of larger retail units, perhaps of a size and type that today scarcely can be envisaged.

The contrast between the mass distributor and the traditional independent grocer so far as the size of the store unit is concerned is illustrated by the following comparison: To do 1 percent of the total retail grocery business of the United States it takes on the average 429 stores of the supermarket type, 1,170 corporate chain-store units, 4,000 voluntary chain units, and more than 10,000 unaffiliated independent stores. In other words, the average supermarket has a volume of business nearly 25 times as large as that of the average independent, while the average corporate chain unit is 9 times as large. The significance of this from the standpoint of retail methods and efficiency will be discussed later.

VERTICAL INTEGRATION BY THE GROCERY CHAIN

The grocery chains are commonly thought of only in connection with the retailing of food products. Their enterprises, however, reach back into all phases of food processing and distribution, and in many cases, they bridge the entire span between producer and consumer. More than any other type of large-scale food concern, they furnish examples of vertically integrated and diversified enterprises.

Some idea of the diversity of operations carried on by the big grocery chains may be obtained from table 4. This table shows the plant facilities owned and operated by the five leading firms.

The first thing to be noted is that all these systems operate their own warehouses for servicing their retail units with stocks of goods. The Atlantic & Pacific Tea Co. has more than 100 warehouses of this kind in all the larger cities of the country. The function performed by these warehouses is essentially the same as that which the specialized wholesaler performs for the independent retailer. Consequently the corporate chains purchase almost nothing from, and virtually have no dealings with, the specialized grocery wholesaler.

The baking of bread by the larger chains already has been mentioned. The Atlantic & Pacific Tea Co. operates 40 bakeries; the Safeway Co. 21; and the Kroger Co., 12. (Table 4.)

Two of the chains (Kroger and First National) have gone into the meat-packing business and operate packing plants. In the case of the latter company no slaughtering of live animals is carried on, the operations being confined to the curing and processing of meats. The Atlantic & Pacific Tea Co. operates 12 meat warehouses for supplying its retail units with meat products, but it engages in no meat-packing operations.

The entrance of the grocery chains into the field of dairy manufacturing and distribution is especially noteworthy. All of the four largest grocery chains operate condensery plants in producing areas in which milk is canned for sale under their own brands. The

Whitehouse Milk Co., subsidiary of the Atlantic & Pacific Tea Co., is the third largest firm in the canned milk industry. Several of the chains also operate butter and cheese warehouses in or near the areas of heavy milk production where these products are assembled from local manufacturing plants for shipment direct to the branch warehouses of the chains.

TABLE 4.—*Plant facilities owned and operated by the 5 leading grocery chain systems in the United States, 1936*

Type of facility	The Great Atlantic & Pacific Tea Co.	Kroger Grocery & Baking Co.	Safeway Stores, Inc.	American Stores Co.	First National Stores, Inc.
	Number	*Number*	*Number*	*Number*	*Number*
Retail stores	15,427	4,250	3,277	2,822	2,653
Warehouses, total	111	(1)	79	10	(1)
General [2]	52				
Produce	39				
Meat	12				
Fish	5				
Butter	3				
Bakeries	40	13	21	9	(1)
Meat packing plants		2			(1)
Milk plants [3]	13	5	4	1	
Coffee-roasting plants	8	4		(1)	
Canning plants	[4] 6			1	
General factories	9	1	1		1
Printing plants	1	1			1

[1] Indicates facilities are operated, but number unknown.
[2] For serving retail units with a general line of groceries.
[3] Includes condenseries, creameries, cheese, and miscellaneous dairy plants.
[4] Salmon canning. Also operates fishing fleet.

Compiled from annual reports of the companies as given in Moody's Manual of Investments: Industrials.

Other processing operations carried on by the chains include coffee roasting, salmon canning, and the making of a great number of special products such as mayonnaise, spices, jellies and beverages.

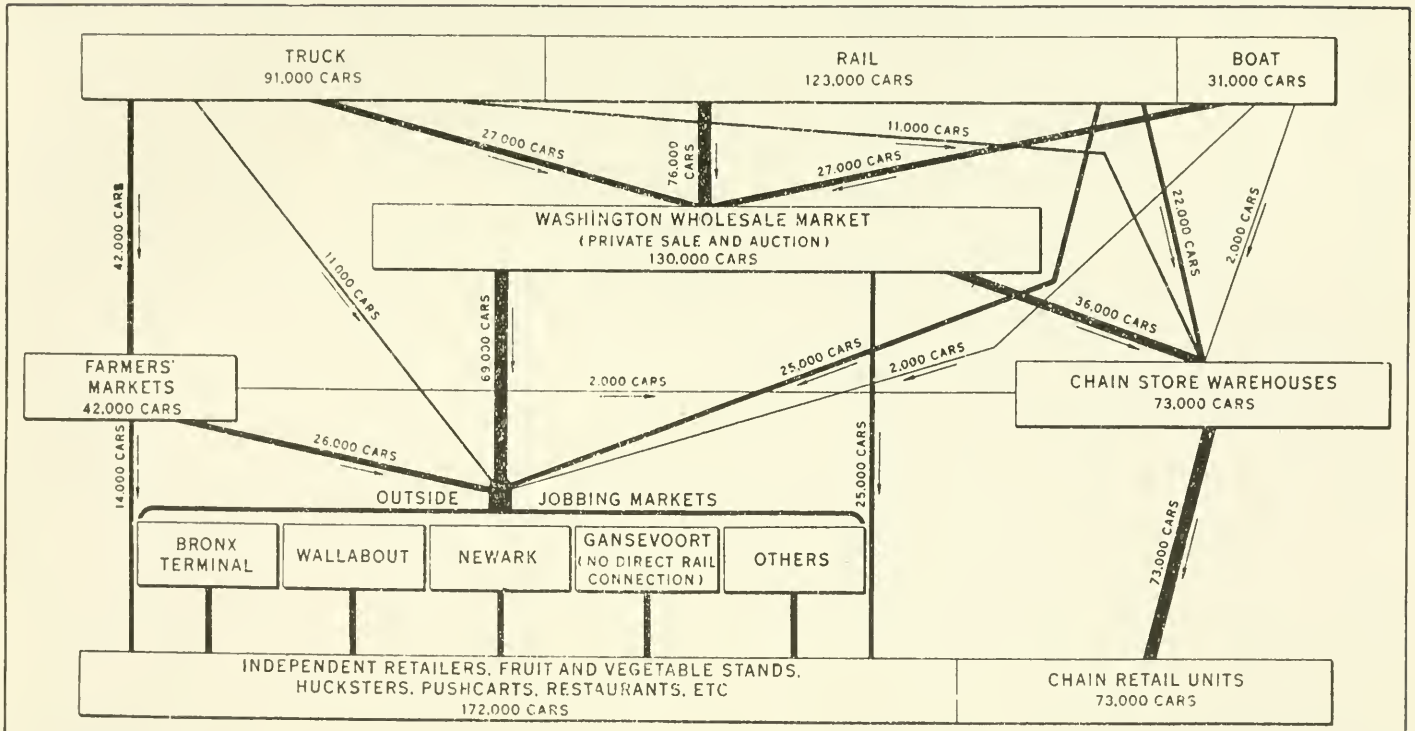
The chains have also gone a long way toward the displacement of the various middlemen engaged in the handling of fresh fruits and vegetables. The larger systems have set up their own subsidiaries for handling these commodities, and wherever possible buy direct from growers and shippers rather than from the regular terminal wholesale markets.

The position of the grocery chains in the distribution of fresh fruits and vegetables in New York City is shown in chart II. Out of a total of 73,000 cars of produce handled by the chains in this city in 1936, they purchased only 36,000 cars from the wholesale markets within the city. The remainder they received direct at their warehouse doors, either from growers or local shippers. The situation in New York City is typical of that to be found in other large urban centers. The proportion of direct receipts of fruits and vegetables by the chains in Boston is about 55 percent; and in Philadelphia, 57 percent.[5] As a rule the larger chains use the terminal markets as a source of supplies less than do the smaller systems. The Atlantic & Pacific Tea Co. buys almost nothing from the terminal produce wholesaler in many cities.

[5] A. C. Hoffman and L. A. Bevan, Chain Store Distribution of Fruits and Vegetables in the Northeastern States. Bureau of Agricultural Economics, 1937, pp. 16–18. (Mimeographed.)

CHART II

FLOW OF FRUITS AND VEGETABLES, NEW YORK METROPOLITAN AREA MARKETS, 1936



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It may be set down as a general rule that the bigger the chain the more distributive functions it tends to integrate. Table 4 showed that the Atlantic & Pacific Tea Co. carries on a wider variety of enterprises than the other big chains, and these in turn are far more diversified than the local chain systems.

That this is true is not due to policy whims on the part of the management of the big grocery chains. For reasons to be discussed more fully in chapter VII, the big chains have been led naturally, and for reasons associated with more efficient operation, into many enterprises other than retailing.

The desire to undertake certain processing and distributive functions in addition to retailing has been one of the main reasons why the larger chain systems have added to the number of their retail units. Obviously it will not pay a small chain of four or five hundred stores to operate a coffee-roasting plant. No system having less than one thousand units would be in position to use the output of a modern plant for canning milk. The question of whether or not it pays the larger systems to go into fields other than retailing is one to which we shall return later. The point to be emphasized here is that the bigger chains actually have done so, and that their desire to synchronize their retailing and manufacturing operations has been one of the main reasons why they have added to the number of their retail stores.

CHAPTER III

LARGE-SCALE ORGANIZATION IN THE MEAT-PACKING INDUSTRY

The first of the food industries to witness the development of large-scale organization was meat packing. The application of mass methods to the processing and distribution of meats was made soon after the Civil War. By the latter part of the nineteenth century the industry was largely centralized in the hands of four or five leading firms. At no time in the past 50 years has the small enterpriser been an important factor in meat processing and distribution.

Meat packing probably illustrates better than any other food industry the effect of technological developments on the size of the business unit. The keystone of modern meat packing is artificial refrigeration. This process was introduced in the late 1870's. Before that time, meat animals had to be slaughtered close to the point of ultimate consumption because of the impossibility of shipping fresh meat for any considerable distance. Under these conditions, centralization of the packing industry was clearly out of question. The slaughter of livestock and the processing of meats quite naturally was done by individual butchers and small companies operating on a local basis.

The introduction of artificial refrigeration about 1875 literally revolutionized the packing industry. It now became possible to centralize livestock slaughter in midwestern cities like Chicago where the economies of transportation dictated that it should be located. With geographical centralization came the opportunity to establish large plants and to apply methods of mass production to the slaughtering process itself. Large-scale plant operations not only made possible the greater mechanization and division of labor which are the bases of mass production, but also permitted the development of animal byproducts which today are of considerable importance in the industry. The modern technology of meat packing is too well known to require description here. Suffice it to say that the process is such that it never can be decentralized and carried on by small enterprises comparable in size to a local creamery or cheese factory.

THE "BIG FOUR" PACKERS

The four leading companies of the present time are Swift & Co., Armour & Co. (which in 1923 acquired Morris & Co.), Wilson & Co., and the Cudahy Packing Co. All these companies began as small individual businesses and can trace their origins back for many years. Gustavius Swift, P. D. Armour, and Nelson Morris, founders of three of the large companies which bear their names, entered the meat business before the Civil War in the capacity of small pork packers. They were also dealers in cattle, in a business which at that time consisted of shipping live cattle from Chicago to eastern points for slaughter or export. The profits made by these pioneers in the

industry were large and furnished most of the capital for their early expansion.

After these companies entered the dressed-beef business about 1880, their growth was phenomenal. By 1897 the five leading packers were operating a total of 20 large packing plants; by 1907, 57 plants; and by 1917, 91 plants.[1] Their facilities for meat distribution were expanded with equal rapidity. In 1884 they had only two branch warehouses for the wholesale distribution of meat. By 1912 the number had increased to 591 and by 1917 to 1,120, nearly half of which were owned by Swift and Armour.

At the turn of the century the five largest packers were purchasing nearly half of all animals sold for slaughter in the United States. Their expansion continued up to the beginning of the World War, at which time they were slaughtering 82 percent of all cattle, 86 percent of all sheep, and 61 percent of all hogs (table 5). The dominant position of the big packer in the meat industry is clearly indicated by these figures.

TABLE 5.—*Proportion of meat animals slaughtered by the 5 leading packers, 1908–35* [1]

Year	Cattle	Calves	Sheep and lambs (including goats)	Hogs	All animals
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
1908	74.9	63.0	71.6	53.2	59.7
1916	82.2	76.6	86.4	61.2	70.5
1919	78.5	77.3	86.8	61.8	69.3
1924	73.2	72.9	83.2	52.7	60.6
1929	69.5	70.9	85.8	47.9	58.7
1935	67.1	71.0	85.3	51.9	66.2

[1] Swift & Co.; Armour & Co.; Morris & Co.; the Cudahy Packing Co.; and Wilson & Co., Inc. and its predecessors. Morris & Co. was acquired by Armour in 1923.

Federal Trade Commission, Agricultural Income Inquiry, pt. 1—Principal Farm Products, 1937, p. 198.

The operations of the packers were by no means limited to meats. They were also engaged in the handling of many other products, most of which were related in some way to the processing or distribution of meats. In 1917 the five big packers produced about one-fifth of the domestic fertilizer, three-fourths of the hides, and nearly one-third of the cottonseed oil.[2] They were important factors in the distribution of butter and eggs, and handled at least half of interstate commerce in cheese. Several of them were also engaged through their subsidiaries in the canning of fruits and vegetables, and most of them distributed a general line of groceries to the retailer along with meats. A few were even operating retail meat markets and grocery stores. All the larger packers held stock in banks and cattle-loan companies, controlled stockyard facilities, and owned large numbers of refrigerator cars. Indeed, their business enterprises at the time of the World War were the largest and most ramified ever developed in the food industries, before or since.

During and immediately following the World War a new development occurred in the packing industry, namely, the growth of small

[1] The Packers' Consent Decree, S. Doc. No. 234, 71st Cong., 3d sess., p. 3.
[2] Federal Trade Commission, Report on the Meat Packing Industry, 1919, pt. I, pp. 35-41.

interior packers with plants located in cities throughout the Corn Belt. Just as technological factors had been responsible 30 or 40 years earlier for centralizing the industry in Chicago and other large western cities, so they were now responsible for some tendency toward decentralization. The chief reason for the growth of the interior plants was the motortruck which made it possible to slaughter hogs nearer to the point of production and thus effect savings in transportation costs. Another source of saving to the interior packer lay in the avoidance of marketing and yardage costs incurred on livestock shipped to the large markets such as Chicago and St. Louis.

Usually these interior packing plants were started by small, newly formed companies. The effect which they had in reducing the volume of business done by the big packers can be seen from table 5. In 1916 the "big four" were slaughtering 71 percent of all animals killed under Federal inspection. In 1929 their percentage had fallen to 59 percent. The decrease in their business was especially marked in the case of hogs and beef cattle.

Noting the success of the interior packers, the "big four" began 8 or 10 years ago to buy up some of them and to build new plants of their own near the sources of livestock production. Their policy in this respect is clearly reflected by an increase in the percentage of hogs slaughtered by the "big four" since 1929 (table 5).

Some idea of the size of the four leading packers and their position both in relation to one another and to the industry as a whole may be obtained from chart III. The chart shows the dollar sales of each of the companies for the period 1919–37. At the top of the chart is a line representing the total value of all meat products as obtained by the United States Census of Manufactures.

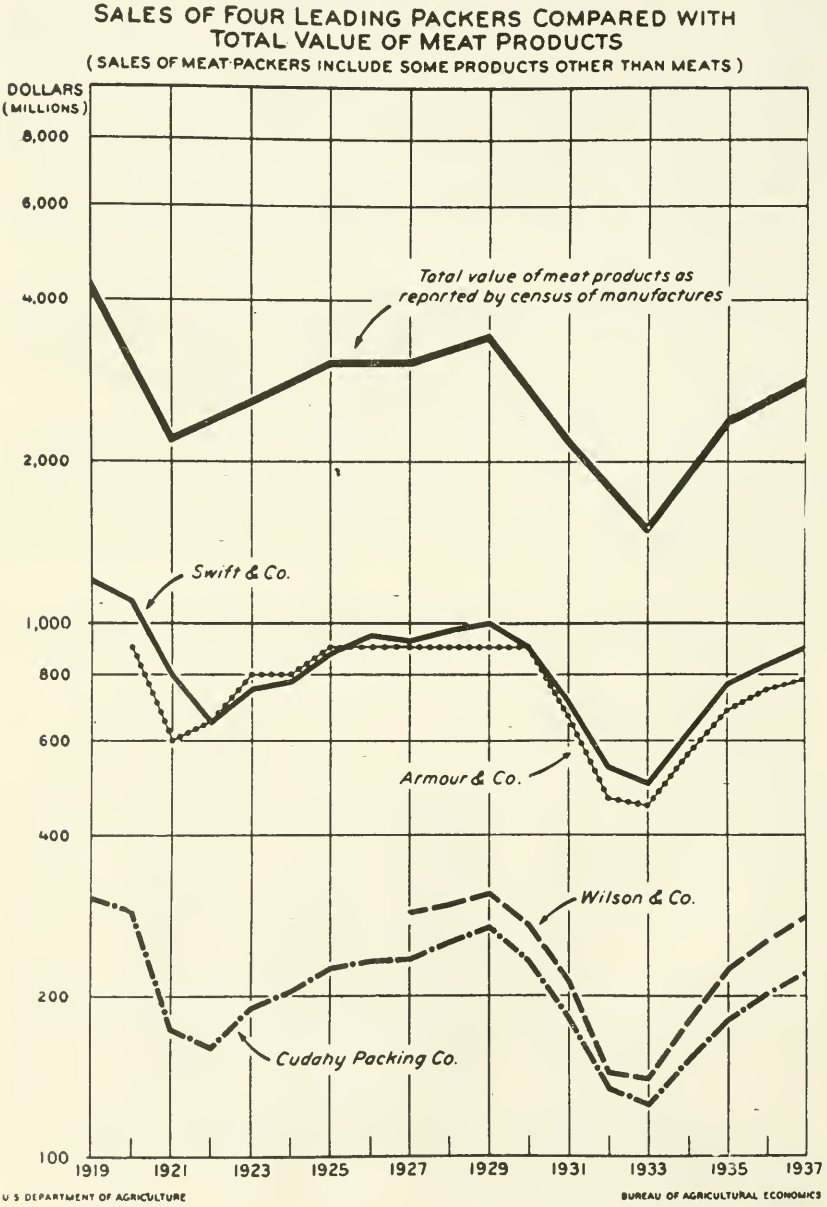
TABLE 6.—*Sales of 4 leading meat packers compared with total value (to manufacturer) of meat and all byproducts of meat packing, 1919–37* [1]

Year	Total value of meat and meat products [2]	Sales of— [3]			
		Swift & Co.	Wilson & Co.	Cudahy Packing Co.	Armour & Co.
1919	$4,246,291,000	$1,200,000,000		$305,997,000	
1920		1,100,000,000		288,802,000	$900,000,000
1921	2,200,942,000	800,000,000		173,695,000	600,000,000
1922		650,000,000		160,164,000	651,146,000
1923	2,585,804,000	750,000,000		190,290,000	800,000,000
1924		775,000,000		203,756,000	800,000,000
1925	3,050,286,000	875,000,000		224,491,000	900,000,000
1926		950,000,000	[4] $195,000,000	231,727,000	[5] 900,000,000
1927	3,057,216,000	925,000,000	285,000,000	233,325,000	900,000,000
1928		970,000,000	295,000,000	251,156,000	900,000,000
1929	3,434,654,000	1,000,000,000	310,000,000	267,960,000	900,000,000
1930		900,000,000	270,000,000	231,407,000	900,000,000
1931	2,180,823,000	710,000,000	212,136,000	181,482,000	668,000,000
1932		539,000,000	145,400,000	133,314,000	468,000,000
1933	1,490,085,000	500,000,000	141,093,000	124,278,000	452,000,000
1934		619,000,000	179,821,000	151,391,000	564,000,000
1935	2,362,369,000	767,227,000	223,018,000	180,218,000	683,000,000
1936		831,672,000	253,226,000	201,606,000	748,935,000
1937	2,787,358,000	885,837,000	282,746,000	222,222,000	788,280,000

[1] Sales of meat packers include other products than meat and meat products, and are therefore not strictly comparable with the figures shown in column 1.
[2] U. S. Biennial Census of Manufactures.
[3] Moody's Manual of Investments: Industrials.
[4] Eight-month period.
[5] Adjusted for a 12-month period.

Swift and Armour, of course, are the two largest firms in the packing industry at the present time. Each did a business of approximately $1,000,000,000 in 1929, as compared with $310,000,000 for Wilson and $268,000,000 for Cudahy.

CHART III



Data from Table 6.

As already pointed out, the period of corporate expansion in meat packing occurred before the World War. The last 15 or 20 years therefore have not witnessed the changes in meat packing which took place in most other food industries. This is evidenced by the fact that the dollar sales of the four big packers have fluctuated just about in proportion to changes in the total value of all meat products since 1919.

The combined sales of Swift and Armour were 64 percent of the total value of all meats in 1921, 55 percent in 1929, and 61 percent in 1935.[3] The decrease in their percentage from 1921 to 1929 is to be explained by the growth of the interior packers described above. The subsequent increase in their percentage of sales reflects the acquisition of some of these interior plants.

VERTICAL INTEGRATION BY THE MEAT PACKERS

In the preceding chapter on grocery chains, we have seen how they integrated in the direction of the farmer by performing for themselves many of the services of wholesaling and processing for their member stores. The big processor, of which the meat packers are perhaps the best example, has integrated both toward the farmer and toward the retailer. For many years the big packers have operated their own branch houses for distributing meat direct to the independent retail store. In other words, they have assumed the function of wholesaling, which in the case of most other food products is performed mainly by specialized middlemen. More recently they also have begun to buy more and more of their livestock direct from farmers, which has meant that they have tended to displace the specialized middlemen at that end of the marketing system.

The position of the big meat packers and their relation to other handlers of meat products at all stages in the marketing process may be ascertained from a careful examination of tables 7 and 8. Table 7 shows the sources from which the packers obtain their livestock supplies, and table 8, the sales outlets to which they sell their meats.

TABLE 7.—*Sources of livestock supplies of 11 meat-packing companies, 1935*

Sources of supply	Livestock purchases in terms of percentage of total		
	Cattle	Calves	Hogs
On public stockyards:	*Percent*	*Percent*	*Percent*
From private commission firms	71	59	31
From cooperative commission firms	10	9	7
From order buyers, traders, etc	5	7	6
Direct from producers at country points	9	11	25
Direct from country dealers and shipping associations	5	14	31

Federal Trade Commission, Agricultural Income Inquiry. Pt. 1—Principal Farm Products, 1937, p. 1015.

[3] The proportion of meat products handled by these two firms is not so large as these percentages would indicate because their dollar sales include many products other than meats.

TABLE 8.—*Sales outlets for meats used by 8 leading meat-packing companies, 1935*

Sales outlets	Sales as percentage of total		
	Beef	Veal	Pork
	Percent	*Percent*	*Percent*
Independent meat markets and grocery stores	67	78	74
Corporate grocery chains	11	7	7
Cooperative and voluntary chains	6	4	2
Wholesale meat dealers and jobbers	8	5	6
Other outlets	8	6	11

Federal Trade Commission, Agricultural Income Inquiry. Pt. I—Principal Farm Products, 1937, p. 1018.

In the case of cattle and calves, the packers purchase the bulk of their supplies through the commission firms on the larger terminal livestock markets. Eighty-six percent of the cattle and 75 percent of the calves are procured through such commission firms (table 7). The bulk of the hog supplies, however, is no longer obtained in this way. At the present time the big packers are buying more than half their hogs direct from growers and shippers at country points. Direct buying of livestock by the packers represents the integration of the assembling function formerly performed by the terminal commission firms. It is but one phase of the general trend toward the elimination of middlemen which has accompanied large-scale organization for nearly all agricultural products.

There are even fewer intermediaries between the packer and the retailer than between the packer and the farmer. Of the total meat sales made by eight leading packing companies, approximately three-fourths are made direct to independent meat markets and grocery stores (table 8). From 7 to 10 percent of these sales are made to grocery chains, and only 6 to 8 percent to wholesale meat dealers and jobbers.

The small part played by specialized wholesalers and jobbers in meat distribution is due partly to the perishable character of most meat products, but mainly to the fact that this industry developed years ago under conditions of large-scale organization.

An interesting sidelight relative to meat distribution at the present time is the friction which has developed between the big packers and the grocery chains over the question of how the retail units of the chains shall be serviced with meats. Since the big packers have their own branch warehouses for this purpose, they have sought to handle chain-store meats through these warehouses. But the chains have wholesale warehouses of their own, and they have insisted that the packers ship meats direct to these warehouses from the central packing plants. In buying their meats in this way, the chains of course insist that the packers give them price discounts in line with the lower cost of making direct meat shipment. The larger chains have held rigidly to the policy of handling meat through their own warehouses, but the smaller systems still permit the packers to perform this service for them.

MERGERS AND POOLS IN THE PACKING INDUSTRY

For the past 50 years there has been an almost constant drive by the big packers toward greater centralization of control. Before 1900, this took the form of pools and similar agreements aimed toward a

lessening of competition and a better coordination of processing facilities and sales efforts. From 1900 to the outbreak of the World War, the same tendency was expressed through holding companies and the outright purchase by the big packers of many of the smaller ones. The situation for the past 15 years has been fairly static under the terms of the packers' consent decree to be described later.

The first pool of which there is record was the "Allerton pool" formed in 1888 by Swift, Armour, Morris, and Hammond. The object of the pool was to control the quantity of meat shipped by each member, but it was never very effective in doing this.[4] An investigation by a committee of the United States Senate in 1890 charged these firms with collusion for purposes of fixing meat prices, division of sales territories and the purchase of livestock. These charges against the big packers were partly responsible for the passage of the Sherman Antitrust Act in 1890.

Despite the antitrust legislation, the same group of packers and several additional ones formed a new pool in 1893. It was known as the "Veeder pool" and operated for 3 years. The main objective of the arrangement was to divide sales territories and apportion the sales among members on a definite quota basis. Fines were assessed against any members of the pool who exceeded their quotas.

In 1898 still another pool was formed, differing but little from the Veeder pool. The Federal Government then asked for, and received, an injunction against such pools in 1903.

Meanwhile, Swift, Armour, and Morris began to acquire a number of smaller companies with the idea of forming a huge merger to cover most of the packing industry. Plans for the merger were upset by the panic of 1903. Thereupon they immediately formed a holding corporation called the National Packing Co. which enabled them to continue many of the practices of the old Veeder pool. The National Packing Co. was dissolved in 1912 by the threat of court action by the Federal Government.

Even this did not end the efforts of the packers to enter into various pooling arrangements. Just before the World War, the "big four" organized another pool which lasted until 1918. It took the form of an arrangement whereby livestock purchases at each market and for the country as a whole were to be divided among them on a definite percentage basis, subject to revision from time to time. The same firms also organized an international pool to regulate and divide beef shipments from South American countries in which they had plants.

The packers supplemented their various pools and agreements by a long series of mergers and combinations. During the whole period since 1900, they have added to their holdings by the acquisition of scores of competing companies. The first big merger was the acquisition by Armour in 1902 of the G. H. Hammond Co., one of the largest packers of the time. An even more important merger was the consolidation of Armour with the Morris Co. in 1923. Before the merger these two companies ranked second and third, respectively, in the industry. Their consolidation gave Armour a volume of business about equal to that of Swift & Co. This tendency toward the purchase of smaller companies continues up to the present time. Even during the depression, several of the big packers continued to buy

[4] Federal Trade Commission, Report on the Meat Packing Industry, 1918, pt. II, p. 13.

the properties of some of the interior packers which had grown up in recent years.

With the exception of the Armour-Morris merger, however, there have been few important developments in the packing industry since the big companies entered into what is known as the Packers' Consent Decree in 1920. In 1919, the Federal Government had proceeded once more against the big packers in an effort to indict them for violation of the antitrust laws. The charges against them were not only that they were operating pools and other illegal arrangements in restraint of trade, but that their other operations such as the canning, warehousing, and wholesaling of unrelated food products were threatening to disrupt the entire distributive system for food products. In an effort to avoid possible indictment, the five big packers (including Morris) voluntarily agreed in 1920 to a set of propositions known as the Packers' Consent Decree.

Under the terms of this decree, the above companies agreed to dispose of their holdings in (1) public stockyards, (2) railroad terminals, (3) market newspapers, and (4) public cold-storage warehouses for products other than meats. They also agreed to discontinue their retail meat stores, and to quit the wholesale distribution of products unrelated to meats, notably groceries. They were allowed to retain their distributive facilities for meats, which included refrigerator cars, cold-storage plants, and branch warehouses. They also were permitted to continue the handling of dairy and poultry products, cottonseed oil, and oleomargarine.

The Federal Trade Commission has since charged that the packers have been dilatory in complying with some of these provisions. The decree does appear, however, to have had the effect of restraining for the time at least their efforts to expand their operations beyond the slaughter and distribution of meat products.

It is important to understand some of the real reasons which lay back of these persistent and seemingly provocative efforts of the big packers to merge and to enter into what the Federal Trade Commission felt were illegal pooling arrangements.[5] The Commission charged the packers with making and receiving secret and unfair rebates, with improper methods of eliminating competition, with the fixing of prices, and with the extortion of excessive profits in some of their enterprises. There was undoubtedly considerable foundation for some of these charges, but the cause of the violations ran deeper than the Commission points out.

In the first place, the element of competition in meat packing led to a considerable overexpansion in the slaughtering as well as in the distributive facilities for meat products. This in turn gave rise to price cutting and to abuses not unlike those which existed in the railroad industry before the roads were brought under Federal regulation. The organization of the packer pools, the division of territories, and the apportionment of sales quotas can be explained at least partially on the grounds that they were necessary to rationalize the industry and to prevent inordinate competitive practices. It is now universally recognized that competition in the railroad industry leads to intolerable waste and duplication of railroad facilities, and this in turn, to ruinous rate competition and discriminatory practices.

[5] Cf. Federal Trade Commission, Agricultural Income Inquiry, 1937, pt. I, ch. IV, sec. 3, pp. 196–211.

But it is not generally understood—or at least it is not admitted—that the same holds true for the meat-packing industry.

Many of the mergers and consolidations made by the packers were clearly for the purpose of reducing costs of slaughter and distribution. Without such consolidations the unnecessary duplication of packing-house facilities unquestionably would have been much greater than it was, with higher plant costs as the inevitable consequence. An even greater incentive to mergers lay in the reduction of selling and distribution costs. The wholesale distribution of meats requires the operation of district cold-storage warehouses from which deliveries of meat can be made to nearby retail stores. Each packer distributing in any particular city must operate such a district branch and maintain a staff of salesmen to canvass among the retail outlets of the vicinity. It is evident that the consolidation of such branch facilities would result in substantially lower costs for distributing meats. In many instances, if not in most, it was the prospect of such savings rather than the desire for monopoly gains that led the packers into their consolidation programs.

Many observers have never understood why the packers handle products other than meats and have tried persistently to extend their operations into fields seemingly unrelated to meat packing. The common notion is that they hoped in this way to gain certain competitive advantages based on unfair and extortive trade practices. Undoubtedly this was a factor, but not the only one.

The costs of operating branch warehouses and selling meats to the retailer represent a considerable part of the packers' gross margin. These costs are mainly in the nature of an overhead which can be reduced by the handling of additional products. Dairy and poultry products require refrigeration and must be handled in much the same way as meats. Since little extra expense was involved, the packers naturally began to distribute dairy products through their branch warehouses in an effort to reduce the warehouse overhead.

The desire to reduce overhead costs also led them to extend their business in other ways. It is obvious that the costs of selling meats to the small retailer will be substantially reduced if the packer salesman is in position to sell the retailer additional lines of goods. It was primarily to get such lines that the packers began the handling of dairy products, canned goods, coffee, and eventually a large variety of grocery items. To carry this another step—as the packers tried to do through the operation of retail markets—such selling costs might be still further reduced if the functions of retailing and wholesaling were integrated in such a way that sales solicitation of the retail outlet were no longer necessary.

All of this is not to imply that there may not have been a considerable element of financial manipulation and extortive gain involved in the development of large-scale organization in the packing industry. It would be a mistake, however, to look at this development only from this standpoint. Many of the principles of mass distribution and functional integration which the packers were criticized for trying to effectuate 30 or 40 years ago are now being applied by the corporate grocery chains and are generally accepted as being in the interest of more efficient food distribution.

CHAPTER IV

LARGE-SCALE ORGANIZATION IN THE DAIRY INDUSTRY

The growth of large-scale organization in the dairy industry is a comparatively recent development. Prior to the World War the manufacturing of dairy products was carried on almost entirely in small, local plants owned either independently or by producer cooperatives. With the exception of the meat packers, which have been important factors in the distribution of butter and cheese for many years, there were no corporations handling dairy products on a national basis. It is probably correct to say that until very recently the dairy industry was more decentralized and less characterized by large-scale organization than any of the food industries, with the exception of grocery retailing.

The last 15 years, however, have witnessed the organization and growth of large corporations in all branches of dairy marketing and manufacture. The most outstanding examples of this are the dairy companies such as the National Diary Products Corporation and the Borden Co.; the national chain-store systems, several of which have gone into the manufacturing as well as the retailing of dairy products; and the meat packers. The organization of several producer cooperatives marketing dairy products on a national scale is another example of the general trend toward large-scale organization in this industry, although on the whole such developments under the cooperative form of business enterprise have not kept pace with those under the corporate form.

THE SPECIALIZED DAIRY CORPORATIONS

There are at the present time six dairy corporations operating on what might be termed a "national basis." The two largest of these are the National Dairy Products Corporation and the Borden Co. Both these organizations have extensive facilities for manufacturing dairy products and for distributing them in most parts of the country. Next in size are the Beatrice Creamery Co. and the Fairmont Creamery Co. which do a business similar in character to that of the first two, but on a smaller scale. There are also the Carnation Co. and the Pet Milk Co., both engaged primarily in the manufacture and distribution of condensed and evaporated milk. Several of the big meat packers and chain-store systems handle a larger volume of dairy products than some of the specialized dairy corporations listed above, but for the moment discussion will be confined to the dairy companies.

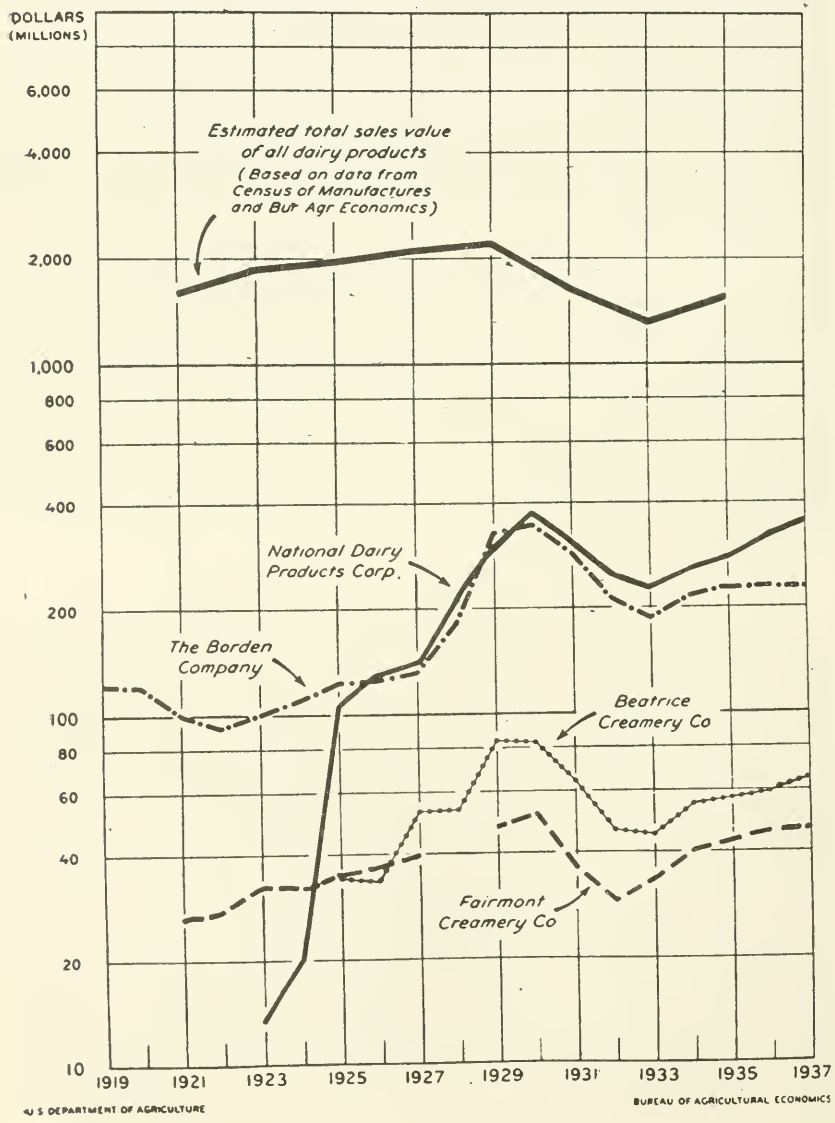
Dollar sales of the four leading dairy corporations for the period 1919–37 are shown in chart IV. All these companies, and particularly the two largest, showed a tremendous growth during the decade of the twenties. In the interval from 1925 to 1929, the sales of the National Dairy Products Corporation increased from about $105,000,000 to $300,000,000; sales of the Borden Co., from $123,000,000 to

$328,000,000; and of the four reporting companies combined, from $299,455,000 to $760,000,000. During this same period the estimated total sales value of all dairy products increased from about $1,965,000,000 to $2,200,000,000. Dollar sales of the four leading dairy companies thus more than doubled during a 5-year period in which the total sales value of dairy products increased only about 12 percent.

CHART IV

SALES OF FOUR LEADING DAIRY COMPANIES COMPARED WITH ESTIMATED TOTAL SALES VALUE OF DAIRY PRODUCTS

(SALES OF INDIVIDUAL COMPANIES INCLUDE SOME PRODUCTS THAT ARE NOT DAIRY PRODUCTS)



Data from Table 9.

The period of rapid expansion on the part of the dairy companies ended at least temporarily with the beginning of the depression. Their dollar sales since that time have fluctuated about in accordance with changes in the production and price of dairy products (chart IV).

TABLE 9.—*Sales of 4 leading dairy companies compared with estimated total sales value of dairy products, 1919–37*

Year	Estimated total sales value of all dairy products [1]	Sales of [2]—			
		National Dairy Products Corporation	Beatrice Creamery Co.	The Borden Co.	Fairmont Creamery Co. (Delaware)[3]
1919				$122,284,000	
1920				120,294,000	
1921	$1,605,345,000			99,880,000	$26,899,000
1922				92,059,000	28,565,000
1923	1,863,333,000	$13,569,000		100,245,000	33,521,000
1924		20,181,000		109,667,000	33,027,000
1925	1,963,988,000	105,377,000	$35,051,000	123,353,000	35,674,000
1926		134,550,000	33,974,000	124,912,000	37,504,000
1927	2,105,292,000	145,330,000	52,744,000	132,047,000	39,823,000
1928		212,632,000	53,307,000	180,850,000	[4]
1929	2,198,575,000	300,021,000	83,682,000	328,467,000	47,747,000
1930		374,558,000	82,811,000	345,423,000	[5] 51,586,000
1931	1,624,008,000	320,788,000	64,059,000	284,587,000	36,295,000
1932		252,654,000	46,264,000	212,349,000	29,031,000
1933	1,311,995,000	231,197,000	44,868,000	186,301,000	33,617,000
1934		267,415,000	54,883,000	215,724,000	40,371,000
1935	1,601,215,000	290,441,000	57,117,000	229,888,000	42,995,000
1936		329,172,000	59,667,000	238,845,000	46,005,000
1937		351,016,000	64,224,000	237,562,000	46,884,000

[1] The value of fluid milk and cream sales in 1929 has been obtained from the 1930 Census of Distribution which shows sales by retail and wholesale distributors. For years other than 1929, sales have been estimated on the basis of the United States retail price of fluid milk as compiled by the Bureau of Labor Statistics and the estimated consumption of fluid milk and cream as reported by the Bureau of Agricultural Economics. These estimates of the value of fluid milk and cream sales are intended only to show the trend from year to year.

[2] Moody's Manual of Investments: Industrials.

[3] Before 1929 was known as Fairmont Creamery Co. (Nebraska).

[4] Not available.

[5] 14-month period.

The National Dairy Products Corporation, largest of the dairy companies, was incorporated in 1923. The corporation immediately began a program of expansion, usually by acquiring the stock or assets of established dairy companies. Among its first acquisitions was Sheffield Farms, Inc., which is the largest fluid-milk distributor in the New York metropolitan area. In rapid succession, National Dairies acquired fluid-milk and ice-cream facilities in most of the large cities of central and eastern United States. Its largest single acquisition was the purchase of the property and assets of the Kraft-Phenix Cheese Corporation. The latter corporation itself previously had acquired control of no less than 50 separate dairy companies, including Southern Dairies, Inc., which had extensive facilities throughout the southern and southeastern States.

By the end of 1930 the National Dairy Products Corporation was doing business in most parts of the country east of the Mississippi and in several foreign countries. During the 10-year period, 1923–32, it acquired control of 331 separate dairy companies, 194 of them directly and the remainder as subsidiaries of acquired companies.[1] The corporation made its most rapid expansion in the years 1928, 1929, and 1930, and since that time has grown comparatively littl

[1] Federal Trade Commission, Agricultural Income Inquiry, 1937, vol. II, p. 448.

The National Dairy Products Corporation handled 7,177,041,000 pounds of fluid milk and milk equivalent in 1934, which was 9.4 percent of the total volume of milk moving into commercial channels in the United States that year.[2] For certain products and in some market areas, however, the corporation is much more important than this percentage would indicate. It is estimated that for the United States as a whole, it is handling more than 21 percent of the total volume of ice cream consumed, this percentage in some States running as high as 40–50 percent.[3] Through the Kraft-Phenix Cheese Co., it manufactures and sells approximately one-third of the total supply of cheese in the United States. In the case of fluid milk, the corporation is estimated to be distributing about 10 percent of the total volume for the country as a whole, with the percentage running up to 30–50 percent in most cities in which it has distributive facilities.[4] Most of the corporation's business is in fluid milk, ice cream, and cheese. It is comparatively unimportant in the handling of butter and condensed milk.

The Borden Co. is similar in size and in the general character of its operations to the National Dairy Products Corporation. It was incorporated in 1899, succeeding a business originally established in 1857 to manufacture condensed milk. Its growth was steady but comparatively slow until 1928. In that year it began a program of rapid expansion, which carried its sales from $132,000,000 in 1927 to $345,000,000 in 1930. The expansion program ended with the beginning of the depression and has not been resumed thus far.

In the 5-year period from 1928 to 1932 the Borden Co. acquired 207 separate dairy enterprises located in 18 different States.[5] As in the case of the National Dairy Products Corporation, the Borden Co. achieved its expansion chiefly through the purchase of the stock or assets of established dairy companies, some of them already sizable enterprises in themselves.

As of 1934, the milk and milk products handled by the Borden Co. were equivalent to about 6.8 percent of the total production of milk for commercial use. It will be recalled that the comparable percentage for the National Dairy Products Corporation was 9.4 percent. The Borden Co. handles all dairy products, although the major part of its business is in fluid-milk distribution. It ranks above the National Dairy Products Corporation in volume of condensed milk manufactured, but below it in volume of cheese and butter.

Third in importance among the dairy corporations is the Beatrice Creamery Co., successor to a produce enterprise started in Nebraska in 1891. The company had a slow but steady growth until 1925, at which time it began a program of expansion which more than doubled its sales within the short span of a few years. The main emphasis of the Beatrice Creamery Co. always has been on butter. It ranks as the third largest handler of this commodity, its volume being exceeded only by that of the two big meat packers. In addition to butter, the company manufactures and distributes substantial quantities of ice cream and cheese, and has a fluid-milk business in a number of midwestern cities. It is not a factor in the manufacture and dis-

[2] Federal Trade Commission, Sales and Distribution of Milk and Milk Products in the New York Sales Area, 1937, H. Doc. No. 95, 75th Cong., 1st sess., p. 81.
[3] Ibid., p. 89.
[4] Ibid., pp. 87–88.
[5] Federal Trade Commission, Sales and Distribution of Milk and Milk Products in the New York Sales Area, table 3, appendix.

tribution of condensed and evaporated milk. At the present time the company operates dairy manufacturing and storage facilities in 17 States.

Like the other large dairy companies, the Beatrice Creamery Co. has integrated the distributive functions up to the retailer. It has branch houses in many of the larger cities of the country for making sales of dairy products direct to grocers, hotels, and in some cases to consumers. One of the reasons back of its expansion program has been the need for developing a "family" of dairy and poultry products to help carry the overhead costs of a vertically integrated marketing system.

Dollar sales of the Fairmont Creamery Co. rank fourth among those of the dairy corporations (chart IV). It conducts a business similar in character to that of the Beatrice Creamery Co. just described, but on a somewhat smaller scale. While this company doubled its sales during the decade of the twenties, by the acquisition of many smaller companies, its growth did not keep pace with that of the other large dairy corporations.

The Carnation Co. and the Pet Milk Co. are the leading factors in the manufacture and distribution of condensed and evaporated milk. The two of them together handle about one-third of the total volume of these products produced, practically all of which they manufacture in their own plants.

The Carnation Co. was organized shortly after the World War for the manufacture and sale of canned milk. Most of the company's business is still with this product, although it subsequently acquired facilities for distributing fluid milk in a number of western cities. The Pet Milk Co. is also interested mainly in condensed and evaporated milk, for the manufacture of which it operates 30 plants in various parts of the United States.

THE MEAT PACKERS AND GROCERY CHAINS IN RELATION TO THE DAIRY INDUSTRY

In addition to the specialized dairy companies just described, the two other types of large-scale corporate handlers of dairy products are the meat packers and the grocery chains. The meat packers have been important factors in the distribution of butter and cheese for many years, but the entrance of the grocery chains into the dairy field is a comparatively recent thing.

The meat packers distribute dairy products to their route customers (i. e., retailers and institutions) along with meats. In point of volume handled, they outrank even some of the big dairy companies. Thus far they have not gone extensively into the manufacture and distribution of condensed and evaporated milk, and, of course, they do not distribute fluid milk.

The significance of the grocery chains for dairy marketing extends far beyond the function of retailing. To an increasing extent the larger chains are buying their butter and cheese direct from creameries and cheese factories, or from marketing cooperatives which serve as an intermediary between the two. The chains have not yet gone much into the manufacture of butter and cheese, although some of them have facilities for assembling butter and for the warehousing of cheese. The dairy-manufacturing activities of the chains are

confined mainly to condensed and evaporated milk, in which field they are very important factors.

THE GROWTH OF LARGE-SCALE PRODUCER COOPERATIVES

The producers' cooperative movement in the dairy industry began many years ago, but not until recently did it develop what might be termed "large-scale marketing organizations." Cooperative marketing in this industry first took the form of producer-owned creameries and cheese factories whose handling of the product did not extend beyond the point of local manufacturing and sale to the private wholesale assembler. This development, however, furnished the basis for the subsequent organization of cooperative sales agencies, several of which now distribute dairy products on a regional and even a national basis.

Dollar sales of the five largest dairy cooperatives are shown in chart V. Most of these organizations showed a substantial increase in volume of business prior to 1930, although on a much smaller scale than the private corporations already described. Sales of the Dairymen's League, Inc., largest of the dairy cooperatives, increased from about $62,000,000 in 1921 to $89,000,000 in 1929. Land O' Lakes, a cooperative selling organization for creameries located in the Great Lakes Dairy States, increased its sales from about $39,000,000 in 1925 (its first full year of business) to over $52,500,000 in 1929. The three smaller cooperatives shown in chart V more than trebled their business from 1921 to 1930, although the actual increase was less than that of the two largest organizations.

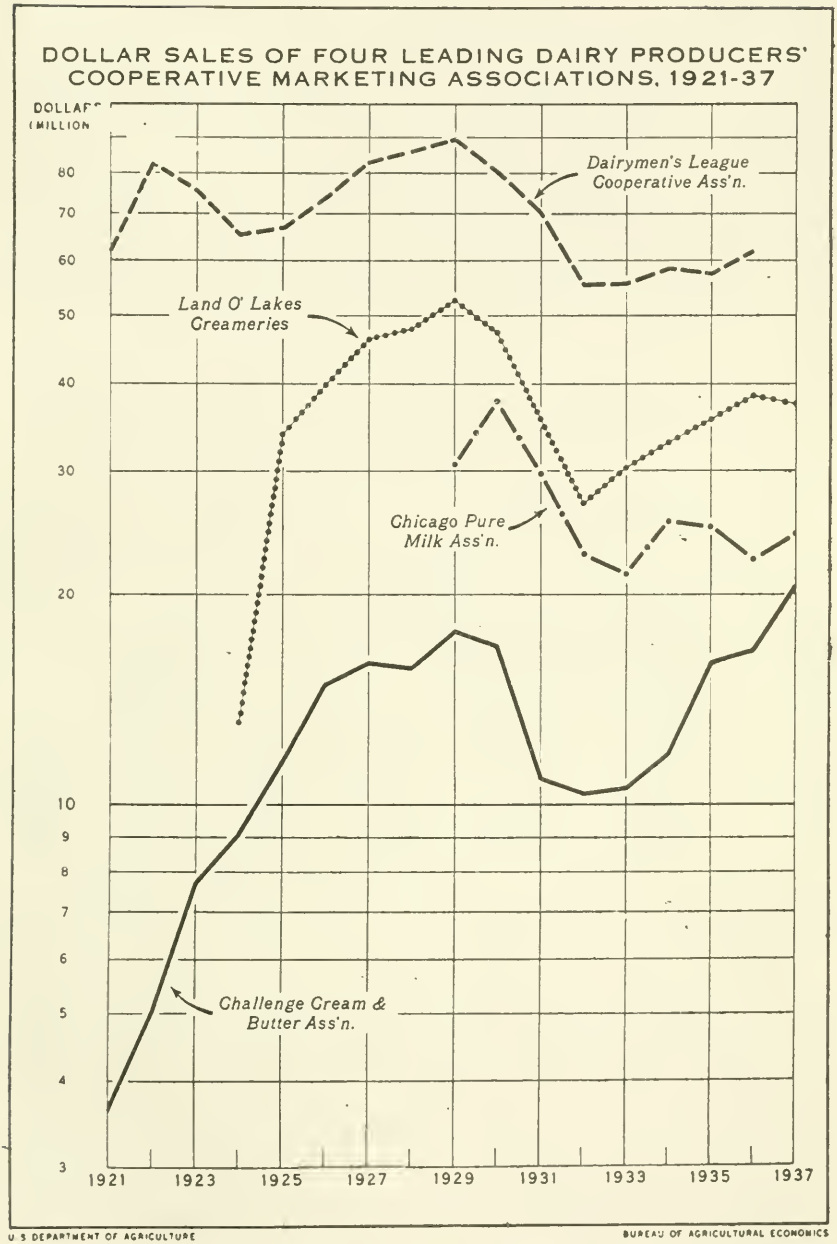
TABLE 10.—*Dollar sales of 5 leading dairy producers' cooperative marketing associations, 1921–36*

Year	Dairymen's League Cooperative Association [1]	Land O' Lakes Creameries [2]	Iowa State Brand Creameries, Inc.[2]	Challenge Cream and Butter Association [3]	National Cheese Producers' Federation [3]
1921	$61,943,832			$3,658,176	$2,794,964
1922	82,130,902			5,011,591	3,764,852
1923	75,132,468			7,735,719	5,557,180
1924	65,048,895	$13,125,416		9,099,188	5,475,677
1925	66,632,884	38,889,227		11,520,341	6,521,921
1926	73,716,900	39,851,656		14,852,050	7,037,787
1927	82,501,310	46,315,079		15,955,033	8,553,483
1928	85,624,190	47,834,069	$1,580,000	15,689,909	9,033,350
1929	89,116,833	52,631,641	2,370,711	17,669,078	9,804,291
1930	80,165,184	47,221,543	2,209,295	16,787,973	11,696,575
1931	70,156,911	35,734,976	2,715,337	13,601,678	7,650,788
1932	55,140,147	27,009,308	2,625,080	10,408,810	3,856,314
1933	55,454,823		2,642,940	10,565,576	1,552,433
1934	58,218,112	32,841,410	3,276,459	11,802,308	
1935	57,275,775	35,566,291	4,649,700	15,874,383	1,441,752
1936	[3] 61,708,945	38,316,541	6,084,208	16,572,694	

[1] From annual report of Dairymen's League Cooperative Association, Inc.
[2] Courtesy of R. H. Ellsworth, Farm Credit Administration, Washington, D. C.
[3] Net sales (less deductions for freight and allowance). Other years on a gross-sales basis.

The Dairymen's League was organized in 1907 by fluid-milk producers located in New York and surrounding States. It was—and still is—primarily a bargaining organization for selling fluid milk to private distributors. At the present time its volume of business is larger than that of any other dairy cooperative, its sales amounting in 1936 to more than $60,000,000. This exceeded the sales of all the

CHART V



Data, courtesy of R. H. Ellsworth, Farm Credit Administration, Washington, D. C.; and from annual report of Dairymen's League Cooperative Association, Inc.

private dairy companies, with the exception of the National Dairy Products Corporation and the Borden Co. During the fiscal year ending March 31, 1937, the league handled 2,562,713,350 pounds of milk for 35,155 dairy farmers.[6]

[6] Dairymen's League Cooperative Association, Inc., Story of the Year, 1936-37, p. 7.

The operations of the league, while directed mainly toward the sale of fluid milk to distributors, are very diverse and cover a wide range of manufacturing and marketing activities. In addition to its sales to private distributors, the league itself distributes some milk at wholesale and retail through its own branches and subsidiaries. As of 1936 the volume of milk so distributed amounted to about 15 percent of its total milk receipts.

The league also manufactures a considerable part of its milk into products such as cheese, milk powder, and condensed milk. The volume of such products for the past 15-year period is shown in table 11. At one time the organization operated as many as 250 country plants throughout the New York milkshed although at the present time this number has been reduced through consolidations and disposals.

TABLE 11.—*Volume of milk receipts, class I sales, and volume of dairy products manufactured by Dairymen's League Cooperative Association, Inc., 1921–36*

Year	Total milk handled	Class I sales (fluid milk)	Volume of manufactured products			
			Butter	Cheese	Milk powder	Evaporated and condensed milk
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1921	1,847,100,000					
1922	3,391,985,000				1,667,000	
1923	2,774,632,000	1,269,452,000			2,086,000	
1924	2,447,878,000	1,256,783,000			1,620,000	
1925	2,272,666,000	1,291,460,000			1,558,000	
1926	2,216,328,000	1,351,178,000			1,639,000	
1927	2,345,803,000	1,397,796,000			3,078,000	
1928	2,495,537,000	1,436,396,000		4,183,000	4,954,000	
1929	2,578,346,000	1,467,927,000	58,000	1,614,000	8,873,000	
1930	2,731,103,000	1,508,107,000	875,000	8,433,000	16,743,000	10,301,000
1931	3,108,776,000	1,509,860,000	1,602,000	9,017,000	33,723,000	23,334,000
1932	3,323,460,000		29,000	3,393,000	36,809,000	15,538,000
1933	2,732,728,000	1,214,509,000	587,000	2,296,000	34,036,000	16,381,000
1934	2,559,587,000	1,226,356,000	1,527,000	4,801,000	31,373,000	14,228,000
1935	2,385,992,000	1,310,688,000	1,332,000	289,000	25,209,000	9,196,000
1936	2,562,713,000	1,344,703,000				

Total milk handled and class I sales from annual reports of the Dairymen's League Cooperative Association; volume of manufactured products provided through the courtesy of R. H. Ellsworth, Farm Credit Administration.

The league was led into these manufacturing activities mainly in order to dispose of the surplus above fluid-milk needs in the New York City milkshed. Receiving stations and manufacturing plants were acquired by the league not so much for the purpose of building an integrated distributive system as to hold control over the milk produced in the area.[7] The objectives and the forces back of the league's growth were therefore somewhat different from those of cooperatives such as Land O' Lakes and the Challenge Cream and Butter Association whose function is mainly to serve as a wholesale assembling and distributing agency for local creameries and cheese factories.

Land O' Lakes Creameries, Inc., was organized in 1924 to serve as the sales agent for a group of cooperative creameries in Minnesota and Wisconsin. It was the outgrowth of an organization of Minnesota creameries begun several years earlier. Prior to this effort to build

[7] Federal Trade Commission, Sales and Distribution of Milk and Milk Products in the New York Sales Area, January 5, 1937, pp. 34–35.

a cooperative distributive agency, the creameries in these States sold their products mainly to private wholesale assemblers on an individual basis.

Land O'Lakes originally built its business around butter, but in recent years has handled increasing quantities of other dairy and poultry products. (See table 12.) Its volume of butter declined substantially since 1930, but there has been an increase in several other lines of its business, notably cheese. In 1934 it entered into an arrangement with the National Cheese Producers' Federation (a cooperative handling cheese for Wisconsin factories) to sell and distribute part of the cheese assembled by the latter agency. The sharp increase in Land O'Lakes cheese sales during the last few years is due mainly to this arrangement.

TABLE 12.—*Volume of dairy and poultry products handled by Land O'Lakes Creameries, Inc., 1924–36*

Year	Butter	Cheese	Milk powder	Eggs	Poultry	Dressed turkeys
	Pounds	*Pounds*	*Pounds*	*Cases*	*Pounds*	*Pounds*
1924	32,842,000					
1925	79,107,000			10,000		
1926	79,567,000		733,000			
1927	84,257,000		2,937,000			
1928	86,649,000		7,865,000	108,000	1,197,000	
1929	93,115,000		20,819,000	53,000	3,396,000	
1930	100,993,000		19,150,000	106,000	3,272,000	
1931	98,215,000		13,193,000	113,000		2,927,000
1932	98,138,000	4,539,000	12,625,000	125,000	4,243,000	5,541,000
1933	98,392,000	7,084,000	5,328,000	107,000	4,818,000	5,959,000
1934	85,018,000	23,250,000	5,419,000	153.000	4,074,000	4,811,000
1935	78,868,000	24,074,000	9,064,000			
1936	71,200,000					

1924-34, from Farm Credit Administration, Cooperative Division, Bull. No. 3, Cooperative Marketing of Agricultural Products, p. 26; 1935-36, courtesy of R. H. Ellsworth, Farm Credit Administration.

Land O'Lakes operates no manufacturing facilities of its own, its main function being to act as sales agent for its member creameries. At the present time about 40 creameries and dairy-manufacturing plants sell their products through this organization. In addition to this selling service it employs a staff of field agents to help its members with plant problems and quality improvement, and also furnishes them with manufacturing supplies and equipment at cost.

Land O'Lakes is a vertically integrated marketing organization which has sought to carry the product as far toward the consumer as possible. The distributive functions which it performs are wholesale assembling, grading, and branding and selling to the trade in wholesale and job lots. Most of the products which it handles are shipped to its plant at Minneapolis where they are graded and repacked under the trade-mark of the cooperative. Emphasis has been placed on quality, and the organization has sought to make its product known to the consumer through brand advertising. It operates branch jobbing houses in a number of the larger cities where sales are made direct to retailers, hotels, and local institutions. Sales are also made to corporate and cooperative chains, which distribute the product under Land O'Lakes brand. Recently the organization has made an arrangement with Armour to distribute its product in territories where it has no jobbing facilities of its own.

The Challenge Cream & Butter Association is a cooperative very similar to Land O'Lakes in type and method of operation. Its business, whose volume is about half that of Land O'Lakes, is confined mainly to the Pacific coast. Although its main product is butter, it handles a complete line of dairy products.

The association acts as the sales agent for handling the products manufactured by its member creameries. One of its principal functions has been to develop wider market outlets for these products than the creameries could do individually. Like Land O'Lakes, it merchandises its product under its own brand and has sought to integrate as far toward the retailer as possible by establishing sales offices and jobbing branches in the larger cities of its territory.

The National Cheese Producers' Federation is a cooperative sales agency for handling cheese manufactured by factories located mainly in Wisconsin. The largest volume of cheese ever handled by the federation was a little over 42,000,000 pounds in 1930, which was about 10 percent of the total United States production in that year. During the depression many of its member factories withdrew from the federation, its volume falling in 1935 to a little under 12,000,000 pounds. As already stated, the federation now has an arrangement to sell most of its cheese through Land O'Lakes.

The National Cheese Producers' Federation never integrated so many marketing functions and never went so far in the direction of merchandising cheese as did Land O'Lakes with its products. While it was operating independently of Land O'Lakes, the federation's function was mainly that of a wholesale assembler. It operated a number of warehouses throughout Wisconsin, where cheese was received from local factories and stored prior to sale by the federation. Sales were made to cheese processors, meat packers, chain stores, and wholesale distributors. The federation operated no branch jobbing houses and did not attempt wholesale and jobbing distribution of its product in consuming centers.

Iowa State Brand Creameries, Inc., was organized in 1926 to handle the sales of butter for a small group of Iowa creameries. By 1936 it had increased its membership to 72 creameries and was handling more than 16,000,000 pounds of butter. Its butter volume was thus a little less than one-fourth that of Land O'Lakes.

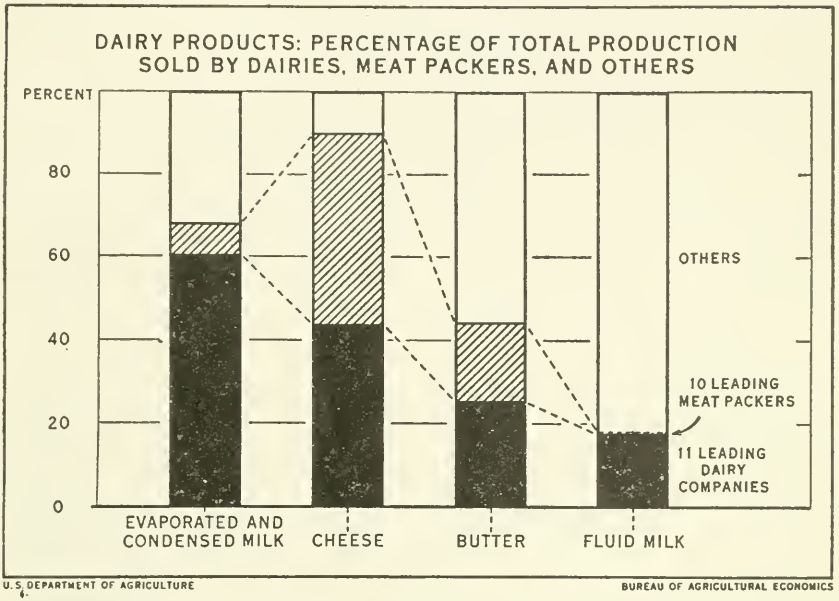
The Iowa Cooperative concentrates butter from its member creameries at its plant in Mason City, Iowa. The product is marketed under the trade name of the organization. It operates no branch jobbing houses, and has not yet tried to integrate the function of wholesale distribution. In this respect it differs from Land O'Lakes and the Challenge Cream & Butter Association of the Pacific coast.

PROPORTION OF DAIRY PRODUCTS HANDLED BY LEADING CORPORATIONS

The importance of large corporations in the handling of dairy products is indicated by table 13 and chart VI. The table gives the percentage of the total production of specified dairy products sold by 11 dairy companies and 10 meat packers, with the percentages of the 3 largest sellers of each product shown separately. The data were compiled from the agricultural income inquiry recently conducted by the Federal Trade Commission.

In the case of fluid milk and cream, 11 dairy companies distribute about 18 percent of the estimated total volume of these products consumed in all cities and villages of the United States. The three largest companies handle the major part of this, or about 16 percent of the total for the country. The meat packers are a negligible factor in fluid-milk distribution.

CHART VI



Data from Table 13.

TABLE 13.—*Percentages of total United States production of dairy products sold by leading dairy companies and meat packers, 1934*

Commodity	Total United States production	Sales as percentage of total production		
		11 dairy companies	10 meat packers	3 largest sellers
	Pounds	*Percent*	*Percent*	*Percent*
Fluid milk	30,499,000,000	17.9	0.01	[1] 15.6
Butter	1,696,256,000	25.4	18.7	[2] 20.8
Cheese	579,122,000	43.9	45.8	[3] 62.9
Condensed and evaporated milk	1,773,918,000	60.5	7.2	[4] 44.3

[1] Includes the Borden Co., National Dairy Products Corporation, and Beatrice Creamery Co.
[2] Includes Swift & Co., Armour & Co., and Beatrice Creamery Co.
[3] Includes National Dairy Products Corporation, Armour & Co., and Swift & Co.
[4] Includes the Carnation Co., the Pet Milk Co., and the Great Atlantic & Pacific Tea Co.

Federal Trade Commission, Agricultural Income Inquiry, Pt. I—Principal Farm Products, 1937, pp. 228, 247, and 250.

Fluid-milk distribution in most city markets is much more centralized than is indicated by the above figures for the country as a whole. The percentages of total class 1 sales made by the three largest handlers in four cities for which data were available are as follows: Boston, 63 percent; St. Louis, 69 percent; Phoenix, Ariz., 84

percent; and San Diego, Calif., 90 percent.[8] These percentages are typical of those in most other large markets.

The distribution of butter is less concentrated than that of any other dairy product. Despite the importance of the big packers and dairy companies in the handling of this commodity, none of them controls any very large part of the total supply; 11 dairy companies and 10 meat packers are handling about 25 and 19 percent, respectively, of this total (table 13). The 3 largest distributors are Swift & Co., Armour & Co., and the Beatrice Creamery Co. Together these 3 companies distribute around 20 percent of all butter produced. The largest single company has about 8 percent of this total supply.

Cheese is manufactured mainly in small factories operated either as producer cooperatives or by independent operators. Its distribution, however, is largely in the hands of a half dozen firms.

Cheese sales of 11 dairy companies amounted in 1934 to about 44 percent of all cheese produced, and sales of 10 meat packers to another 46 percent (table 13). Three of these companies (National Dairy Products Corporation, Armour & Co., and Swift & Co.) handled 63 percent of the total supply and the first of these had nearly one-third of it. There is some duplication in these figures because of intercompany sales, but the error due to this is not large enough to affect the percentages materially.

Considerable centralization also exists in the manufacture and distribution of condensed and evaporated milk. The leading firms in this branch of the industry are a somewhat different group from those which lead in the handling of other dairy products. The three largest manufacturers of condensed milk are the Carnation Co., the Pet Milk Co., and the White House Milk Co. (subsidiary of the Great Atlantic & Pacific Tea Co.). These three companies manufacture nearly half the total output (table 13). Next in importance are the Borden Co. and the National Dairy Products Corporation. As a group, the meat packers are not an important factor in the canned-milk industry.

[8] E. W. Gaumnitz and O. M. Reed, Some Problems Involved in Establishing Milk Prices, Agricultural Adjustment Administration, Dairy Section, 1937, table 14, p. 41.

CHAPTER V

COMBINATION IN THE FLOUR MILLING AND BREAD BAKING INDUSTRIES

Prior to the twentieth century, the milling of flour and the baking of bread were carried on mainly by small, local enterprisers. During the past 25 years, however, striking corporate developments have taken place in both these fields. Thus far, there has been no tendency either for the large flour millers to integrate the function of baking, or for the bakers to integrate the function of milling their flour. Because of their close product relationship, however, both industries will be considered together in the present chapter.

FLOUR MILLING

The development of modern milling methods.

The technique of flour milling has progressed during the past 100 years from the simple friction process of the old grist mill to the highly mechanized methods of the modern rolling mill. As in meat packing, innovations in the processing technique led directly and inevitably to an increase in the size of the business unit and ultimately to large-scale corporate organization in this industry.

The mechanics of flour milling changed comparatively little from the time of the Greeks to the beginning of the nineteenth century. The method used during the whole of this period was to crush the grain between two stones by means of a revolving motion of the upper one. Separation of the flour from the bran was done by means of crude sieves. During the course of the centuries, the capacity of flour mills was increased by enlarging the grinding discs and by the use of water power, but the basic principles remained the same.

Early in the nineteenth century, a number of improvements were introduced by millers in the United States. The old sifting process for separating the flour from the bran (i. e., the outer skin) was replaced by reel separators in which silk was used for bolting. Elevators and conveyors for handling grain and meal in the mill were developed, all of which were comparatively simple from a technological standpoint but represented great progress considering the times.

Even with these innovations, however, milling was not a highly mechanized process and did not require a large capital investment. Up to the time of the Civil War the most common plant unit was the grist mill where wheat grown in the local neighborhood was brought for grinding. A number of cities such as Rochester, St. Louis, and Richmond, Va., were doing a considerable volume of commercial milling, but the scale of business enterprise was not large even by the standards of the times.

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Two new processes literally revolutionized the milling industry in the United States and changed it from what might be termed "the grist-mill era" to one of mass production. The first of these was a method for separating flour from bran by means of an air current rather than by sieves. The successful application of this method required power and complicated machinery and obviously could not be made use of in the old grist mill.

Not only did this discovery help to change the type of the milling unit, but it also had a great influence on the localization of grain growing and of flour milling. Spring wheat had theretofore been in disrepute because it had not been possible to make an acceptable flour from it. The new separation process, however, yielded as good a product from spring wheat as from winter wheat, with the result that grain production expanded rapidly in the spring wheat territory. Minneapolis, which was in the center of the spring wheat area, became almost overnight the leading flour milling center of the United States. Thus the geographical centralization of the milling industry, which was conducive to economic centralization, had received great impetus from a seemingly unrelated change in milling technique.

The second important milling innovation was the use of rolls rather than fitted disks for grinding purposes. With sufficient power (which was now available) the capacity of a rolling mill was many times that of the old grinder-type unit. Concurrent with these two developments was much progress in the mechanization of various other milling operations, such as cleaning the grain, elevating the meal, conveying, weighing, and packaging. No less important were developments in the chemistry of milling and the improvement of flour quality.

By 1880 the technological basis of modern milling—i. e., power, air separation, roll grinders, and milling chemistry—had been laid. Because none of these developments could be fully utilized in small plant units, the doom of the local mill was quickly sealed. By the early part of the twentieth century the milling industry was largely centralized in 10 or 12 cities in or near the areas of specialized wheat production.

At this time (1900) the plant unit, while highly mechanized and with a much greater capacity than earlier types of mills, was not large in comparison with present-day plants. Plant consolidation and the complete application of mass-production methods in milling have come since 1920.

The number of merchant mills in the United States reached its maximum in 1909 when the United States Census of Manufactures reported 11,691 plants with an average annual output per mill of 9,046 barrels of flour (table 14). The number and capacity of mills remained fairly constant until the close of the World War. Immediately thereafter began a series of mergers and consolidations among the milling companies which resulted in the closing of many of the smaller plant units and the concentration of production into the gigantic flour mills of today. By 1935 the number of mills had been reduced to 2,193, as compared with 10,708 in 1919. The average annual output per mill had been stepped up proportionately and is in the vicinity of 50,000 barrels at the present time.

TABLE 14.—*Number of merchant flour mills in the United States, total volume of flour milled, and average volume per mill, 1899–1935*

Year	Number of merchant mills	Total volume of flour milled	Average volume per mill	Year	Number of merchant mills	Total volume of flour milled	Average volume per mill
		Barrels	*Barrels*			*Barrels*	*Barrels*
1899	9,476	99,763,777	10,528	1925	4,413	114,689,930	25,989
1904	10,051	104,013,278	10,349	1927	4,035	118,132,027	29,277
1909	11,691	105,756,645	9,046	1929	4,022	120,094,451	29,859
1914	10,788	116,403,770	10,790	1931	2,412	115,419,060	47,852
1919	10,708	132,465,604	12,371	1933	1,931		
1921	6,485	110,846,277	17,093	1935	2,193	102,327,237	46,661
1923	5,232						

Data compiled from U. S. Census of Manufactures.

The growth of the big flour-milling concerns.

During the decade of the twenties, the flour-milling industry went through a period of corporate consolidation and expansion analogous to that of the meat-packing industry 20 or 30 years before. At the close of the World War there were a dozen or more large flour-milling corporations, but the bulk of the milling facilities was still in the hands of small independent companies. The process of consolidation resulted in the acquisition of many of these small companies by the big corporations and, what was more important, in mergers among the big companies themselves.

It is estimated that in 1921, by which time considerable corporate consolidation had already taken place, five large companies were milling about 23 percent of the country's total output of flour.[1] Eight companies had 27 percent. These figures may be compared with those of 1935, when three companies milled 29 percent of the total production, of which the largest single company had more than half.

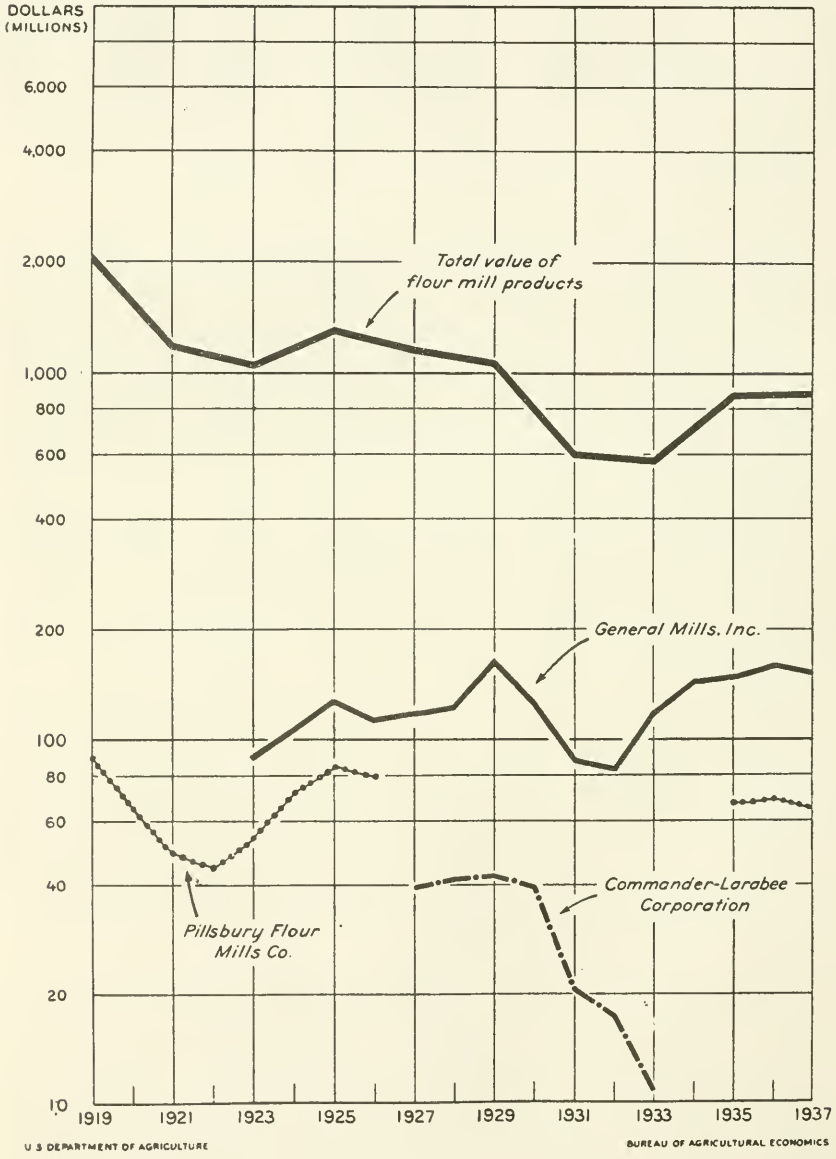
The three largest flour-milling companies are General Mills, Inc., the Pillsbury Flour Mills Co., and the Commander-Larabee Corporation, control of which passed to the Archer-Daniels-Midland Co. in 1930. The dollar sales of these three companies compared with the total value of all flour-mill products are shown in chart VII. The sales as given in this chart do not reflect in all cases the increasing concentration of corporate control because the sales of component companies are included in the years prior to merging. For instance, the sales shown for General Mills in the years 1923–27 are those of five separate companies which merged in 1928 to form the single company now known as General Mills, Inc.

In 1929 the total business of General Mills amounted to about $163,000,000 (table 15). These sales represented around 16 percent of the total value of flour-mill products as given by the United States Census of Manufactures for that year. Sales of the Pillsbury Mills were considerably less than those of General Mills. As a matter of fact, the sales of General Mills were slightly larger than those of the Pillsbury Mills and the Commander-Larabee Corporation combined. Financial difficulties of the latter company in the early years of the depression contributed to the sharp decrease in its sales following 1930.

[1] Federal Trade Commission, Agricultural Income Inquiry, 1937, pt. I, ch. IV, sec. 11, pp. 288–289.

CHART VII

SALES OF THREE LEADING FLOUR MILLING CORPORATIONS COMPARED WITH TOTAL VALUE OF FLOUR AND OTHER GRAIN-MILL PRODUCTS



Data from Table 15.

TABLE 15.—*Sales of three leading flour milling corporations compared with total value (to manufacturer) of flour and other grain-mill products, 1919–37*

Year	Total value of flour-mill products [1]	Sales of— [2]		
		General Mills, Inc.[3]	Pillsbury Flour Mills Co.	Commander-Larabee Corporation
1919	$2,052,434,000		$90,369,000	
1920			64,287,000	
1921	1,179,740,000		48,402,000	
1922			[4] 44,450,000	
1923	1,048,577,000	$88,680,000	53,420,000	
1924		105,947,000	70,701,000	
1925	1,298,015,000	128,469,000	83,256,000	
1926		111,614,000	79,954,000	
1927	1,148,760,000	115,663,000		$39,311,000
1928		123,521,000		41,549,000
1929	1,060,269,000	163,072,000		42,647,000
1930		122,746,000		39,639,000
1931	598,041,000	87,166,000		20,472,000
1932		83,886,000		17,473,000
1933	574,210,000	118,092,000		10,737,000
1934		143,074,000		[5]
1935	853,219,000	147,380,000	66,847,000	
1936		159,980,000	69,130,000	
1937	856,644,000	152,673,000	63,441,000	

[1] U. S. Biennial Census of Manufactures.
[2] Moody's Manual of Investments: Industrials.
[3] Figures from 1923 to 1927 are for Royal Milling Co., Washburn Crosby Co., Red Star Milling Co., Rocky Mountain Elevator Co., and Kalispell Flour Mill Co.
[4] 10-month period.
[5] Control passed to Archer-Daniels-Midland Co. Sales of Commander-Larabee Corporation no longer published separately.

The extent to which flour milling is concentrated in the hands of the leading companies in this field is indicated by table 16. This table gives the percentages of the total and commercial production of wheat represented by the handlings of 13 of the largest milling companies in 1934. General Mills, the largest single company, handled about 23 percent of the total volume of wheat produced for commercial uses in that year. This was more than twice the volume of the Pillsbury Co. and nearly as much as the volume of the four next largest companies combined.

TABLE 16.—*Percentages of total United States production of wheat represented by purchases and handlings of 13 leading flour-milling companies, 1934*

Name of company	Percentage of total United States production of 496,469,000 bushels in 1934	Percentage of United States commercial production of 332,064,000 bushels in 1934 [1]
Wheat flour millers:		
General Mills, Inc	15.59	23.30
Pillsbury Flour Mills Co	6.54	9.77
Colorado Milling & Elevator Co	3.55	5.31
Commander-Larabee Corporation	3.42	5.12
Russell Miller Milling Co	2.55	3.82
International Milling Co	2.14	3.19
Tex-O-Kan Flour Mills Co	2.00	2.98
Centennial Flouring Mills Co	1.96	2.93
Standard Milling Co	1.94	2.91
Flour Mills of America, Inc	1.12	1.68
Fisher Flouring Mills Co	.99	1.49
King Midas Mill Co	.90	1.35
Globe Grain & Milling Co	.88	1.31

[1] Includes only wheat "sold or for sale."

Federal Trade Commission, Agricultural Income Inquiry. Pt. I—Principal Farm Products, 1937, p. 281.

Of the total amount of wheat flour produced in 1934, the 13 companies listed in table 16 milled 47 percent; and the 3 largest companies, 29 percent.[2] The big companies' proportion of the total business of the milling industry is slightly smaller in terms of flour than in terms of wheat because they use proportionately more of their grain for purposes such as the making of cereals.

Mergers and consolidations in flour milling

The most notable merger in the flour-milling industry was the organization of General Mills, Inc., in 1928. This company was formed for the purpose of acquiring the business and property of five theretofore separate milling companies, all of which were sizable enterprises before the merger. The five companies were the Washburn-Crosby Co., Red Star Milling Co., Royal Milling Co., Kalispell Flour Mills Co., and Rocky Mountain Elevator Co.

The Washburn-Crosby Co., largest of the 5, had been formed in 1889. At the time of the merger in 1928, this company itself owned the entire stock of 10 subsidiary milling companies and partially controlled several others. The other 4 companies involved in the merger were also among the 10 or 12 largest milling concerns at the time.

Following its incorporation in 1928, General Mills continued its expansion program. Early in 1929 it acquired a number of small companies with mills in Oklahoma and Texas, and later in the year it bought the Sperry Flour Co., one of the largest milling companies on the Pacific Coast. Other companies were added from time to time, including the Farm Service Stores, an organization for distributing mill feeds and sundry farm supplies.

By 1936 General Mills had acquired the entire capital stock of 25 operating subsidiaries.[3] These subsidiary companies were manufacturers and distributors of flour, cereal products, and commercial livestock feeds. The corporation maintains distributive offices for its products in 72 cities in the United States and foreign countries. It operates mills and storage elevators in 22 cities. The combined capacity of all its mills is more than 80,000 barrels of flour per day, which is about one-fourth of the total capacity of all commercial flour mills in the country.

The Pillsbury Flour Mills Co. (Delaware), second in size to General Mills, was incorporated in 1935 to acquire the assets of Pillsbury Flour Mills, Inc. (Delaware), Pillsbury Flour Mills Co. (Minnesota), and several other companies, all of which had been operating under central management for a number of years. The present company traces its origin back to 1889, when it was first organized in Minneapolis, Minn. It has had a fairly steady growth since that time, during the course of which it acquired, as did General Mills, the assets of many smaller companies.

The Pillsbury Co. conducts its business on a Nation-wide scale and has milling and distributive facilities in all parts of the country. In addition to the manufacture and sale of flour, it handles feed and other mill products and manufactures the rope, paper, and paper bags used for packaging its products. As of 1936, the daily capacity of all its mills was about 39,000 barrels, or about half that of General Mills.

During a period of financial difficulties, control of the Commander-Larabee Corporation, third largest milling company, passed to the

[2] Federal Trade Commission, op. cit. pp 559-560.
[3] Moody's Manual of Investments: Industrials, 1937.

Archer-Daniels-Midland Co. in 1930. The latter is a holding company which controls the stocks of many companies engaged in a wide variety of enterprises. The Commander-Larabee Corporation is the only one of its subsidiaries engaged in flour milling.

The Commander-Larabee Co. was organized in 1926, acquiring at that time the Commander Milling Co. and its subsidiaries, the Larabee Flour Mills Co. and several smaller concerns. Subsequently the company purchased a number of other milling companies, none of them sizable. Next to the organization of General Mills, Inc., the consolidation of the Commander and Larabee companies in 1926 was the biggest flour-milling merger of the decade.

Efforts to restrict competition in flour milling.

The Federal Trade Commission has charged the flour millers on a number of occasions with efforts to restrict competition in the milling industry.[4] These efforts took various forms, including curtailment of flour production, blacklists, the exchange of price information, and attempts to fix uniform margins and differentials on flour.

Curtailment of flour production by the millers does not appear to have gone beyond the discussion stage. The subject was first broached at various millers' meetings in 1923, when it was pointed out by their trade association that the milling capacity of the country was greatly in excess of domestic needs. Many of the millers believed that this led to unsatisfactory conditions in their industry, and suggested the need for closing down some of the mills in order to limit the flour output. The proposals did not take concrete form, however, and there was never any open attempt by the industry to control flour production.

There was also much discussion by the millers at this time relative to the need for maintaining a fixed margin for flour above the cost of wheat so as to obtain what they termed a reasonable profit. Through their various trade organizations they urged each other not to sell flour at prices which did not return the cost of milling. Information on selling prices of flour was exchanged among the millers in an effort to prevent price-cutting.

About 1924 there was organized what was known as the Livingston Economic Service by a group of millers in the Northwest. Its function was to ascertain what the costs of milling were and to publicize these data among millers in an effort to get them to maintain their flour prices in line with milling costs. There was, however, no attempt to compel the members to sell at any fixed price, nor to set up a formal price-fixing agreement.

As a matter of fact, practically all the effort of the milling industry to prevent what it termed undue competition took the form of voluntary cooperation. The industry did not adopt any rigid plans for allocating sales or for fixing prices similar to those described for the meat-packing industry, probably for the reason that the number of competing millers was too large.

It is hard to say what, if any, effect these efforts of the millers had in restricting competition and in maintaining margins and profits. Their exchange of information with respect to costs and prices of flour was no more than is done commonly by most trade associations in other lines of industry. From the standpoint of competition, the outright consolidation and merging of some of the leading companies during

[4] Federal Trade Commission, op. cit., pp. 291–294.

the decade of the twenties seems far more significant than the various agreements and understandings which the millers tried to work out on a basis of voluntary cooperation.

THE BAKING INDUSTRY

Until comparatively recent times, the baking of bread and related products was carried on almost entirely within the home. But like so many other household tasks, even baking has now passed into an era of commercial manufacture. Large-scale organization was delayed in the baking industry for a long time because of the necessary decentralization of plant facilities. But within the last generation, baking corporations operating on a national scale and comparable in size to the leading firms in other industries have finally made their appearance.

The perishability of fresh bakery products and the costs of transportation are such that baking has not been centralized geographically as have meat packing and flour milling. Even with the motortruck, it is not usually feasible to deliver fresh bread more than 75 or 100 miles from the point of manufacture. Under these circumstances, baking is a widely distributed industry comprised of comparatively small plant units.

The scale of production which has characterized the baking industry in America is shown in table 17. The Census of 1849 listed 2,027 commercial baking establishments with total products valued at $13,290,000. Fifty years later (1899) there were 14,836 establishments whose products were valued at $175,369,000. The number of bakeries subsequently increased to a maximum of nearly 26,000 in 1914, but since that time the plant units have become larger and have decreased in number. As of 1935, there were approximately 19,000 baking establishments in the United States with products valued at more than $1,235,000,000.

TABLE 17.—*Number and size of bread-baking establishments in the United States, 1849–1935*

Year	Establishments	Wage earners	Average wage earners per establishment	Value of products	Average value of products per establishment
	Number	*Number*	*Number*		
1849	2,027	6,727	3	$13,290,000	$7,000
1859	1,930	6,514	3	16,980,000	9,000
1869	3,550	14,126	4	29,530,000	8,000
1879	6,396	22,488	4	65,820,000	10,000
1889	10,484	38,841	4	128,420,000	12,000
1899	14,836	60,192	4	175,369,000	12,000
1904	18,226	81,278	4	269,583,000	15,000
1909	23,926	100,216	4	396,865,000	17,000
1914	25,963	124,052	5	491,893,000	19,000
1919	25,095	141,592	6	1,151,896,000	46,000
1921	20,173	148,500	7	1,089,972,000	54,000
1923	18,739	162,613	9	1,122,906,000	60,000
1925	17,684	160,411	9	1,268,195,000	72,000
1927	18,129	171,995	9	1,394,700,000	77,000
1929	20,785	200,841	10	1,526,111,000	73,000
1931	17,718	183,161	10	1,190,048,000	67,000
1933	14,830	182,382	12	919,778,000	62,000
1935	19,068	218,423	11	1,235,073,000	65,000

Data for years 1849–89 from Kyrk & Davis, the American Baking Industry, appendix table VI, p. 82. Data for subsequent years from U. S. Census of Manufactures.

As compared with most other industries, the scale of plant operation in baking is very small, even today. The average establishment in 1935 employed only 11 wage earners, and did an annual business of only $65,000 (table 17). While these averages are four or five times larger than those of 1899, they indicate that bread baking is essentially an industry of small plant units. These averages of course do conceal the fact that many of the plants operated by the big baking corporations are equipped for mass production and have an output many times that of the average bakery.

The development of corporate mergers and consolidations in bread baking.

The fact that bread baking is necessarily decentralized as to plant operation did not preclude the growth of large-scale corporate enterprise in this field. Early in the twentieth century some companies operating strings of bakeries in widely separated communities began to emerge from what had theretofore been an industry of strictly individual enterprisers.

Even before 1900 a number of fairly large concerns had come into existence. Among them were the Ward Baking Co. of New York (parent of the present company of that name), the Kolb and Freihofer concerns of Philadelphia, and the Corby Baking Co. of Washington, D. C. (later absorbed by the Continental Baking Co.).

These earlier companies grew largely by new plant construction and by the purchase of plants in new territories which they desired to enter. They are important to the subject at hand not because they were large enterprises in themselves, but because they furnished the nuclei for subsequent developments. The merging of large companies either through the holding company device or by the outright purchase of assets was to come later.

The first consolidations to be made in the baking industry were purely local in character and were made mainly for the purpose of eliminating cutthroat competition in the local trade area.[5] Consolidations of this sort were sometimes voluntary but more often than not they were forced by the creditors of local bakers who thought such action necessary to prevent their financial ruination. These earlier consolidations sometimes led to the closing of plants and the installation of more modern baking equipment, but this does not appear to have been their main purpose. Among the more important of such early consolidations was the merging in 1907 of seven local companies in St. Louis into the American Baking Co. In 1909 six bakeries in Kansas City consolidated to form the Consumers Bread Co., and a year later six companies in the New York metropolitan area combined to become the Schults Bread Co.

Meanwhile, a new type of combination appeared—namely the bringing together of plants in widely scattered areas. Since competition in the bread-baking industry is local in character, the purpose of such combination was not to ease the pressure of competition but to obtain greater operating efficiency. It was about this time (1910–20) that new types of bread-baking equipment began to be introduced. While such equipment was relatively inexpensive as compared with the tooling and machinery required in most industries, the small bakers as a class were not as quick to install the newer devices as the larger

[5] Cf. Carl L. Alsberg, Combination in the American Bread Baking Industry, Stanford University Press, 1926, p. 10.

companies. The result was that the latter, through centralization of management and standardization of plant methods, obtained some advantages from the standpoint of efficiency. This provided them with better than average profits and induced them to expand the scale of their operations.

Immediately following the World War the baking industry began to show developments of a more striking character. In 1922 the first holding company, the United Bakeries Corporation, was formed. The United was built around the Campbell Baking Co. of Kansas City and the Schults Co. of New York. Prominent among its initiators were members of the Ward family, who at the same time owned the controlling interest in the Ward Baking Co., a nominally separate organization. By the end of 1923, the United Bakeries Corporation controlled subsidiaries with more than 40 bakeries in 35 cities, and was still expanding.[6]

The most prominent name among the big bakers is that of Ward. Members of this family have been in the baking business for four generations and have taken the leading role in forming most of the mergers and consolidations which have taken place in the industry during the last 20 years.

The Ward baking organization had its origin in 1849. The program of active expansion, however, did not begin until the close of the nineteenth century. At this time, it began to build new plants and to expand into new territories. These newer concerns were consolidated by the incorporation of the Ward Baking Co. in 1912. At this time the company had an annual gross business of about $8,000,000 and was operating 12 plants in various of the larger cities east of the Mississippi.[7] It continued its expansion program up to 1923, at which time it was reincorporated as the Ward Baking Corporation. In 1935, the latter corporation had 21 bakeries and did a business of nearly $36,000,000.[8]

W. B. Ward, president of the Ward Baking Co., also had a part in the organization of several other leading baking concerns. He had helped in 1922 to organize the United Bakeries Corporation already described, although he resigned his connection with the latter when the Ward Baking Corporation was formed in 1923.

By the end of the World War several other baking concerns had grown to the point where they were almost as large as the Ward Baking Corporation. Among the more important of these was the General Baking Co. which had been formed in 1911 to consolidate 20 small companies with plants throughout the Northeast. This company, more than any of the others, pioneered in the application of large-scale methods to bread manufacture and distribution. It laid great emphasis upon plant efficiency and was among the first to adopt new baking techniques. It appears also to have been the first company to use national advertising—its brand is "Bond"—for bread products.

In 1925 the stock of the General Baking Co. was taken over by the General Baking Corporation, along with that of several other baking companies. W. B. Ward, of whom mention has already been made in connection with several other concerns, also had a part in the organization of the General Baking Corporation.

[6] Alsberg, op. cit., p. 12.
[7] Alsberg, op. cit., p. 126.
[8] Moody's Manual of Investments: Industrials.

The third largest baking firm is the Continental Baking Corporation. This organization was formed in 1924, taking over at that time the control of the United Bakeries Corporation. The Continental Baking Corporation is essentially a holding company. Following its organization in 1924, it acquired control of many smaller companies in all parts of the United States. At the present time it operates baking facilities in 68 widely scattered cities.

Fourth largest of the baking corporations is Purity Bakeries with 53 plants. It, too, was organized as a holding company to consolidate the operations of a number of sizable baking concerns. This is the only one of the Big Four in the baking industry with which some member of the Ward family had no connection.

In 1926, W. B. Ward moved toward a final consolidation of three of the Big Four companies through the organization of the Ward Food Products Co.[9] This company's charter enabled it to act as a holding company for the stocks of the Ward, Continental, and General Baking corporations. Its objective appeared to be a more effectual coordination of the enterprises of these three companies than had existed theretofore.

The Federal Trade Commission immediately filed a petition charging that the newly formed holding company was an instrument for the unreasonable restraint of trade and commerce. The petition asked, in brief, that the companies involved be enjoined from acquiring each other's assets or securities, and that no one of them should be permitted to have any director, officer, or employee in common with any other one. Moreover, they were to be forbidden to enter into any contracts, agreements, or understandings with one another relative to any phase of the baking business.

A consent decree involving substantially these terms was entered into by the defendants in 1926. The Ward Food Products Corporation was dissolved soon after, leaving the three companies (Ward, Continental, and General) nominally independent in their operations. So far as is known, this situation prevails at the present time.

Chain-store baking.

Another phase of large-scale organization in the baking industry is that represented by the grocery chains. All of the larger systems and many of the smaller ones operate their own bakeries for providing their retail units with fresh bakery products. There are no data available as to the volume of chain-store baking, but in the aggregate it is probably almost as large as that of the four baking corporations listed above.

In the early stages of their development, the grocery chains acted purely as retailers of bakery products. They bought their bread stocks from local wholesale bakers, just as the independent retailers.

A number of factors, however, led them to establish their own bakeries. Because the chains were quantity customers of the wholesale baker, they demanded quantity price discounts. This the bakers were not always disposed to give them because they (the bakers) feared that this practice would earn them the ill will of their nonchain customers. Moreover, the chains often used bread as a "price-leader." Wholesale bakers objected to this on the grounds that it would weaken the wholesale price for bread, and for this reason often refused to sell to chains who followed this practice.

[9] Federal Trade Commission, Agricultural Income Inquiry, pp. 296–298.

The result was that the chains went into the baking business on their own account. This appears to have had several advantages for them. In the first place, their volume of retail business in most communities was such as to support a modern baking plant in which costs of operation could be reduced to a minimum. By operating their own bakeries the chains, of course, eliminated most of the selling and advertising costs incurred by the wholesale baker in selling to independent customers. Moreover, the operation of their own bakeries permitted the chains to make a closer adjustment of supply to their needs, and to get the bread into their store units in fresher condition. The chains, of course, continued to handle the products of bakeries other than their own, but the volume of such products represents a diminishing percentage of their total bread sales.

Proportion of bread baked by large concerns.

Despite the astonishing character of large-scale development in the baking industry, the bulk of the fresh bread products still is baked by the independent wholesale baker. The Federal Trade Commission estimated in 1928 that the Big Four in the industry (Ward, Continental, General, and Purity) were baking about 20 percent of the total commercial supply of bread.[10] The four or five leading grocery chains probably bake another 10 or 15 percent, which leaves considerably more than half in the hands of the independent bakeries and smaller companies.

These figures for the country as a whole are not typical of those for individual cities and local trade areas. As a general thing, the big bakers have concentrated their business in the larger urban centers. Although their bread trucks run out from such centers to the surrounding towns, the independent baker is still the predominant factor in the smaller towns and villages.

The present position of the leading baking concerns in relation to each other and to the industry as a whole is indicated by table 18. Dollar sales of the three leading companies in 1935 varied from $32,585,000 for the Ward Baking Corporation to $50,961,000 for the Continental Baking Co. The total value of bread and other yeast-raised products in that year as given by the United States Census of Manufactures was $706,897,740. The combined sales of the three largest concerns thus amounted to about 17 percent of the total business of the industry, and those of the largest single firm to around 7 percent of the total.

TABLE 18.—*Dollar sales of the 3 leading bakery concerns expressed as percentages of the total value of bread and other yeast-raised bakery products, 1935*

Company	Total dollar sales [1]	Sales as a percentage of the total value of bread and yeast-raised products [2]
		Percent
Continental Baking Corporation	$50,961,024	7.2
General Baking Co	39,171,879	5.5
Ward Baking Corporation	32,584,767	4.6
Total	122,717,670	17.3

[1] From Moody's Manual of Investments: Industrials.
[2] The total value of commercial bread and yeast-raised products in 1935 was given by the U. S. Census of Manufactures as $706,897,740.

[10] Federal Trade Commission. Competition and Profits in Bread and Flour, S. Doc. No. 98 (70th Cong.), 1928, p. 19.

The biscuit companies.

In connection with large-scale organization in the baking industry, mention also should be made of the biscuit companies. The cracker and biscuit business is so different from the fresh bread business that the two might almost be said to constitute separate industries. None of the leading bread bakers manufactures any biscuit products, nor do the biscuit companies handle any fresh bakery products. Biscuit manufacture, however, comes within the general category of baking and therefore will be discussed at this point.

Unlike the bread-baking branch of the industry in which the small enterpriser still has an important place, the manufacture of crackers and biscuits is largely centralized in the hands of a few large concerns. The chief reason for this lies in the nature of the product itself. Crackers and biscuits are nonperishable. Their manufacture therefore can be taken out of the small bakeshop and centralized into large plants where highly mechanized methods can be applied. Large-scale manufacture in turn leads to the integration of certain marketing and distributive functions, which hampers still further the small operator desiring to enter this field. The only development likely to jeopardize the predominance of the leading biscuit companies would be the entrance of the chain grocery companies into this field. Up to the present, however, the chains have confined their baking operations to fresh bakery products and have not attempted biscuit and cracker manufacture.

The three leading biscuit companies are the National Biscuit Co., the Loose-Wiles Biscuit Co., and the United Biscuit Co. The first-named company is by far the largest of the three and has a larger business than the other two combined. As of 1921 (the last year for which information can be obtained), the National Biscuit Co. had about 55 percent of the cracker and biscuit business of the United States, and the three leading companies together had well over three-fourths of it.[11]

The National Biscuit Co. was incorporated in 1898 as a consolidation of 3 separate firms. Its growth since that time has been partly by the building of new plants and partly by the acquisition of competing firms. At the present time, it has manufacturing plants in 32 cities and 21 States, the products of which it distributes through 257 of its own selling branches. It also operates a printing plant, a carton mill, a molasses plant, and a flour mill. Loose-Wiles is similar to the National Biscuit Co. in its operations and organizational set-up.

The Federal Trade Commission cited several of the big biscuit companies in 1924 for the giving of what it termed undue price discounts to large customers, notably the grocery chains. The Commission produced evidence to show that the big biscuit companies were giving the grocery chains unwarranted price discounts in certain parts of the country. The more important question of whether or not there may have been collusion among the biscuit companies with regard to the level of the prices for their products was not raised by the commission.

[11] Federal Trade Commission Decisions, vol. VII, pp. 206–228.

CHAPTER VI

OTHER LARGE-SCALE FOOD CONCERNS

In the preceding chapters, we have discussed large-scale organization for some of the principal food products. The tendency in this direction, however, has been by no means confined to the corporations already described. There is scarcely one of the food industries in which there are not to be found at least three or four organizations operating on a national scale and controlling a substantial part of the business in which they are engaged.

To describe large-scale developments in all the food industries with the completeness of the preceding chapters would be somewhat repetitious and tiresome to the reader. We shall attempt therefore only to summarize the situation for some of the other major food groups.

FRUIT AND VEGETABLE CANNING

The canning of fruits and vegetables is an industry composed of many individual firms.[1] There are in the industry at least a dozen big corporations operating chains of canneries and the tendency during the last 20 years has been definitely toward the growth and expansion of such firms. On the Pacific coast, concentration of corporate control has reached the point where two or three organizations pack over half the total supply of the canning crops produced in that region. But in most other parts of the country the industry is still characterized by relatively large numbers of independent canning firms.

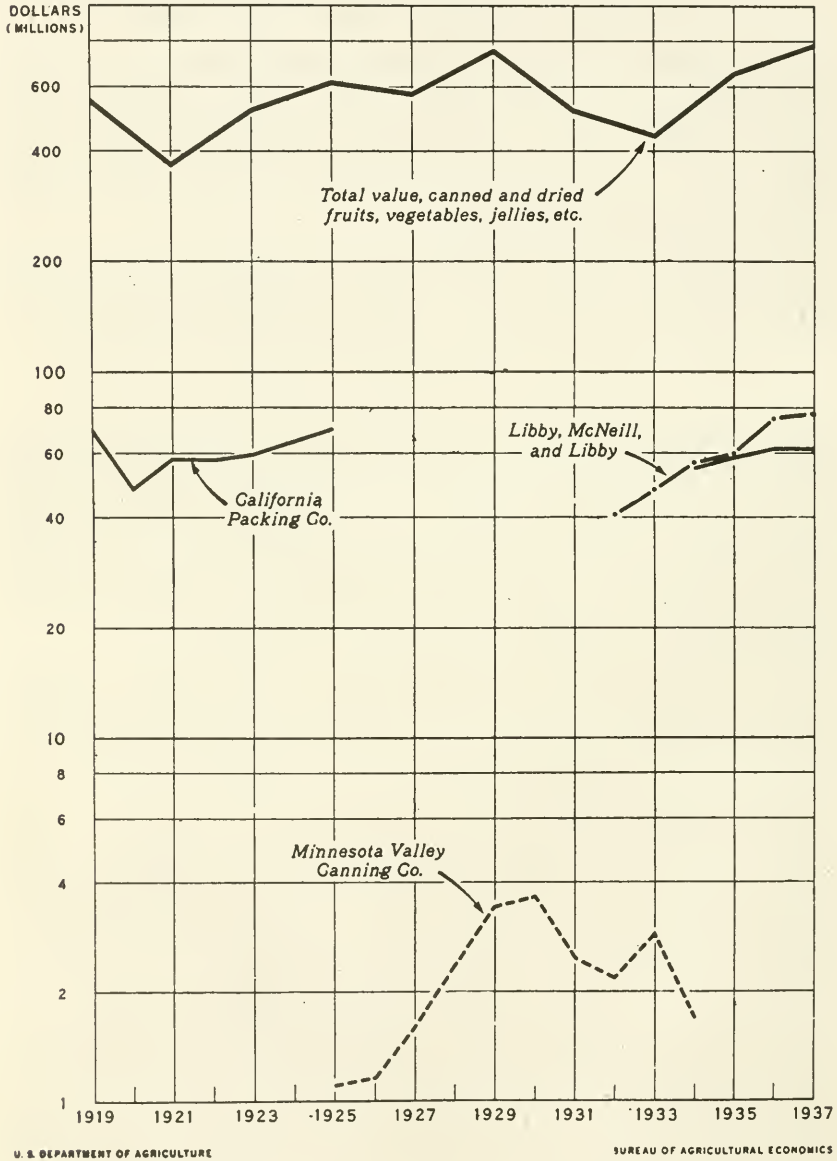
The two outstanding corporations in the canning industry are the California Packing Corporation and Libby, McNeill & Libby. Dollar sales of the California Packing Corporation amounted in 1937 to over $61,000,000, those of Libby to well over $74,000,000 (chart VIII). No other canning firm has anything like the volume of business done by these two organizations.

The California Packing Corporation was incorporated in 1916 to consolidate the interests of four firms operating in California and other Pacific Coast States. These four firms themselves previously had bought or otherwise acquired a number of smaller canning companies. Following its organization, the California Packing Corporation expanded its operations to other sections of the country, notably by the acquisition of the Midwest Canning Corporation with plant facilities in Wisconsin, Minnesota, Illinois, and other Midwestern States. In addition to its operations within the United States, the company is a large factor in the growing and canning of Hawaiian pineapple. It also engages in salmon packing, fruit drying, and coffee manufacturing. Some of the produce which it packs is grown on its own ranches and land holdings. Like most other big food processors, the corporation has built up its own sales organization for distributing its products and does not use jobbers and brokers as do the smaller canners.

[1] The National Canners' Association reports 1,400 tomato canners, 364 pea canners, and 350 corn canners as of 1938.

CHART VIII

SALES OF THREE LEADING FRUIT AND VEGETABLE CANNERS AND VALUE OF CANNED AND DRIED FRUITS, VEGETABLES, JELLIES, ETC. 1919-37



Data from Table 19.

TABLE 19.—*Sales of 3 leading fruit and vegetable canners compared with total value of canned and dried fruits, vegetables, jellies, etc., 1919–37*

Year	Total value, canned and dried fruits, vegetables, jellies, etc.[1]	Sales of—[2]		
		California Packing Co.	Libby, McNeill & Libby	Minnesota Valley Canning Co.
1919	$548,028,000	$69,221,000		
1920		47,516,000		
1921	365,717,000	57,775,000		
1922		57,440,000		$477,000
1923	515,316,000	59,635,000		789,000
1924		64,420,000		990,000
1925	616,071,000	69,776,000		1,100,000
1926				1,154,000
1927	572,346,000			1,591,000
1928				2,352,000
1929	750,342,000			3,423,000
1930				3,647,000
1931	513,001,000			2,476,000
1932			$40,316,000	2,166,000
1933	439,988,000		47,459,000	2,875,000
1934		54,336,000	56,142,000	1,699,000
1935	649,644,000	58,188,000	59,876,000	
1936		61,750,000	74,392,000	
1937	788,927,000	61,175,000	74,716,000	

[1] United States Biennial Census of Manufactures.
[2] Moody's Manual of Investments: Industrials; also Poor's Industrials.

Libby, McNeill & Libby was developed as a subsidiary of the meat-packing firm of Swift & Co. As previously described, the meat packers agreed under the consent decree of 1920 to give up their interests in the canning of fruits and vegetables, and since that time Libby, McNeill & Libby has operated as a nominally independent concern. It had been brought to the status of a large organization while still under the control of Swift, and has grown comparatively little during the last 10 or 15 years.

In set-up and method of operation, Libby, McNeill & Libby is similar to the California Packing Corporation. It, too, is engaged in the canning business on a national scale and carries on many related enterprises. In addition to the canning of fruits and vegetables, it packs salmon, meat, pineapple, and other tropical fruits.

There are at least a dozen other canning companies which operate sizable chains of canneries, have their own brands and sales organizations, and conduct their businesses along the lines already described for Libby, McNeill & Libby and California Packing Corporation. Most of these companies have developed since the World War and represent a definite change in an industry formerly comprised almost entirely of small firms.

THE HANDLING OF FRESH FRUITS AND VEGETABLES

The handling of fresh fruits and vegetables is so diversified both geographically and as to type of operation that no single firm or small group of firms handles any very large part of the total supply. For certain products and in some particular markets and production areas, however, significant proportions of the supply are in the hands of a few organizations.

The outstanding example of large-scale handling of fresh fruits and vegetables is that furnished by the larger grocery chains. Each of the

three largest chains—the Great Atlantic & Pacific Tea Co., the Kroger Grocery & Baking Co., and Safeway Stores—has set up a subsidiary company for procuring fresh fruits and vegetables for its retail units. The names of these subsidiaries are the Atlantic Commission Co., Wesco Foods Co., and the Tri-Way Produce Co., respectively.

The function performed by these chain subsidiaries is essentially that of a fruit and vegetable wholesaler. Wherever possible they buy produce direct from the grower or shipper, and for this purpose they have their own buying facilities and representatives in most of the important producing areas. It goes without saying that none of these chain subsidiaries handles any very large part of the national supply of any perishable product. The Federal Trade Commission reports [2] that the Atlantic Commission Co., largest of the chain produce companies, handled quantities in 1938 which ranged from 3 percent of the peach crop to 7.5 percent of the onion crop. In certain areas its proportion of total purchases, of course, runs somewhat higher than this.

The largest corporation engaged exclusively in the handling of fresh fruits and vegetables is the American Fruit Growers, Inc. This organization was incorporated in 1919 to consolidate the operations of seven separate companies with facilities in most parts of the United States. Its business consists of the packing, shipping, and terminal handling of fruits and vegetables. It also engages in some growing operations. Its dollar sales during the last 10 years have ranged from about $30,000,000 to $45.000,000 annually and its shipments of fruits and vegetables in some years have run as high as 45,000 cars.[3] The Federal Trade Commission reports that in 1935 this organization handled more than 8 percent of the total grapefruit crop.[4] The American Fruit Growers, Inc., is somewhat unique in that it represented the first effort to apply corporate mass methods in the handling of diversified and fast-moving products like fresh fruits and vegetables.

The producers' cooperative marketing movement also has assumed the status of large-scale distribution in some areas and for certain crops. The outstanding example among the cooperatives is the California Fruit Growers' Exchange which handles about 75 percent of the California orange crop and over 90 percent of the lemons. The Exchange acts as the sales agency for local cooperative fruit-packing plants. It maintains its own representatives in most of the larger cities of the country for handling sales to the local trade. Producers' cooperatives also handle the major part of a number of other special crops grown on the Pacific coast, among them being walnuts, raisins, prunes, dates, and apricots. The production of fruits and vegetables in other parts of the country involves so many growers in widely scattered areas that it has been impossible thus far to organize them into any sort of national marketing set-up.

MISCELLANEOUS FOOD CORPORATIONS

General Foods and Standard Brands.

One of the most interesting developments which have taken place in the food industries during the last 25 years has been the discovery of new processes and techniques for manufacturing food products.

[2] Summary of the Commission's report on its investigation of fruits and vegetables made pursuant to Public Res. 61, 74th Cong. Press release, June 10, 1937.
[3] Moody's Manual of Investments: Industrials.
[4] Federal Trade Commission, op. cit., p. 2.

Illustrative of the products resulting from such techniques are the breakfast cereals, Jello, Postum, mayonnaise, chocolate products, and a whole list of similar items, many of which were almost unknown to earlier generations of consumers. Even more recent has been the introduction of quick freezing as a means of preserving perishable products.

The circumstances surrounding the manufacture and distribution of such special products usually have been especially favorable to the development of large corporations. Many of the processes involved are highly mechanized and require expensive plant facilities and equipment. Even more significant is the fact that most of these special processes were patented and their use thereby limited by the company holding the patent. Also, the products were often new and distinctive, which meant that they could be advertised nationally if the firm were large enough to operate on such a scale.

Two large food corporations dealing mainly in these specialty food products have grown up since the World War. They are the General Foods Corporation and Standard Brands, Inc. The dollar sales of these two companies for the period 1919–37 are shown in table 20. The business of General Foods increased from about $18,000,000 in 1922 to $133,000,000 in 1937 and that of Standard Brands, from $39,000,000 to over $122,000,000 during the same period. Neither company has expanded much since 1930, as their dollar sales indicate.

TABLE 20.—*Sales of General Foods Corporation and Standard Brands, Inc., 1919–37*

Year	Sales of—[1]		Year	Sales of—[1]	
	General Foods Corporation	Standard Brands, Inc.		General Foods Corporation	Standard Brands, Inc.
	1,000 dollars	*1,000 dollars*		*1,000 dollars*	*1,000 dollars*
1919	21,046	31,952	1929	128,037	----
1920	21,910	32,687	1930	117,464	89,760
1921	17,774	37,194	1931	----	88,272
1922	17,877	38,507	1932	----	83,535
1923	22,205	41,233	1933	----	83,281
1924	24,248	46,443	1934	----	100,449
1925	27,387	56,646	1935	109,161	102,040
1926	46,896	62,952	1936	122,462	114,976
1927	57,288	64,668	1937	133,126	122,517
1928	101,037	64,004			

[1] Moody's Manual of Investments: Industrials. Sales not given for dates not shown.

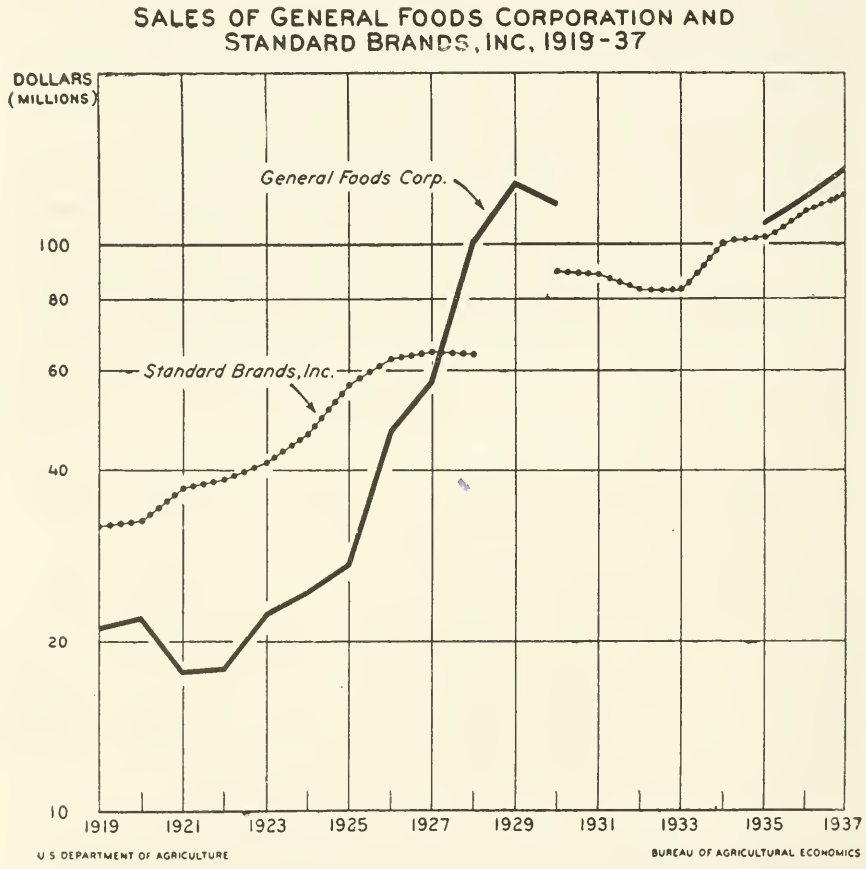
The General Foods Corporation was developed out of an enterprise incorporated in 1920 as the Postum Cereal Co. The business of the Postum Cereal Co. at that time consisted of the manufacture of a line of breakfast foods. The Postum Co. immediately began a program of expansion, usually by the exchange of its own stock for that of the acquired enterprises. By 1930 the corporation, whose name meanwhile had been changed to General Foods, had acquired no less than 20 food enterprises. Most of them were engaged in the manufacture of special food products under processes which were patented.

Among the many products manufactured and distributed by the General Foods Corporation are breakfast cereals, coffee, chocolate products, Jello, salt, tapioca, flour, and sirup. All its products are sold under advertised brand names. As a matter of fact, a large share

of the assets of the various corporations acquired by General Foods consisted of patents and good will resulting from advertising.

General Foods also controls some of the more important patents for the quick freezing of perishable products. This process has not been used extensively up to the present time, but it promises eventually to become a very important factor in the food business. The corporation is actively engaged at the present time in building up its business in frozen foods.

CHART IX



Data from Table 20.

Standard Brands, Inc., is an organization very much like General Foods. It was incorporated in 1929 to hold the stocks of the Fleischmann Yeast Co., the Royal Baking Powder Co., and the E. W. Gillett Co. Later it acquired the Chase & Sanborn Coffee Co., the Widlar Food Products Co., and a number of others. It engages in the manufacture and distribution of such products as coffee, tea, baking powder, yeast products, and ginger ale. It services its customers through 750 selling agencies located throughout the United States, Canada, and several Central American countries.[5]

[5] Standard Corporation Records, 1936.

The securities of both General Foods and Standard Brands figured prominently in stock market transactions during the latter part of the decade of the 1920's. It was commonly thought that some of the mergers and consolidations entered into by these two holding companies were mainly for the purpose of financial manipulation and for gains other than those associated with the actual operations of the companies involved. The writer has had no facilities for examining the truth of such charges and no Federal agency has made any formal investigation of them.

On the face of it, however, there is a substantial economic basis for the mergers and combinations engineered by these two companies. So far as manufacturing is concerned, there is no reason why a salt company, for instance, should be affiliated with an enterprise making breakfast cereals. But from the standpoint of distribution there is a very good one. Most of the big food corporations have sought to distribute their own products rather than to send them through independent brokers and wholesalers. Neither salt nor breakfast food, if handled alone, can carry the cost of sales distribution. Many of the consolidations made by General Foods and Standard Brands seem clearly to have been for the purpose of giving them a "family" of products to be distributed jointly. Their reason for diversifying their line of goods appears to have been fundamentally the same as that which years before had led the meat packers into the handling of many food products seemingly unrelated to meats. The necessity for reducing the sales overhead in a large-scale, vertically integrated organization has been back of many, if not most, of the big food mergers of recent years.

Other food corporations.

Many food corporations other than those already mentioned in this chapter might be listed.

The sugar industry is one in which big corporations have been the dominant factor for many years. The American Sugar Co. refines from one-fourth to one-sixth of all sugar consumed in the United States and has an annual business of well over $100,000,000. Approximately one-third of all the sugar beets grown domestically are processed by the Great Western Sugar Co.

The making of corn syrup and other corn products is largely in the hands of the Corn Products Refining Co. This company and its affiliates have factories not only in the United States but in nearly all parts of the world.

All lines of food manufacturing and distribution will show at least some evidence of the trend toward large-scale organization which has been described for the major food groups. As a matter of fact, it is undoubtedly correct to say that concentration of control has proceeded much further in some of the minor food lines than in the major ones. This commonly escapes attention because the companies involved are not as large as some of those described in the course of this chapter. Their control over prices and margins in their particular line of enterprise, however, may be just as great and may warrant just as much attention from regulatory agencies as has been given to some of the major food corporations.

CHAPTER VII

MASS DISTRIBUTION AND MARKETING EFFICIENCY

No development of the present century has had more significance from the standpoint of marketing efficiency than the introduction of mass distribution methods by large-scale food corporations. More than any other factor, this development has changed the entire marketing structure as well as the actual mechanics of food distribution. There can be no doubt of its paramount importance in connection with the whole question of marketing efficiency.

So much confusion of thought exists over the concept of marketing efficiency that it is necessary at the outset to state precisely what is meant and what is not meant by the term as here used. Efficiency usually is thought of as the quantity of productive resources necessary for the performance of a given operation, as measured in terms of monetary costs. Preoccupation with monetary costs and with the efficiency of individual business units, however, has sometimes led to neglect of certain broader aspects of the problem.

A clear distinction has not always been made between those marketing expenditures incurred for the purpose of satisfying demand and those made for the purpose of influencing it in favor of a particular seller.[1] Most costs involved in the physical handling of the commodity—such as assembling, processing, transporting, and storing it—obviously are of the former sort. So also is a part of those costs for selling and transferring ownership at various stages in the marketing process, insofar as these are necessary to give the commodity utility with respect to time and place. But it is evident also that many, though not all, the expenditures for advertising and competitive selling serve no real use to consumers, however profitable such expenditures may be to the handlers who incur them. It is the mark of an efficient system of food distribution, not only that it shall use labor and capital efficiently in the performance of its distributive operations, but that these operations shall serve a socially necessary and useful purpose. As the chapter develops, the application of this idea will be made to specific situations in food marketing.

Another important distinction to be made relates to the way in which efficiency is measured. Analyses of marketing efficiency commonly are made in terms of monetary costs. Although useful for some purposes, such analyses do not always distinguish between the amount of labor and capital used and the rate of compensation paid to these factors. The fact that many business enterprises survive only because their proprietors and employees are willing to work long hours or at low rates of pay is no real evidence of their efficiency. Most of the margin taken for distributing farm products is ultimately resolvable into wages to labor. This margin conceivably might be reduced either

[1] Edward Chamberlin suggests this distinction (The Theory of Monopolistic Competition, Harvard University Press, 1933, pp. 123–125), but his concern was with its relationship to the theory of monopolistic competition rather than to economic efficiency per se.

by increasing the efficiency with which labor is used (i. e., by reducing the amount required for performing a given distributive function) or by reducing the compensation paid to labor. Needless to say, the objective of a sound marketing policy ought to be to reduce marketing costs by the former method.

There also should be mentioned the duplication of marketing services and facilities arising out of competition itself. Examples of this are to be found at all stages and in all parts of the distributive system, but particularly in the field of retailing. Much of this duplication is inherent under any system of competition. Its complete elimination, of course, would necessitate setting up a unified, noncompetitive system by giving exclusive franchises to public or private agencies as is now done with public utilities.

Efficiency in the broad sense thus involves a number of factors, some of which are related to the type of distributive system and some of which are not. Our concern here is mainly with those which are. It will be the objective of the present chapter to compare mass distribution with the regular marketing system from the standpoint of economic efficiency, using the term in the sense described above.

Anyone having occasion to investigate this question cannot but be struck with the paucity of usable data on it. Economic theory recognizes certain advantages and disadvantages of mass distribution but there have been few attempts at quantitative measurement. The writer has sought to bring together the results of what little research has been done along this line and to translate these results into some general conclusions. If these conclusions appear to lack verification and finality, it is because research workers have largely neglected what is probably the most important problem in the entire field of marketing.

EFFICIENCY IN RETAILING: CHAINS VERSUS INDEPENDENTS

From the standpoint of its effect on the efficiency of food distribution, the introduction of mass retailing by the corporate grocery chains overshadows all other large-scale developments in the food industries. If the costs of marketing are to be reduced, the most likely places to effect significant savings are in the functions of wholesaling and retailing, and especially the latter. The retail margin is almost invariably the largest single element in the spread between producer and consumer and often it is larger than the margins of all other types of handlers combined. For this reason any innovations made in retailing—by the grocery chains or otherwise—are likely to be especially important so far as reducing food costs is concerned.

Prices in chain and independent stores.

Numerous comparisons of retail prices in chain and independent grocery stores have been made. Differences in such prices do not necessarily reflect differences in efficiency, since competing stores will have to sell at somewhere near the same prices if they are to stay in business. As a rule, however, lower prices for the same services may be taken as an indication of greater efficiency, although the difference in efficiency may not be in proportion to the difference in prices and margins.

The most comprehensive comparison of food prices in chain and independent stores was that made by the Federal Trade Commission

in connection with its chain-store inquiry.[2] The Commission conducted its investigation in Washington, D. C., Memphis, Detroit, and Cincinnati. A summary of its findings in these four cities is shown in table 21.

TABLE 21.—*Comparison of retail prices for identical items in chain and independent stores in 4 cities, 1929*

City	Total average retail selling price	
	Chains	Independents
Washington, D. C	$54.07	$58.03
Cincinnati	21.95	23.34
Memphis	35.96	38.11
Detroit	33.26	35.66

Federal Trade Commission, Chain Store Inquiry, vol. IV. Compiled from figures given in table 4, document 62; table 4, document 88; table 5, document 69; and table 5, document 81.

Table 21 indicates that prices of identical goods were substantially lower in chain stores than in independents. The Commission concludes that its study "tends to establish the fact that on the average, chain stores can and do sell at prices which are somewhat lower than the prices charged by independent retailers or even cooperative chains." [3] In Washington, D. C., a bill of goods costing an average of $58.03 in independent stores could have been purchased for $54.07 in the chains. The ratio of chain prices to independent prices was approximately the same in the other three cities studied by the Commission.

The findings of the Federal Trade Commission relative to prices in chain and independent stores have been confirmed by a number of other studies. Table 22 shows the prices for different types of stores as found by Converse in Champaign-Urbana, Ill.[4] A bill of goods sold by the chains in that area for $115.36 was sold by the cash-and-carry independents for $122.10, by service independents for $123.70, and by voluntary chains for $124.59.

TABLE 22.—*Weighted average prices of groceries in various types of stores in Champaign-Urbana, Ill., in March 1937*

Commodity class	Types of stores			
	Chain	Independents		
		Voluntary	Cash-carry	Service
Poultry, fish, and cured meats	$20.68	$21.90	$21.75	$21.86
Dairy products and eggs	24.45	25.56	25.47	25.67
Cereals	23.23	25.51	24.60	25.19
Coffee, sugar, etc	7.22	7.93	7.63	7.79
Fresh fruits and vegetables	21.90	22.93	22.63	22.77
Dry fruits and vegetables	1.50	1.71	1.64	1.73
Canned goods	7.12	8.86	8.14	8.44
Desserts and condiments	3.54	3.90	3.95	4.01
Soaps and cleansers	5.72	6.29	6.29	6.24
Total (exclusive fresh meats)	115.36	124.59	122.10	123.70

[2] Federal Trade Commission, Chain Store Inquiry, S. Doc. Nos. 62, 69, 81, 88, 73d Cong., 1933.
[3] Federal Trade Commission, Chain Store Inquiry, Final Report, S. Doc. No. 4, 74th Cong., 1st sess., 1935, p. 28.
[4] Paul D. Converse, Prices and Services of Chain and Independent Stores, Journal of Marketing, January 1938, pp. 193-200.

Taylor [5] found the chain stores in Durham, N. C., selling at prices about 13 percent under those of competing independents. He further concluded that the costs of any extra services provided by the independents would not approximate this difference in selling prices. In Lexington, Ky., Palmer [6] found chain-store prices 14 percent below those of independents.

In a more comprehensive study involving over 300 independent stores and 4 chain systems in Chicago, Bjorklund and Palmer found the following: [7]

> Chain stores were underselling cash-and-carry independents * * * about 9 percent.
> Chains were underselling service independents * * * about 12 percent.
> Cash-and-carry independents were underselling service independents * * * about 2.5 percent.

They concluded that the savings effected for consumers by the chains were about 10 percent on the average. They pointed out, however, that this comparison conceals the very important fact that some independents are not undersold appreciably by the chains.

Margins and operating expenses of chains and independents.

Other indications of the relative efficiency of chains and independents are to be found in their gross margins [8] and operating expenses. Comparisons of these for the two systems of distribution are not altogether satisfactory, but such studies as have been made show a clear advantage for the chains.

Studies conducted by the Harvard Bureau of Business Research during the 1920's indicated that chain systems typically took a gross margin equal to about 20 percent of their selling price.[9] Since the chains usually perform the wholesaling function for their stores, their margin must be compared with the combined margins of the average independent and the wholesaler. The Harvard studies showed these combined margins to be 28.9 percent of the retail price, the independent retailer taking 19.8 percent, and the wholesaler, 9.1 percent. When the average margins taken by the chains were expressed as a percentage of the higher prices at which the independents sold, they averaged only 18 percent, which indicated a still greater advantage for the chains.

Part of the reduction in margins made by the chains is due to the fact that they do not render credit and delivery service. If it is assumed that the cost of these services is about 4.5 percent of sale,[10] the advantage of the chains due to lower operating costs is still more than 6 percent of the retail price.

Numerous factors account for the greater efficiency in retailing which the chains indubitably have. Probably the main one is that their retail units are much larger, which permits them to use labor more efficiently.

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[5] Malcolm D. Taylor, Prices in Chain and Independent Stores in Durham, N. C. Harvard Business Review, July 1930, p. 413.

[6] E. Z. Palmer, New York Journal of Commerce, July 19, 1930, p. 11.

[7] Einer Bjorklund and James Palmer, A Study of the Prices of Chain and Independent Grocers in Chicago, University of Chicago Studies in Business Administration, vol. 1, no. 4, p. 14.

[8] Gross margin is the difference between net sales and net cost of goods sold. It is equivalent to total operating expense plus net profit.

[9] Carl N. Schmalz, Independent Store versus Chains in the Grocery Field, Harvard Business Review, July, 1931, p. 438.

[10] Harvard Bureau of Business Research, Bulletin No. 52, Operating Expenses in Retail Grocery Stores in 1924, p. 67.

The best measure of this is to be found in a special enumeration of chain and independent stores made by the United States Census Bureau in Louisville, Ky., and Cincinnati, Ohio. The enumeration showed that the average chain unit had sales in excess of $60,000 per year, as compared with sales of about $27,000 for the average independent. Sales per employee were nearly $19,000 for the chains, and less than $12,000 for the independents (table 23). Obviously the chains were using their store labor to much better advantage than most independents. Their wage costs, expressed as a percentage of retail sales, were 8.14 percent as against 9.12 percent for the independents. It should be noted that the method used for computing the wages of the proprietors of independent stores (namely, assuming them to be equal to the average paid to full-time employees) tends to reduce wage costs in independents as compared with chains, whose wage costs include salaries of store managers.

TABLE 23.—*Comparison of operations between chain and independent grocery stores in Louisville, Ky., and Cincinnati, Ohio, 1929*

	Chains	Independents
Number of stores	614	1,907
Net sales	$37,078,343	$51,804,414
Net sales per store	$60,388	$27,165
Number of full-time employees	1,965	[1] 4,394
Sales per employee	$18,869	$11,790
Total wage cost	$3,018,801	[2] $4,726,373
Wage cost as percent of sales (percent)	8.14	9.12
Total annual wage per employee	$1.536	$1,076

[1] Includes proprietors of independent stores.
[2] Total wage cost includes a computed wage value of proprietors' services equivalent to the average wage of full-time employees.

U. S. Census of Distribution, 1929. Retail Distribution (Trade Series), Food Retailing. Compiled from table 25.

Wages paid by chains and independents.

Wage costs are determined not only by the amount of labor used but by the wage rate. Reduced labor costs achieved by means of lower wage rates are no indication of greater efficiency in the true sense of the term. For this reason, it is pertinent to compare wages paid by chain and independent grocery stores.

Data for such a comparison are available from two sources: (1) The Federal Trade Commission's Chain Store Inquiry, and (2) the United States Census of Business. The figures from these sources are contradictory, the Federal Trade Commission's report indicating that independent grocers pay slightly higher wages than do chains, whereas the Census data show that independents pay lower wages.

The Federal Trade Commission bases its conclusions on data from a sample of 226 independent grocery stores and 10,073 chain units.[11] It found average weekly wages in 1931 to be $24.91 in the case of the 226 independents and $20.40 for the chains. The Commission made these figures the basis for its conclusion that "The independents paid their store employees more than did the chains." [12]

[11] Federal Trade Commission, Chain Store Inquiry, S. Doc. No. 82, 73d Cong., table 9
[12] Ibid., p. 19.

The writer doubts the validity of this conclusion. The sample of independents involved in the comparison not only is small, but is not typical of independent retailers generally. Dollar sales of the independents studied by the Commission were higher than those of the chain units, whereas the average for all independents is less than one-third that of the chains. Moreover, the independents were selected on the basis of a mailed questionnaire, which only the more progressive merchants would be likely to return.

The wage figures obtainable from the 1935 Census of Business, which are based on a complete enumeration of all retail grocery stores, led to a conclusion opposite from that reached by the Federal Trade Commission. The average annual wage paid in 164,404 independent grocery stores in 1935 was $672, as compared with an average of $955 in 22,632 chain units (table 24). In combination stores (i. e., groceries and meats), the average wage was $762 for the independents and $957 for the chains.

TABLE 24.—*Sales, pay rolls, and wage rates in chain and independent stores in the United States, 1935*

	Grocery stores (without meats)		Combination stores (groceries and meats)	
	Independents [1]	Chains [2]	Independents [1]	Chains [2]
Number stores	164,404	22,632	139,994	25,607
Total sales	$1,339,524,000	$842,075,000	$2,509,867,000	$1,624,513,000
Average sales per store	$8,148	$37,207	$17,928	$63,440
Number employees	[3] 81,193	[4] 72,698	[3] 206,746	[4] 151,662
Proprietors and firm members	168,794	124	147,462	347
Total	249,987	72,822	354,208	152,009
Sales per person in store	$5,358	$11,563	$7,086	$10,687
Total pay roll	[5] $54,566,000	$69,385,000	[5] $157,635,000	$145,130,000
Average wage per employee [6]	$672	$955	$762	$957

[1] Includes 2- and 3-store independents.
[2] All systems with 4 or more retail units.
[3] Proprietors and firm members not included in count of employees.
[4] Store managers included in count of employees.
[5] Compensation to proprietors and firm members not included in pay roll.
[6] In comparing this figure for chains and independents, it should be noted that the average wage paid by chains includes the salary of the store manager.

U. S. Census of Business, 1935, Retail Distribution, vol. IV, p. 13.

The figures for the chains include the store manager's salary, whereas proprietors of independent stores are excluded from the wage calculation of the independents. Since chain-store managers receive higher compensation than ordinary clerks, the inclusion of the managers' salaries tends to exaggerate the real difference in wages in the two types of stores. However, this would not account for all the difference shown in table 24. So far as the census figures go, the evidence is clear that wage rates in chain stores are above those of independents—exactly how much it is impossible to say.

Not more than half the independent grocery stores in the United States have a volume of business sufficient to provide their proprietors and employees with a wage approximating that of the average chain-store employee. They are, as a matter of fact, enabled to stay in business only because those who operate them are willing to work long hours and for low rates of pay.

On this point the Census of Business shows some striking facts. Table 24 indicates that the volume of business done in the average chain-store unit is three or four times that of the average independent. Sales per person employed in chain stores were nearly twice as high.

Even more astonishing is the fact that out of a total of about 305,000 grocery and combination stores in the United States, more than 130,000 have sales of less than $5,000 per year.[13] Many of these are operated with family labor and do not represent the entire source of family income. Also, they provide the families of the proprietors with food at wholesale prices. But it is nevertheless self-evident that they cannot sell at reasonable prices to consumers and at the same time provide their proprietors and employees with what are usually thought of as reasonable wages.

The field of grocery retailing is one of the few remaining sectors of the economy where the small enterpriser may still find a place. Having been crowded out of other fields, those with a reluctance to work for wages and a desire to operate their own business have turned to retailing. The result is that the number of retail stores has multiplied out of all proportion to the real needs of consumers. This can only mean either or both of two things: (1) That retail margins are inordinately high because too much labor and capital has entered the field; or (2) that many retailers must be satisfied with a low rate of return for their labor and capital.

Grocery retailing, like farming, is offering little more than a subsistence level of living for many who engage in it. This implies neither condemnation nor approval of the situation. So long as the economic system works so badly that men cannot find other means of employment, this is inevitable. There is, after all, as much justification for "subsistence retailing" as for "subsistence farming"—and the latter has received encouragement even by governmental action.

It is important to distinguish between economic efficiency and economic tenacity. As we have defined the term, marketing efficiency relates to the amount of labor and capital necessary for distributing a given quantity of food products. Efficiency, therefore, is not synonymous with costs as measured in monetary terms, because the latter involves the compensation paid to labor and capital as well as their amount. The fact that many independent stores manage to stay in business and to sell at somewhere near the same prices and margins as the chains by "sweating" themselves, their families, or their employees is therefore no real evidence of their efficiency.

Management as a factor in retailing efficiency.

One of the anachronisms still prevailing in the minds of many people is the notion that the management of independent stores is likely to be superior to that of chains because the managers of chain units lack the incentive of ownership. The belief is traditional that to own an enterprise is to know best how to run it. Even economists have been loath to apply to the function of management the principle of specialization and division of labor.

The main elements of successful management in retailing are skill in buying, advertising, and merchandising, together with careful attention to all cost factors. One of the characteristics of mass retailing is that all these elements are centrally planned and carried

[13] U. S. Census of Business, 1935, Retail Distribution, vol. VI, p. 156.

out in the retail unit on a more or less standardized basis. The purchase of all goods is attended to by buyers located either at the chain headquarters or at the district warehouse. Window displays, advertising copy, store arrangements, etc., are designed by specialists in these matters, their ideas being transmitted to the store managers via the store superintendent. All the larger chains instruct their employees in selling techniques and give their store managers rigid training in store operation. Most important of all, the systems of records and cost accounts kept by the chains enable them to detect and rectify the sources of loss and inefficiency.

Many independent retailers can and do match the chains in the skill with which they conduct their store enterprises. But it goes without saying that most of them do not. The business of the independent retailer is not large, and his earnings are necessarily small. He is nevertheless confronted with most of the problems of stock selection, merchandising, and expense control confronting the corporate chains. It is inconceivable that any very large percentage of the 300,000 independent grocers should have all the requisite qualities possessed by the chain experts for meeting these problems.

The corporate chains are of course not without their own problems of management and personnel. Among these are lack of incentive on the part of employees, absentee ownership, and corporate bureaucracy. Much progress has been made by the chains in alleviating some of these difficulties, although the causes lie in deep-rooted and inherent characteristics of large-scale organization.

The development of cooperative and voluntary chains undoubtedly has had a great influence in improving the management practices of independent retailers. Many of these cooperatives have gone actively about it to assist their members with store displays, accounting practices, and merchandising methods. There is, however, nothing compulsory about the adoption of practices recommended by the cooperative chains. A member retailer is free to take or not to take these suggestions. An increasing number of retailers are taking them, but human inertia is such that many will not.

There is, after all, a vast difference between a corporate chain which compels its employees to follow certain retail methods and a cooperative chain which only suggests such methods. It may be that when all things are considered, the freedom of choice left to the independent enterpriser is preferable to the economic advantages resulting from centralized management. The best features of the two systems of distribution, however, cannot be combined in either the one or the other. The capabilities of most persons are not such that they can be expected to show much proficiency even in the management of small enterprises. We must therefore either accept the ineptitude of the average person in order to preserve for him some measure of what is called economic individualism, or we must accept the change from enterpriser to employee status in order to achieve the advantages of centralized management.

THE INTEGRATION OF GROCERY WHOLESALING AND RETAILING

Another important aspect of mass distribution from the standpoint of marketing efficiency is the fact that mass distributors have tended to integrate successive marketing functions within a single organization. The number of bargaining transactions and ownership

transfers necessary to move goods from producer to consumer is thus greatly reduced as compared with the regular channels.

The importance of this is commonly overlooked. No inconsiderable part of the total cost of distributing food products is incurred for the purpose of bringing about ownership transfers at various stages in the marketing process. Brokers' fees, wholesalers' commissions, salesmen's salaries, advertising expenditures—all are partially chargeable to the efforts of sellers and manufacturers to find retail outlets for their goods. Obviously the greater the number of such buyers and sellers and the more functionally specialized they are, the greater the number of ownership transfers necessary to move the commodity forward toward the consumer.

The purpose served by these ownership transfers is that of apportioning the supply properly with respect to the ultimate demand. Clearly this is a function which must be performed by any type of distributive system, even a completely unified, noncompetitive one. The mechanics by which it is done, however, will be greatly different, depending on the number, size, and character of the marketing agencies. In the regular channels, comprised as they are of many small, specialized handlers, the product moves forward chiefly by means of numerous buying and selling transactions. In contrast, the mass distributor moves it forward on an intracompany basis, with the orders and requirements of its various parts largely supplanting the bargaining transactions of the regular system.

This is the key to much, if not most, of the advantage which the grocery chains have over the independent retailer-wholesaler system. When the function of wholesaling is integrated with that of retailing, it is no longer necessary to "sell" the retail store. The average independent retailer is visited daily by at least a half-dozen salesmen, each trying to sell him a small bill of merchandise which he may or may not need. Those who seek the retailer's business cannot permit him simply to order his merchandise as he needs it; the competition between them is such that they constantly must persuade, cajole, and coax him.

The cost of this sort of thing in time and money is nothing short of stupendous. Yet it is seldom mentioned when methods for reducing the costs of food distribution are being considered because most people, including a fair share of the economists, are more concerned with the preservation of competition under old institutional forms than with economic efficiency as we have defined the term.

Labor efficiency of chains versus that of the regular channels.

The advantages of combining wholesaling and retailing within the same firm are self-evident, but it is not easy to provide a precise measurement of them. One of the few studies made of this is one by the writer, relative to the distribution of fruits and vegetables in the city of Philadelphia.[14] This study compares the labor efficiency of a large chain system of that city in putting fruits and vegetables into its retail stores with that of the regular jobbers and wholesalers who serve the independent retail trade. Admittedly the comparison is not an exact one, and it may not be illustrative of conditions generally, but it constitutes the only study of its kind which has come to the attention of the writer.

[14] Cf. A. C. Hoffman and L. A. Bevan, Chain-Store Distribution of Fruits and Vegetables in the Northeastern States, Bureau of Agricultural Economics, November 1937, pp. 41–48.

The distribution of fresh fruits and vegetables in Philadelphia provides a particularly good place to compare the efficiency of the two systems of distribution because in that city they are largely separate and distinct from each other. The Great Atlantic & Pacific Tea Co. (the chain used in the comparison) operates a produce warehouse which handles all fruits and vegetables sold through its 950 retail stores in the district. The operations performed at this warehouse correspond in a general way to the functions of the produce wholesalers and jobbers in serving the independent grocer, except that the chain delivers all produce to the retail store, whereas the independent grocer usually visits the wholesale market in person and takes home his purchases in his own vehicle.

The relative efficiency of the two systems of distribution so far as the use of labor is concerned is shown in table 25. With a total working force of 223 people, the chain system bought, assembled, and delivered 5,350 cars of fresh fruits and vegetables for its 950 retail units in 1936. This is an average of, roughly, 24 cars per person per year. Compared with this, the regular channels handled about 40,755 cars of produce with the equivalent of 4,150 full-time employees, or an average of only 10 cars per person per year. The chain system thus required less than half as many labor hours to put a given volume of produce into its stores as were required in the regular channels.

TABLE 25.—*Labor efficiency of a national chain-store system compared with that of the regular marketing channels in handling fruits and vegetables up to the retail store, Philadelphia, 1936*

Dock and Callowhill St. markets (estimated volume handled, 40,755 cars)		Cars handled per person [1]	National chain-store system (estimated volume handled, 5,350 cars)		Cars handled per person [1]
		Number			*Number*
1. Estimated number of proprietors of wholesale and jobbing stores	275	148	1. Number of buyers for chain system	5	1,070
2. Estimated number of people employed by above stores (not including proprietors) [2]	1,375	30	2. Number of warehouse employees for handling fruits and vegetables	106	50
3. Estimated time spent by retailers and other buyers in procuring supplies, in terms of equivalent full-time people employed [3]	2,500	16	3. Number of men employed to truck produce from warehouse to retail units	112	48
4. Total number full-time people engaged in wholesaling and jobbing operations	4,150	10	4. Total number employed	223	24

[1] Computed by dividing the number of persons employed in each operation into the total volume handled.
[2] Assuming an average of 5 employees per firm, which is the average indicated by the 1936 census of business for fruit and vegetable wholesalers in Philadelphia.
[3] Based on interviews with 100 retailers.

A. C. Hoffman and L. A. Bevan, Chain-Store Distribution of Fruits and Vegetables in the Northeastern States, Bureau of Agricultural Economics, 1937, p. 47.

Closer examination of table 25 will indicate the source of the chain's advantage. In the first place, each of its 5 buyers bought an average of over 1,070 cars of produce per year, whereas the average wholesaler handled less than 150. Particularly striking is the tremendous amount of time spent by independent retailers in visiting the market to procure their daily supplies as compared with the chain-store practice of delivering the produce to the store, thereby relieving its store managers of this time-consuming task. (See item 3 of table 25.) Interviews with 100 independent grocers in Philadelphia revealed that most of

them visited the produce market every business day of the year and spent an average of 3 hours per trip.

The elimination of this sort of thing through the integration of the wholesaling and retailing functions represents one of the chief advantages possessed by the mass distributor. Conceivably, the independents might achieve for themselves some of these advantages by means of cooperative organization, but as yet have not done so in the case of fruits and vegetables.

ECONOMIES IN THE INTEGRATION OF PROCESSING AND DISTRIBUTION

Thus far our discussion of efficiency has been confined mainly to the innovations made by the grocery chains in the field of wholesaling and retailing. On the whole, these have been the most important of any introduced as a result of large-scale organization in the food industries, because the opportunities for reducing marketing costs are greatest in these functions. Other types of large-scale handlers, however, also have had an effect on processing and distributing methods which is not without significance from the standpoint of efficiency.

The tendency of large-scale processors, such as the meat packers and the dairy companies, to set up their own sales organizations for carrying the product through to the retailer already has been fully described. Essentially, what this amounts to is that the mass distributors have taken over the functions of the specialized broker and wholesaler. This they have been impelled to do for several reasons. First of all, they evidently have found that the costs of their own sales organizations are less than the brokerage fees and commissions that their goods otherwise would have to carry; otherwise, they would use the regular distributive channels. The fact that they have not done so is at least prima facie evidence of some gain in efficiency through having integrated the function of distribution with that of processing.

Mass distributors, of course, have had other reasons for setting up their own sales systems. The desire to broaden the market for their products has almost certainly been a factor, since the regular brokers and wholesalers cannot be expected to push any particular line of goods as vigorously as the manufacturer's own sales force. However, unless sales promotion also contributes to reduced marketing costs, it does not represent a gain in efficiency in the proper meaning of that term.

Number of products handled.

Another advantage of the mass distributor has been the large number of products handled. As food corporations have grown in size, they have almost invariably added to the number and variety of their commodities. The big meat packers were led early in their development to undertake the distribution of dairy and poultry products along with meats. Corporations like General Foods and Standard Brands have literally scores of articles in their respective lines. The reason for this is, of course, to reduce the sales overhead.

It is not possible for a food processor or a manufacturer to carry distribution very far toward the consumer on an efficient basis with only a few products. Recognition of this by the large food corporations has given them a distinct edge over other types of handlers, and

particularly over some of the producer cooperatives, which attempt vertical integration with only one or two products.

Freight and cartage costs.

Savings in freight and transportation costs obtained as a result of large-scale marketing organization are probably not as great as is sometimes thought. There is some cross hauling of food products because of improper market distribution. Judgment as to the requirements of particular markets can usually be made more accurately by a mass distributor than by large numbers of small shippers, many of whom lack the market information required for the proper routing of supplies. The mass distributor can also ship his products direct from his plant or factory to his various distributing units with some saving in transportation costs. On the whole, however, the economies obtained in this way are not important in the case of most food products.

The most notable example of transportational waste and inefficiency in food distribution is to be found in the intracity cartage of perishable food products. The wholesale produce markets of most large cities are antiquated, decentralized, congested, and altogether inadequate for the proper handling of perishable produce.[15] Buyers and sellers who use the markets are subject to costly delays and inconvenience. Many of the markets do not have direct rail connections, which adds to the cost of terminal cartage. The situation has been such as to provide an opportunity for associations of truck owners and drivers to impose costly regulations and restrictions upon the free movement of produce within large cities.

The burden of this sort of thing is not precisely ascertainable, but it undoubtedly adds a considerable amount to the cost of certain food products. Intracity cartage costs in New York City amount on the average to 4 to 6 percent of the retail price of fresh fruits and vegetables. Conditions here are typical of those in other large cities. A considerable part of this could be saved by proper arrangement and location of the wholesale produce markets, so that it cannot be said that this source of inefficiency is necessarily inherent in the regular marketing system. Under present conditions, however, the larger grocery chains have gained a substantial advantage over other handlers by virtue of the fact that they have established their own produce warehouses and no longer rely on the terminal wholesale markets for their fruit and vegetable supplies.

The integrated mass distributor is also likely to have some time advantage in the handling of perishable produce. For example, chain-store systems which receive fruits and vegetables direct at their warehouses almost invariably get the produce into their retail units from 12 to 24 hours sooner than do handlers in the regular channels. With a highly perishable commodity, these few hours may prevent a great deal of waste and spoilage.

Responsiveness of prices to changing market conditions.

There is one more respect in which vertical integration is likely to contribute to more efficient food distribution. It has to do with the responsiveness of prices to changing demand and supply conditions.

[15] William C. Crow, Wholesale Markets for Fruits and Vegetables in 40 Cities, U. S. Department of Agriculture Circular No. 463, 1938, pp. 1–20.

Prices in a marketing system comprised of a series of specialized handlers are almost certain to be less flexible and responsive to market conditions than in a system of integrated units. The reason is simply that the loose links in the former system do not permit a quick adjustment of prices at all points in the marketing process.

Because of conditions peculiar to agricultural production, it is essential that food prices to consumers shall be flexible. Not infrequently it happens that prices to growers are so low that it may not pay to harvest the crop. If such a situation develops suddenly, retail prices may show little or no response, and the crop, if it is perishable, is partially lost.

It is generally recognized in trade circles that mass distributors take the initiative in instituting price changes. Sometimes this is used as a basis for asserting that they fix food prices, a charge frequently leveled against the grocery chains. A more likely view is that the scale of chain-store operations and their intimate contact both with supply conditions and with consumer demand permit them to detect changes in the general market situation and to adjust prices more quickly than other handlers are able to do.

In some respects mass distribution may have contributed to less flexibility. This is likely to be the case where some degree of monopoly exists, even though the monopoly may be only with respect to the brand or trade-mark. Specialty food products, whose manufacture and distribution are usually in the hands of big firms, show on the whole less price flexibility than the food staples.

ADVANTAGES OF GROCERY CHAINS OVER OTHER TYPES OF LARGE-SCALE HANDLERS

Between the grocery chains and other types of large-scale food corporations there are some rather fundamental differences with regard to distributive methods and efficiency. These differences turn on the fact that the grocery chains do not have to "sell" their retail units and are, therefore, in a position to dispense with many of the marketing costs which other types of distributors must incur in getting goods into consumption. The advantage which this gives the chains over the regular wholesaler-jobber system was described in an earlier section of this chapter. The chains have much the same sort of advantage over large-scale processors that have set up their own sales organizations for selling to the independent retailer.

Like other mass processors and distributors, the larger chains have their own brands of food products. They are not, however, under compulsion to expend large sums of money to advertise these brands for the simple reason that their employees in the retail store are in direct contact with the consumer. A personal word or suggestion from a salesman to a consumer in favor of a particular article usually will carry more influence than a dozen brightly colored advertisements and fancy posters.

One of the aspects of modern food distribution which the writer finds much to his dislike is the growing expenditure of money for brand advertising of food products. Among the chief offenders are the big processors and distributors who do not have assured retail outlets and who use this method to stimulate sales of their

products. The integration of retailing with other marketing functions obviates much of the need for advertising and selling expenditure of this kind and thus contributes to the reduction of marketing spreads.

Some measure of the saving made possible in this way is given by the Federal Trade Commission's comparison of prices of the private brands of chain stores with those of the standard brands on the chain-store shelf beside them. The Commission found the prices of groceries sold under the private brands of the chains to be about 12 percent lower than those of standard brands sold in the same store.[16] The quality of the goods represented by the different brands used in the comparison was approximately the same, so that this was not a factor in the comparison. Moreover, the mark-up and the profits made by the grocery chains on their own brands were as great as those made on the other brands which they handled. The 12-percent price difference in favor of the private chain brands thus gives a rough measure of the saving made possible by the elimination of advertising and sales costs usually incurred on nationally advertised goods.

The distributive economies made possible by the possession of assured retail outlets are such that a closer working relationship between the mass processor and the mass retailer is almost certain to develop. This may take several forms. The first and most obvious is for the mass retailer to undertake the processing of more and more of its goods. The tendency of the grocery chains to move in this direction has already been described in some detail. The counterpart of this development is for the mass processor to obtain a chain of retail outlets. This the meat packers attempted to do years ago, but they agreed to discontinue it under the terms of the packers' consent decree. Indications are that the big packers are becoming restive under this provision of the decree. There also are trade rumors to the effect that other types of large-scale food distributors are moving toward a closer tie-up with some of the grocery chains in order to reduce the cost of sales and distribution. The writer thinks it not improbable that considerations of this kind may lead ultimately to a series of mergers and combinations on a scale unprecedented in the food industries.

ECONOMIES AT THE PRODUCER END

The economies to be made in the distribution of farm products at the producer end of the marketing chain are far less important than those at the consumer end. The chief significance of mass distribution lies in the changes it has wrought in retailing and in those distributive functions between the retailer and the primary processor. It is with these changes that we have been concerned thus far in this chapter. Large-scale organization, however, has not been without effect on those marketing functions next to the farmer, and it is to these effects that we now turn.

At the producer end of the regular marketing system are usually several middlemen who perform the functions of local assembling, shipping, and commission selling. The number of middlemen and the nature of their marketing services of course vary with the product. In the case of livestock, there is usually the local dealer who buys

[16] Federal Trade Commission, Chain Store Inquiry, S. Doc. 142, 73d Cong., p. XIX.

from the farmer and the terminal commission firm which sells to the packer. Between the grain producer and the flour miller are the local grain elevator and the terminal commission merchant. Fresh fruits and vegetables are commonly bought by a local dealer who assembles, packs, and ships them to a terminal commission merchant. With minor variations, this is the marketing pattern to be found for most agricultural products. Many of these local functions are performed by producer cooperatives, but where this is the case it represents mainly a difference in the form of ownership control rather than in the number and character of handling operations involved.

As food corporations have grown in size, they have integrated many of these local marketing functions. The result has been the development of what is commonly known as "direct marketing." Direct marketing means simply that the sale of produce is direct from the farmer to the processor or mass distributor without the intervention of any intermediary agent.

The trend toward direct marketing is to be found with nearly all farm products. It is due primarily to two factors. The first has been the motortruck, which has made it possible for the farmer to deliver the produce direct from the farm to the processor or terminal handler. The second has been the growth of a more integrated system of food distribution in which the services of specialized middlemen were no longer needed.

Direct buying of hogs by the meat packers probably provides the best example of direct marketing that can be cited. It had its beginning 15 or 20 years ago when interior packing plants were being erected throughout the Corn Belt. The big packers, who had most of their slaughtering facilities on the large public markets, found themselves at some disadvantage in competition with the interior firms. Not only did the interior packers obtain freight advantage by slaughtering nearer the point of production, but they also avoided the yardage and commission costs of selling livestock on the terminal markets. In an effort to overcome some of these handicaps, the big packers began the practice of buying hogs direct from farmers at country points. Later they started to receive hogs direct at their terminal plants instead of buying through the commission firms on the livestock exchange.

These newer methods of buying unquestionably led to some reduction in the costs of marketing hogs.[17] Terminal and commission charges, which are eliminated when hogs are sold direct to packers, commonly amount to 20 to 25 cents per hundredweight. Some compensating cost is involved when packers send out buyers and establish concentration points in producing areas, but these costs seldom exceed 10 cents per hundredweight. A number of factors other than marketing costs are involved in the direct buying of hogs. It is often charged that this method of buying makes for price manipulation and other undesirable practices. But whatever the merits or demerits of direct buying on that score, there is no doubt that it has contributed to some reduction in terminal marketing costs.

Roughly analogous to the direct buying of hogs by the meat packers is the direct buying of fruits and vegetables by the larger grocery chains. The terminal wholesale commission on fruits and vegetables is commonly 10 percent of the selling price. To this must often be

[17] U. S. Department of Agriculture, The Direct Marketing of Hogs. Miscellaneous Publication No. 222, 1935, especially pp. 10–12.

added various cartage charges, amounting usually to another 3 or 4 percent. Produce shipped or trucked to the chain warehouses direct from country points, of course, incurs none of these marketing costs. In an effort to retain part of this gain for themselves, the chains usually pay the grower or shipper a somewhat lower price to compensate for the fact that no marketing charges are deducted. Regardless of who gets the benefit, however, a saving in marketing costs has been effected.

The tendency of the big handlers of dairy products to buy direct from local creameries and cheese factories has already been fully described. Here again the object is to avoid the commission charge. Within the last 4 or 5 years even the grain merchant, whose position seemed secure despite the growth of large milling corporations, is finding his business reduced by the efforts of processors and producers to deal directly with each other.

The economies achieved by means of direct marketing at the producer end of the marketing chain are of the same general sort as those resulting from the combining of wholesaling and retailing at the consumer end. In both cases the saving turns mainly on the elimination of the charges and commissions of middlemen whose services are no longer needed. This does not mean that a reduction in marketing costs equivalent to the margins formerly taken by these middlemen can be achieved, since the integrated distributor will have some compensating costs. One thing, however, is self-evident; namely, that many of the costs of the older system of food distribution arose out of the buying and selling operations which took place at every stage in the marketing process. It is through the reduction in the number of such transactions that mass distribution has realized its greatest advantage.

THE DUPLICATION OF MARKETING SERVICES AND FACILITIES

Thus far we have considered only the efficiency of different types of marketing agencies within the framework of a competitive system. No account has been taken of the needless duplication of marketing services and facilities arising out of competition itself. Mass distribution has applied what might be termed engineering principles to food distribution within a single firm. But it has not resulted in the application of these principles so as greatly to reduce the total quantity of labor and capital used in food distribution because the marketing system remains essentially competitive and places no limitation on the number of firms which may engage in it.

It is impossible to approximate how much this adds to the cost of food distribution. But it can be asserted positively that the number of food handlers and services has multiplied out of all proportion to what would be required if food distribution were organized on a unified, noncompetitive basis. This applies at practically every step in the distributive process, but it is particularly true of retailing.

The number of grocery stores in the United States has increased out of all proportion to the increase in the population. In 1850 there were approximately 25,000 such stores; in 1900, 156,000; and in 1935, 355,000 (table 26). Part of this increase in store numbers is due to the fact that a larger proportion of the population now lives in towns and cities, so that consumers require more in the way of retail services. But it also signifies an uneconomic use of labor and capital resources,

the cost of which will be reflected either in wider marketing spreads than would otherwise be necessary or in a proportionately lower rate of recompense to those engaged or employed in distributive enterprises.

TABLE 26.—*Approximate number of retail grocery stores in the United States in relation to population, 1850–1935*

Year	Retail grocery stores [1]	Population	Population per store	Year	Retail grocery stores [1]	Population	Population per store
	Number	*Number*	*Number*		*Number*	*Number*	*Number*
1850	24,479	23,191,876	947	1900	156,470	75,994,575	486
1860	40,070	31,443,321	785	1910	195,432	91,972,266	471
1870	74,410	38,558,371	518	1920	239,236	105,710,620	442
1880	101,849	50,155,783	492	1930	313,086	122,775,046	392
1890	114,997	62,947,714	547	1935	[2] 354,971	127,172,000	358

[1] United States census, occupation reports. The occupational classification made by the census shows the number of managers and superintendents of grocery stores, which is roughly synonymous with the number of grocery stores. The first complete census of distribution in 1929 showed 307,425 grocery and combination stores, which compares closely with the occupational data shown above.

[2] From 1935 United States Census of Distribution, data include grocery and combination stores.

CHAPTER VIII

MONOPOLY IN FOOD DISTRIBUTION: CONCEPTS AND CRITERIA

Monopoly has always aroused public fear and resentment, the more so when it involves an industry so vital as food distribution. Until recent years it commonly was agreed that prices of most food products were made under conditions which were essentially competitive. The astonishing growth of food corporations during the past two decades, however, makes this assumption less generally accepted than it once was. One hears nearly as much today about the menace of chain stores and other types of large-scale food concerns as once was heard, for example, about the oil and steel trusts. Indeed one might almost say that the latter are being partially forgotten in the interest and controversy over newer forms of large-scale organization.

To the popular mind, monopoly connotes two things which it is important to keep separate and distinct. Quite properly it is associated with control of supply in such a way as to limit the quantity of goods and services below that which would be provided under competitive conditions. To the extent that this is done, monopoly is distinctly antisocial in its implications, except under very special conditions subsequently to be discussed.

Interwoven with this aspect of the problem is also an antipathy in the minds of many people toward bigness itself. What they fear is not the effect of monopolistic control on prices and supplies, but the displacement of small business enterprises by big ones. Their concern is for what they believe to be the social advantages of economic individualism and competition as ends in themselves, apart from any consideration of the efficiency with which the factors of production are used in the economy.

There can be no quarrel with an evaluation of large-scale enterprise from this standpoint. But considerations of this kind must not be confused with the problem of monopolistic control per se. In our concluding chapter we shall return to the social aspects of large-scale organization. But in this chapter and in those immediately following it our concern is wholly with the effect of monopoly on prices, margins, and supplies of food products.

THE INCIDENCE OF FOOD MONOPOLY

It is necessary to understand at the outset the type of control likely to be exercised by a food monopolist, and the way in which this control will affect prices to farmers and consumers.

The essence of ordinary monopoly is direct control over the volume of supply. In the case of most food products, however, the supply is determined in the first instance not by the marketing system but by the aggregate volume of farm production. Thus the meat supply

depends not on how many head of livestock the packers choose to slaughter but on how many the farmers choose to produce and market at the price offered. All the wheat produced is ultimately milled, and all the milk is used. There are, of course, some exceptions to this general statement,[1] but broadly speaking it is the farmer and not the food handler who controls directly the volume of food available.

The fact that food handlers do not directly control the food supply does not mean that there could not be food monopolies, nor that such monopolies might not be extremely hurtful to farmers and consumers. The point is that the monopolist would try to increase his profits by widening his margins rather than by direct limitation of supply. The nature of his margin policies would affect the volume of supply; but only because and to the extent that farmers would adjust their marketings to changes in the price offered them.

A widening of food margins either because of monopoly or for any other reason, obviously would result either in higher prices to consumers, lower ones to producers, or both.[2]

In the short run (that is, within a crop year or whatever period of time is necessary for farmers to adjust their production), the food supply is relatively fixed. Once the crop is produced, it may be presumed that farmers will be willing to deliver it for any price above the cost of harvesting. The immediate effect of a widening of food margins thus would be reflected mainly in lower prices to farmers rather than in higher ones to consumers.

In the long run, however, the situation would be different, depending on the relative slopes of the curves of consumer demand and farm supply. If farmers responded to lower prices with a sharp curtailment of their production, then the effect of a food monopoly would be mainly to increase prices to consumers rather than to lower the farm price. If the situation were reversed (that is, if farmers tended to maintain their production despite lower prices), then it is the farm price which would be lowered and consumers would not be greatly injured by the monopoly. In either case the effect of the monopoly would be to lower the gross farm income. If farmers tended to maintain their production, their price would be lowered; and if they curtailed it, their income would be lowered because they would have less to sell.

The supply of farm products in the aggregate is relatively inelastic, even for periods of some length. Having made their investment in land and equipment and their own labor being somewhat in the nature of an overhead, farmers tend to go on producing at a point near the capacity of their farms regardless of price. This being the case, the expectation would be that not much of the incidence of a food monopoly would fall on consumers—at least until broad population shifts between agriculture and industry had worked themselves out.

For single products, however, the case might be different. Farmers are reasonably quick to shift production from one product to another in response to changing relative prices. A widening of margins for a

[1] Makers of breakfast cereals, for instance, are not so closely governed in their output by the volume of cereal production as are the flour millers. Other exceptions are fruit and vegetable canners, who usually contract with growers for specific acreages of canning crops and in this way exercise some measure of control over their own output.

[2] This assumes, of course, that agricultural production is carried on under conditions of increasing cost, as it usually is.

single product therefore would be likely to cause a nearly proportionate rise in its price to consumers as farmers shifted away from its production. Beyond this, one hardly can generalize regarding the incidence of food monopoly.

COMPETITION, IMPERFECT COMPETITION, AND MONOPOLY

The general principles which govern the determination of price and supply under competition and varying degrees of monopoly are well understood and require no extended elucidation here. The food industries, however, present some special problems for price theory which we shall want to examine. It will contribute to the clarity of the discussion to begin with a definition of terms and concepts.

In its etymological derivation, the word "monopoly" means simply that all the supply is concentrated in the hands of a single firm. As thus defined, the term obviously could be applied to a case of several firms if they were in complete agreement as to their price and production policies so that they tended to act as one. From time to time in the course of the discussion the word may be used also in a looser sense to connote some departure from competition, but not single-firm monopoly. It will be clear from the context in what sense the term is being used.

At the opposite extreme from monopoly as thus defined is perfect competition. The distinguishing feature of perfect competition is that the number of firms is great enough and all of them are small enough to prevent any one of them from exercising a significant degree of control over price. To put it differently, the demand curve of the individual firm under competition is horizontal because no single one has more than an infinitesimal part of the total supply.

Between the extremes of single-firm monopoly and perfect competition are varying degrees of monopolistic or imperfect competition. Imperfect competition may be defined as a situation in which the price obtainable by an individual firm is not altogether independent of its own output but in which no one firm has complete control of supply as under simple monopoly. Cases of imperfect competition might arise either because of the limited number of firms or because of the relatively large size of a few of them. In the food industries the situation is commonly one of a few large firms and numerous small ones.

The concept of monopoly and monopolistic competition involves not only the number and size of firms, but the nature of the product itself. To the extent that the product of one firm is differentiated from that of its competitors, it may be said to have a monopoly. The difference may be important or unimportant and it may even be fancied rather than real. But so long as buyers or consumers do distinguish between the products of different sellers the conditions of perfect competition are not fully met regardless of the number or size of competing firms. Examples of product differentiation usually arise out of the use of brands and trade-marks. Generally speaking, these devices are less effective as a means of differentiation for food staples than is the case with most industrial commodities. There are, however, a few instances in the food industries where brands and trade-marks are important, and these will be discussed more fully in a subsequent chapter.

THE RELATION OF MONOPOLISTIC CONTROL TO OUTPUT

It is an elementary principle of economics that, under conditions of perfect competition, price will tend to equal the average cost of the marginal firm which gains access to the market. The general presumption is that this is the "right" price in the sense that it results in the proper allocation of productive resources among different industries and hence in the maximizing of public welfare.[3] The criticism of imperfect competition or monopoly thus turns on the fact that it leads to some departure in price and output in any given industry from that which would obtain under perfect competition.[4]

The central tendency of monopoly is a limitation of supply by the monopolist in such a way as to maximize net profits. Actually a maximizing of profits is rarely if ever attained because in a changing world businessmen have neither the foresight nor the perspicacity to do so even if they wanted to. Moreover, to carry a restrictive policy to this point would almost certainly result in economic and political reprisals which businessmen are too prudent to bring down upon themselves. The tendency of monopolistic control is nevertheless in this direction, although the situation rarely works out with the nicety and precision of the assumptions usually made by economists with respect to it.

If the monopolist is to maximize his total profit, he will carry his output only to the point where the additional cost of the last unit produced will equate the additional revenue he can get from it. In other words, he will equate his marginal cost with his marginal revenue. If he does this and if his cost function is similar to that which would obtain under competition, then obviously his price will be higher and his output smaller than would obtain under competitive conditions.

Here it is necessary to enter the first major qualification in comparing output under monopoly with that of competition. The assumption of identical cost functions for the two situations is not only unwarranted but is contrary to what nearly everyone will admit to be

[3] This assumption is not necessarily a valid one in all cases. The most favorable allocation of resources depends not only on the degree of competition but on the nature of costs. Some gain in the public well-being would obviously result by an artificial transfer of resources from industries of increasing cost to those of decreasing cost. In this connection R. G. Kahn has suggested arranging all industries in descending order with respect to their external economies. Then "All industries above the average have to expand to reach their ideal outputs and those below have to contract * * *" (Economic Journal, March 1935, p. 6).

[4] Note on the relation of monopoly to the allocation and full use of the productive factors. Most economists make the tacit assumption that the best allocation of productive factors among the various industries is that resulting from perfect competition, and hence that the restoration of competition in any monopolized sector of the economy will result in the proper flow of resources into it. This assumption may or may not be altogether correct, depending on further circumstances. If monopoly is the exception and not the rule in the economy, then the assumption is a valid one. If not—that is, if monopolistic elements are widespread and competition is the exception—then it is altogether probable that the preservation or restoration of competitive conditions in a given line of industry will result in too many factors of production finding their way into it. The excessive duplication of services and facilities in the field of grocery retailing today would seem to offer a case in point.

Also involved is the more fundamental question of the effect of monopolistic control on the full use of the factors of production. Classical economic theory blithely assumed that all economic resources would find employment. If correct, this would mean that monopoly would result simply in some diversion of resources from the less competitive to the more competitive fields. It is needless to remark that the characteristics of modern capitalism utterly belie the assumption of full employment. But there is by no means a general agreement that this situation is attributable solely, or even mainly, to the presence of monopolistic elements. Some economists have indeed maintained that monopoly goes a long way toward explaining the existence of unused resources in the economy. (Cf. Alvin Hansen, Full Recovery or Stagnation, Harvard University Press, p. 27.) Others have emphasized the factor of rigid costs. Still others have insisted that the prevalence of administered prices as distinguished from market prices accounts for the tendency of many firms to reduce output rather than to lower prices. It is probably correct to say that none of these is in itself an adequate explanation of the underutilization of economic resources or of the instability which characterizes most modern economies. The writer prefers to see the explanation in an admixture of these and other causes inherent in capitalism itself. Certainly, it seems a little unrealistic to hope for a solution of capitalism's dilemma solely through the dissolution of the monopolistic elements within it. (For an excellent summation of some of the different points of view regarding the effect of monopolistic control on the use of the productive factors, see J. K. Galbraith, Price Policy Research: A Problem in the Application of Economic Theory, unpublished.)

the facts of the matter. For example, we have seen that the structure of food distribution under large-scale organization is vastly different from that of the older system of small, functionally specialized handlers. If our analysis of the preceding chapter is correct, mass distribution has led to definite and incontrovertible gains in the way of improved efficiency and cost reduction. Presumably complete monopoly might go even further in this direction by eliminating some of the duplication inherent in a competitive system. In any case there are no grounds for assuming that marketing costs will be the same under competition as under monopoly; and it might plausibly be argued that the reduction in costs attendant upon monopoly would go far toward balancing its restrictive tendency arising out of the effort to increase profits above the competitive level.[5]

When we come to situations intermediate between those of perfect competition and simple monopoly, price theory becomes much more complex. This has been made the subject of a vast new literature in economic theory which we can pause here to summarize only in the briefest sort of way.

The central thesis of the theory of imperfect competition is that the outcome as to price and supply is indeterminate except on the basis of the particular assumptions which are made.[6] If the number of firms is limited, and if each has regard to its total influence on price, the outcome will be the same as that of complete monopoly. If, on the other hand, all firms neglect to take account of this influence, the price will be the competitive price regardless of numbers. Between these two extremes, the equilibrium point will vary, depending upon the assumptions each firm makes as to the policy likely to be followed by his competitors. As Chamberlin puts it, "If each assumes his competitors' supplies to be unchanged, the equilibrium price is continually lower than the monopoly one as the sellers are more numerous, descending to the purely competitive level only when their numbers are infinite. If each assumes his competitors' prices unchanged * * * the equilibrium price is the purely competitive one for two sellers and, of course, for any greater number." The important point to be made with respect to the theory of imperfect competition is that the solution of theory does not necessarily follow from any given postulates as to the demand and supply functions, as is the case with perfect competition and simple monopoly.

THE DOMINANT FIRM

Theories of imperfect or monopolistic competition have been developed mainly for small numbers of competing firms. We have seen, however, that in the food industries the situation is more likely to be one in which there are a few large firms and numerous small ones. The presence of numerous small firms obviously precludes a solution based on small numbers, as in ordinary oligopoly. At the same time, the situation is not strictly competitive despite the numerous small firms because of the presence of a few large ones whose price is not independent of their output policies.

[5] This is not to imply, however, that unregulated private monopoly is tolerable from the public standpoint.

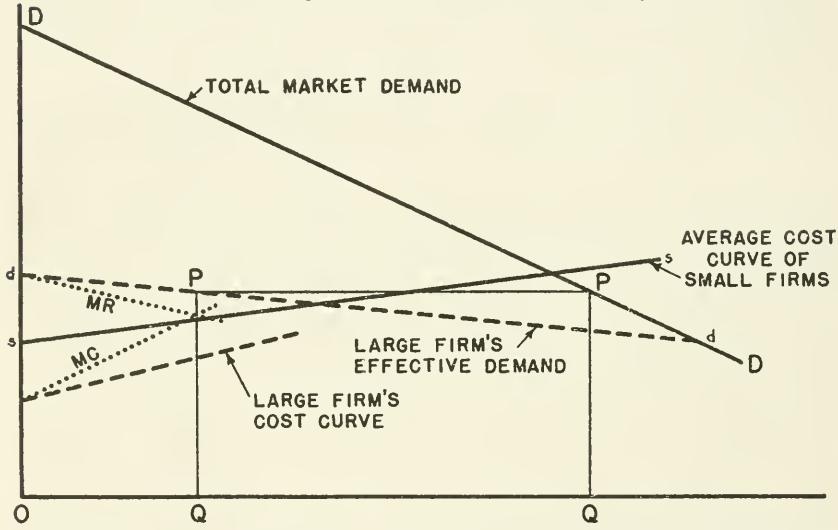
[6] The best summation of the theory of oligopoly is that to be found in Edward Chamberlin, The Theory of Monopolistic Competition, Harvard University Press ,1933, pp. 53-54.

The problem involved here might be designated as that of the dominant firm. So far as the writer is aware, it is one which has been somewhat neglected in the development of the theory of imperfect competition.[7] Because of its particular relevance to conditions in the food industries we shall look with some care into its implications for price theory.

We may suppose first the case of a large firm in competition with many small ones. Since none of the small firms has any appreciable part of the total supply it may be presumed that they will tend to behave competitively in adjusting themselves to any given situation. The existence of the large firm in no way alters the fact that their individual demand curves are virtually horizontal.

CHART X

Imperfect competition: The case of a dominant firm



Explanation.—The demand or average revenue curve for the market is represented by DD. The quantities of supply which the small firms will offer at varying prices is measured along the line ss (this being their curve of long-run average costs). The difference between the amount which the small firms will offer at any given price and that which the market will take at this price represents the effective demand for the large firm (i. e., the output which it may sell at the price). In the above figure this is measured for varying quantities of supply along the line dd.

It may be assumed that the large firm will adjust its supply to its effective demand in such a way as to maximize its net profit. In the above illustration it would limit its supply to OQ, thus fixing the price at QP (its marginal cost being equal to its marginal revenue at this point). At a price of QP, the small firms would offer a supply of QQ′, which would result in a total market supply of OQ′.

If it is assumed that there are several large firms rather than only one, the solution within the limits of their effective demand would follow the ordinary theory of oligopoly.

With the large firm, however, the case is somewhat different. Within the limits set on the one hand by the market demand and, on the other, by the supply of the small firms, the dominant firm will be in

[7] The problem was suggested by George Stigler in an article entitled "Theory of Imperfect Competition," Journal of Farm Economics, vol. XIX, No. 3, p. 716.

position to exercise some degree of monopolistic control. The situation thus becomes one of price leadership with the dominant firm setting whatever price it thinks compatible with increasing or maximizing its total profit. In doing so, it must of course take into account the production response likely to be made by the small firms.

The type of market adjustment likely to result from our supposed example can best be illustrated by resort to the diagram on the preceding page (see chart X). At any given level of prices, the small firms (acting competitively) will offer a supply based on the curve of average costs for the marginal producer. The difference between this supply and that which the market will take at the given price represents the range within which the large firm can adjust its operations in order to maximize its profits.

The general principles illustrated in chart X are not changed materially by the assumption that there are several large firms rather than only one. In this case, the solution follows the lines of oligopoly theory within the limits of price control for the large firms.

Several practical conclusions follow from the example which we have described. In the first place it is evident that the price is no longer uncontrolled or automatic in the sense that it results from the blind adjustment of competitive forces. By the very nature of the case the dominant firm appears to assume a position of price leadership. It may reasonably be expected to take the initiative in making price changes as it seeks to maximize its profits under varying market conditions. To each new position taken by the dominant firm the small ones will tend to adjust on the basis of competitive behavior.

Obviously a large firm which controls only 10 percent of the total supply will be less likely to attempt price enhancement than one which controls 50 percent. In the former case even a halving of its output would increase its price only a little even if the small firms held their supply virtually constant.

Equally important in determining the policy of the dominant firm is the elasticity of the supply for the small ones. If they respond to an increase in price by the large firm with a sharp increase in output then a restrictive policy on the part of the large firm will result mainly in its losing part of the market. To put the matter a little differently, the more elastic the supply of the small firms the more elastic the demand for the dominant firm, and hence the less incentive the dominant firm has for reducing its supply.

The supply response of the small firms will be affected by several factors. In the short run, a dominant firm conceivably might be able to raise prices quite considerably before the small ones could expand the scale of their operations to take advantage of the higher prices. This the large firm presumably would not do if it felt reasonably sure that the smaller ones subsequently would expand their operations or if new firms should be attracted into the industry. Moreover, most of the food industries are already characterized by unused resources and facilities so that they could quickly step up their output under the stimulus of higher prices.

Ease of entrance into a particular industry would also tend to influence the nature of the supply response on the part of the small firms. In a sense the very existence of numerous small firms indicates that the entrance of new enterprisers is not difficult. Thus a widening of margins by the grocery chains would quickly attract many new enter-

prises into this field, but a widening of margins by the meat packers might not do so immediately because it is not so easy for a new firm to establish plant facilities and market connections in this industry.

For reasons already made clear, one cannot generalize as to the effect of a dominant firm on price and total supply. The existence of such a firm would not necessarily mean that prices would be higher or supplies smaller than under perfect competition. As a matter of fact, the opposite might be true, and probably would be true if the costs of the large firm were substantially below those of its small competitors. It might limit its output to the point of maximum profit for itself and still offer its product at a lower price than its small competitors could do if they were to replace it. If there are advantages in large-scale organization from the standpoint of efficiency, then competition between several large firms able to match each other on this score almost certainly would result in a lower level of prices than under perfect competition. Certainly the existence of large firms and some degree of imperfect competition is not necessarily incompatible with the public interest if cost differentials are significant.

BILATERAL OR SUCCESSIVE MONOPOLY

Another special situation more likely to be encountered in the food industries than in most others is that of bilateral or successive monopoly. Such a situation might be defined as that existing when there are two monopolists (or several oligopolists), one above the other in the marketing system. A hypothetical example would be that of a processing monopolist who sold his entire output to another firm which had complete control of its distribution.

Needless to say, no pure examples of this kind are to be found anywhere in the economy. But to the extent that we may have imperfect or monopolistic competition at various points in the marketing system, we do have an element of bilateral monopoly. For example, in the cereal industry we have had the growth of large-scale baking superimposed on large-scale flour milling with a separate set of firms in each field. Another potential example is that of the meat packers and the grocery chains.

In the field of fluid milk distribution, however, the question of bilateral monopoly appears to be one of immediate and practical importance. The milk producers in most large city markets are organized into cooperative associations through which most of the milk is sold to distributors. The distributors, in turn, are also relatively few in number, three or four of them often controlling as much as three-fourths of the total supply in a given market.

In the ordinary course of bargaining between these two groups, each concentrates its interest primarily on its own price or margin. Not infrequently each group is willing to grant the other certain concessions, provided there is reciprocity in the matter. Thus the distributors will agree to pay the producers' cooperative a high price for its milk, if by so doing they can widen their margin between the price paid the cooperative and that charged the consumer.

It is obvious that this sort of bargaining is not calculated to lower the price to consumers and may actually be carried to the point where the farmers and distributors themselves lose by it. This could almost certainly be true if the demand for fluid milk were elastic. In this

case the efforts of each monopolistic group to improve its own position might force prices so high that the combined profits of both groups would be reduced, a situation which would never occur under conditions of horizontal monopoly or oligopoly.

Indeed, economic theory affords a demonstration of the likelihood of just this outcome. So far as the writer knows, the case of bilateral monopoly has received very little attention from economic theorists.[8] We will not burden the discussion at this point with a proof of the principles which are involved in it. Such a proof can be found, however, in an appendix at the end of the dissertation. It will suffice here to lay down only the conclusions to which the theory leads:

(1) Two successive monopolists, one above the other, would tend always to raise prices and limit supplies more than a single monopolist combining both their functions.

(2) As the number of points of successive monopoly increases in the marketing system, the situation so far as the public is concerned becomes progressively worse.

(3) Paradoxical as it seems at first thought, the public would probably be helped rather than injured by a conspiring between the successive monopolists to increase the amount of their combined profits.

(4) These general principles would be modified in degree but not invalidated by the assumption of monopolistic competition rather than monopoly at the various points.

MEASURING THE EFFECTS OF MONOPOLY: CRITERIA

Thus far we have discussed the question of monopoly only in terms of abstract principles. A measurement of its consequences in quantitative terms is a more baffling task. During the course of the past two decades, much progress has been made in developing an economic theory to fit the conditions of modern economic society. Progress in the compilation and classification of economic data has been equally rapid. But it is not too much to say that the breach between the two has not been perceptibly narrowed. Economic theorists continue to formulate concepts which are not measurable and questions which are not answerable; and quantitative workers at best have furnished data which are only partially satisfactory. Under the circumstances it is not surprising, and perhaps not unfortunate, that in dealing with the problem of monopoly under the antitrust laws the Supreme Court has come to rely upon the so-called rule of reason—meaning, in plain terms, its common sense.

The fact that all the business in a particular line of enterprise is concentrated in the hands of a few firms in itself means little. What is really wanted is a measurement of the consequences likely to flow from such a situation in terms of prices, margins, and output. To put it a little differently, it is the effect of monopoly rather than the latent ability to exercise monopolistic control which is important.

Monopoly, or some degree of it, in the case of a commodity for which demand is elastic is almost certain to be less serious than in the case of one with an inelastic demand. One might even generalize

[8] Marshall mentions a case which is somewhat analogous (Principles of Economics, pp. 494–495), but made no effort to analyze it other than to say he believed the outcome would be indeterminate.

to the point of saying that complete monopoly under conditions of elastic demand is of less economic consequence than even a small or partial degree of monopoly where demand is inelastic.

A further extension of this principle may be made in terms of substitution and product differentiation. Thus a firm in complete control of the canned-peach industry is much less to be feared than one which would control the entire canned-fruit industry; and even less serious is a monopoly of a particular brand of canned peaches. Concepts of this kind are a part of everyday thinking on the subject of monopoly and require no amplification here.

Somewhat more complicated are the considerations on the supply side. If the nature of the cost function is such that any diminution of supply is likely to be associated with a material reduction in cost, then clearly monopoly control will lead to a greater curtailment of output than where this is not the case.[9] A distinction must also be made from the standpoint of costs between short- and long-run tendencies. If a considerable part of the cost is in the nature of an overhead, then we may expect at least a more stable output and a better sustained one in times of business crises than when most of the costs are variable. This will tend to be true in monopolized as well as competitive industries.

One of the simplest criteria of the degree of competition is "ease of entrance" into a particular industry. Perhaps a better way of putting this is in terms of the divisibility of the productive factors. It can be demonstrated that all economies of scale, both internal and external, arise out of the indivisibility of productive resources.[10] If the factors of production cannot be easily divided and combined into small business units, then long-run average costs tend to be decreasing and perfect competition is impossible.[11] A case in point is the difference between the business of meat packing and grocery retailing.

Greatly complicating the whole problem of monopoly are the social, philanthropic, and conventional elements which go into the determination of business policy.[12] The policies followed by businessmen do not necessarily conform to what might seem to be their best interest from the standpoint of an immediate maximizing of profit. For philanthropic reasons, they may at times choose to forego pressing the advantage of their position to its utmost. More commonly, however, their motives for foregoing profits probably are ulterior rather than philanthropic; as, for example, when they shape their policies to avoid governmental intervention, or to discourage the entrance of new firms into their particular line of business. But for whatever reason, it will be true that the precise outcome of monopoly cannot be predicated solely on the functional characteristics of the demand-and-costs factors.

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[9] Here it is necessary also to keep in mind that output under monopoly and competition cannot be directly compared unless something is known of their respective costs functions.

[10] Cf. J. Robinson, the Economics of Imperfect Competition (appendix), Macmillan & Co., Ltd., London, 1933.

[11] Knight insists that indivisibility is the exception and hence that the economic advantage of large-scale enterprise is mainly an illusion. (The Ethics of Competition, 1935, p. 210.)

[12] In its recent study of industrial price policies, the Brookings Institution lays great emphasis on what it chooses to call "business statesmanship" in the determination of price policy. (E. G. Nourse and H. B. Drury, Industrial Price Policies and Economic Progress, Brookings Institution, Washington, 1938, esp. ch. XI.) It is the central thesis of this book, as well as of other recent studies by this institution, that a policy of lowered prices in most industries is in the public interest, and that this policy is not altogether incompatible with the best interests of the individual concern. There will be little agreement that in a capitalistic society there is this immediate identity of interest. Certainly it is unrealistic to expect of businessmen that they shall so forget themselves and their stockholders as to exercise their "statesmanship" in the public interest when this conflicts with their own.

Lerner's measure.

In the last analysis, what is wanted is a measure of how far the actual outcome under monopoly or monopolistic competition diverges from that of perfect competition. Obviously the number and size of competing firms tells us nothing with respect to this for reasons already made abundantly clear.

Several abstract measures of monopoly have been suggested by economic theorists. Among the best of these is perhaps that of A. P. Lerner, although even his has its limitations.[13] The index of monopoly power offered by Lerner is: $\frac{P-C}{P}$, where P=price and C=marginal cost. Obviously what the formula gives is the divergence of marginal cost from average return or price, which is the very essence of monopoly. The wider this divergence, the greater is the degree of monopoly power which is being exercised.

The above formula is admittedly a satisfactory criterion of monopoly control for any situation in which the demand and cost functions are given.[14] Beyond this it has little applicability. Some degree of monopoly as evidenced by this index obviously would not mean that prices were necessarily higher or output smaller than under perfect competition unless the cost functions were identical in both instances. We have repeatedly insisted that no such assumption is legitimate.

Moreover, the size of Lerner's coefficient will be a function of the elasticities of demand and supply as well as of the degree of monopoly control which is being exercised. Similar coefficients for two different industries therefore will not indicate the same degree of monopoly power unless the functions which describe their demand and supply curves are also similar. The concept is nevertheless a very useful one in promoting straight thinking on the subject of monopoly because it distinguishes clearly between the basis for monopoly in terms of concentration of control and its actual effects in terms of price and output.

Quantitative and legal criteria.

Those charged with the administration and interpretation of the antitrust laws might properly say that many of the concepts discussed in this chapter are of little practical use to them. What they feel they must have is quantitative evidence whereby the existence of monopoly can be recognized as a provable circumstance. From this standpoint the Federal Trade Commission and the courts are likely to insist that they cannot rely on principles whose workings cannot be verified or whose results cannot be measured. The theorist will reply that some of the data and criteria which they have used are not only inadequate but also irrelevant to the real issue. To this charge the rejoinder will be made that as a practical proposition the Commission was unable to do other than it has done.

With this argument we need not here concern ourselves. The situation as we find it is that the Federal Trade Commission and the courts have recognized certain measures and criteria of monopoly for purposes of investigation and procedure under the antitrust laws. In

[13] A. P. Lerner, Monopoly and the Measurement of Monopoly Power, Review of Economic Studies, vol. 1, No. 3, p. 169.

[14] Galbraith (op. cit., p. 3) objects that the formula makes the assumption that businessmen seek to keep their profits always at a maximum, which in a dynamic situation is inconsistent with the maximizing of profits over a period of time. His obvious solution is to think of the problem in terms of the long-run, or whatever period of time businessmen take into account in planning their operations.

general these might be said to fall into four types: (1) Concentration of control, (2) profits and rates of return on invested capital, (3) prices and price policies, and (4) circumstantial evidence of collusion and restraint of trade as found in the acts and practices of business firms. That these are not in themselves deemed adequate as a basis for public policy is evidenced by the fact that the Supreme Court has come to rely in the last analysis on the "rule of reason." A factual approach to the problem is nevertheless pretty much limited by the data available to the above lines, and it is to these that we turn in the succeeding chapters.

CHAPTER IX

CONCENTRATION OF CONTROL

Concentration of control may be defined simply as the extent to which the total supply (or business) is centralized in the hands of a relatively few firms. It was made plain in the preceding chapter that this is not necessarily synonymous with the problem of monopoly itself, which in the last analysis must be thought of in terms of the actual divergence of price and supply from that which would obtain under competition. A study of monopolistic conditions in any given industry nevertheless should, and usually does, begin with the facts as to the degree of concentration of control which exists. The Federal Trade Commission and the courts always have stressed this in connection with the administration of the antitrust laws, and with some justification. It is probably correct to say that they have attached to this factor more importance than it deserves—perhaps, because it is one of the few lines of approach by which they could lay hold of a provable body of facts. In any case, we are justified in dealing here at some length with concentration of control in the food industries, if for no other reason than the emphasis placed on it by others.

THE FOOD INDUSTRIES COMPARED WITH OTHER INDUSTRIES

The earlier chapters have given a fairly definite idea of the degree of centralization to be found in the various food lines. It nevertheless will be convenient for the discussion at this point to summarize the situation and to compare it briefly with that found in some of the nonfood industries.

Despite the tremendous growth of the food corporations in recent years, concentration of control in this field does not approach that to be found in some of the other major industries (see table 27). In grocery retailing, no single firm has more than 15 percent of the total business. In meat packing, where large-scale organization has gone further than in most other food lines, the largest single firm controls only 20 percent of the meat supply; and the three largest combined, only 43 percent. In none of the major food lines is more than one-third of the supply concentrated in the hands of one firm.

For the highest degree of centralization in the food industries, one must turn to some of the minor food products. For example, two firms shell and distribute most of the shelled pecans in the United States and, in some areas of production, are virtually without competition from each other. Another firm packs most of the Persian limes and avocado pears grown in the State of Florida. Similar situations prevail with many of the special crops grown in other parts of the country, notably in California. It is not uncommon in the latter State to find two or three organizations handling practically the entire output of some of the products grown there. Either because the firms involved are not large enterprises or because they are

cooperative in form of organization, situations of this kind do not receive much public attention. But if concentration of control is to be the criterion of danger, then we have not always looked in the right places or indicted the right firms so far as the food industries are concerned.

TABLE 27.—*Concentration of control: Percentages of total business done in their respective lines by leading food corporations compared with percentages done by leading firms in other selected industries*

Industry	Proportion of total business controlled by the three leading firms in their respective lines	Proportion of total business controlled by largest single firm in its line
Food groups: [1]	*Percent*	*Percent*
Grocery retailing	22	14
Meat packing	43	20
Dairy products:		
Butter	21	8
Cheese	63	33
Condensed milk	44	20
Flour milling	38	23
Bread baking	17	7
Canned vegetables	13	5
Canned fruits	30	15
Nonfood industries:		
Automobile manufacture [2]	90	43
Steel manufacture [3]	65	40
Rubber tires [3]	65	29
Gasoline [4]	58	45
Cigarette manufacture [5]	80	27
Farm machinery: [6]		
Binders	92	56
Tractors	76	43

[1] Data summarized from earlier tables of present study.
[2] Based on new car registrations for 1936 as reported in the Annalist.
[3] Based on corporation reports as given in Standard Corporation Records.
[4] Federal Trade Commission, Report on Petroleum Industry. S. Doc. No. 61, 70th Cong., table 25.
[5] Federal Trade Commission, Agricultural Income Inquiry, Principal Farm Products, 1938, p. 275.
[6] Federal Trade Commission, Report on the Agricultural Implement and Machine Industry, 1938, table 30.

Generally speaking, the degree of control possessed by the big food concerns is far short of that possessed by the leading industrial concerns. One industrial firm controls 40 percent of the steel output, another makes 43 percent of the automobiles, and another refines 45 percent of the gasoline (see table 27). In the manufacture of some of the specialized industrial products, these percentages run even higher.

Concentration of control must be thought of not only in terms of the percentage of business controlled by the leading firms, but also in terms of the number of firms. In this respect, too, the food industries tend to be more atomistic than most nonfood industries. The usual situation in the food industries is one of some half-dozen or more large firms in competition with many small ones. In contrast to this is the relatively small number of firms (all of them sizable) to be found in many lines of industrial manufacture. One of the reasons for this is, of course, that mass food distribution has developed within the framework of small-scale enterprise; whereas, some of the newer industries have been characterized from the first by large-scale organization.

LEGAL ASPECTS

While the Federal Trade Commission always has emphasized concentration of control as a measure of competition, it has not been very specific about the matter. Never has it attempted to say precisely

what degree of concentration is permissible or what percentage of business a firm might hope to control without running afoul of the Sherman Act.

It has cited for violation of this act corporations whose control has ranged from as much as 90 percent of the total supply to as little as 10 percent of it. For example, it sought in 1925 to restrain the Continental Baking Co. from making a proposed merger on the grounds that such action would have tended to create a monopoly. The company's output, even after the merger, would not have exceeded 10 percent of the competitive supply of bread in its trade area.[1] Additional complaints were listed against the Continental Baking Co. and the Commission may or may not have been correct in its charge that the proposed merger was in restraint of trade. The point is that indictment of business firms under the Sherman Act sometimes has been sought when they had no great degree of control, while other firms with a larger share of the business in their respective lines have been left uncited.

In its interpretation of the antitrust laws, it is of course well known that the Supreme Court has refused to judge the monopoly question solely in terms of concentration of control. By its decision in the *Standard Oil case* of 1911, it took the position that it was the actual exercise of monopolistic power and not the latent ability to exercise it which was illegal.[2] The evidence of violation therefore was not to be found in the mere act of merging nor in any specific degree of centralization, but in the effect of these things on prices, profits, and business policies. As to whether or not a given situation was illegal under the Sherman Act, the Court thus announced its intention to be guided by the "rule of reason" rather than by any absolute act or provable circumstance of monopoly.

In only one decision has the Court ever given any indication as to the precise percentage of the total business which a firm legally might control.[3] This case involved the United States Steel Corporation, which at the time of its indictment had just a little under half the total steel output. With respect to the relation of this fact to monopoly the Court said:

> The power attained (by the U. S. Steel Corporation) was much greater than that possessed by any one of its competitors—it was not greater than that possessed by all of them. Monopoly, therefore, was not achieved . . .

This decision was widely taken at the time to mean that no firm need fear indictment under the antitrust laws unless it controlled more than 50 percent of the total business in its respective line. It is doubtful that the Court meant to imply any such thing.[4] But if it did, then the degree of control possessed by most food concerns would not bring them within the category of monopoly as indicated by this decision.

It is evident from what has been said thus far that neither the Federal Trade Commission nor the Court has laid down any definite rules or formulas by which the existence of monopoly is to be legally determined. As the antitrust laws are now being administered, such determination requires a judicial process so involved and so beclouded

[1] Federal Trade Commission, Combination and Profits in Bread and Flour, S. Doc. No. 98, 70th Cong., 1st sess., p. 266.
[2] *Standard Oil Company of New Jersey* v. *the United States*, U. S. Repts. 211:1-106 (1911).
[3] *The United States* v. *the U. S. Steel Corporation*, U. S. Repts. 251:417.
[4] A. R. Burns, The Decline of Competition, McGraw-Hill Book Co., New York, 1936, p. 19.

by subjective elements and opinion as to render effective administration of the laws almost impossible. Even when the existence of some degree of monopoly is taken to have been proved and dissolution proceedings have been ordered, the difficulties of breaking up a going concern so as to restore competition have been almost insurmountable in some cases.[5] For example, the terms of the packers consent decree entered into in 1920 have not yet been completely effectuated.

To alleviate this circumstance from a legal and administrative point of view, the Federal Trade Commission recently has made a most remarkable proposal. It has suggested legislation to provide that no enterprise engaged in interstate trade be permitted to acquire more than a specified percentage of the assets or output in its respective line of business.[6] The Commission gave no indication as to what the specified percentage ought to be, how it would be determined, or if it would be the same for all industry groups. It did say that it would not suggest limiting the growth of an enterprise by virtue of its ability to attract new customers, but that it believed there should be limits to growth achieved by combination and merger for what it called the sake of greater power.

Lawyers and public officials charged with the administration of the antitrust laws will see much merit in such a proposal. Obviously it resolves some of the difficulties into which the Supreme Court gets itself when it tries to apply its "rule of reason" to the cases brought before it. But if it resolves some of the legal issues involved, it creates only a new set of economic ones.

What percentage of the competitive supply, for instance, is necessay to give a firm a significant measure of monopolistic control? And if a specific percentage were agreed on, would it be the same for all industry groups? If so, and if a comparatively low percentage figure—say 25 percent—were set, then most food corporations would be left untouched; but a great many industrial concerns would have to be dissolved.

It is reasonable to presume that different percentages would have to be set in various industry lines, depending somewhat on the character of the industry and the present degree of centralization prevailing. If this were done, it would have the effect of "freezing" the industrial structure in something like its present form. One can only imagine what would have happened had an attempt been made 25 years ago to make the automobile industry conform to the economic patterns of the horse-drawn-vehicle industry. On the other hand, if the percentage figure is made flexible to permit the natural development of mass production and distribution, then we are back into our present dilemma as to what degree of centralization is reasonable.

It must be clear that there can be no satisfactory standard of competition in terms of the number and size of competing firms. Modern economic theory recognizes no such standards; and we have just seen that in their efforts to apply one, the Federal Trade Commission and the courts have been neither very specific nor altogether consistent.

[5] Cf. Eliot Jones, The Trust Problem in the United States, The Macmillan Co., New York, 1921, especially Ch. XVIII.

[6] The Federal Trade Commission, Agricultural Income Inquiry, Principal Farm Products, pt. I, 1938, p. 38.

CHAPTER X

PROFITS AND FINANCIAL TENDENCIES OF THE LEADING FOOD CORPORATIONS

The subject of profits is one in which there is much popular interest. Many people are disposed to regard exorbitant profits as one of the chief causes of what they believe to be an unduly wide spread between farm and retail prices of food products. In the course of the present chapter, we shall have occasion to look into the factual basis of such contentions.

Profits—or more properly, rates of return on invested capital—also have been widely used as one of the criteria of monopolistic control. This approach to the verification of monopoly is of course compatible with monopoly theory, which teaches that one of its characteristics is a higher-than-average rate of profit. When one comes to an analysis of profits in any given line of industry, however, it becomes plain at once that they will admit of no simple explanation in terms of the degree of competition which prevails. Profits in an accounting sense (which is the only form in which data are readily obtainable) are determined by an admixture of factors whose separate influences cannot be isolated. To ascribe differences in profit rates to differences in competitive conditions or to any other single factor obviously is unwarranted. This is not to say that profits have no significance for verifying the existence of monopoly, but certainly they are not in themselves a very satisfactory criterion of it, as we shall soon see.

There is, of course, no specific figure which can be designated as the competitive profit rate. Because they involve more risk to capital, or for certain other reasons peculiar to them, some industries naturally will show a higher profit rate than others under equally competitive conditions. Even more important is the effect of operating efficiency on profits. Within any given industry, differences in the earnings of various individual firms are to be explained chiefly on this basis. Such differences in operating efficiency are likely to be especially marked in the food industries, where firms engaged in the same type of business may vary in size from small, individual enterprises to national concerns. These elementary points must be kept in mind throughout the ensuing discussion.

THE NATURE OF THE DATA

Data as to the profits of food corporations are obtainable from two sources. The first is the Federal Trade Commission, which has compiled such data in connection with its recent agricultural income inquiry. Also available of course are the financial statements made annually by the corporations to their stockholders and, in recent years, to the Securities and Exchange Commission. So as to obtain a series of data for a longer number of years, the writer has supplemented the

Federal Trade Commission's material with a computation of profit ratios from the latter sources.

The usual measure of profitability is the ratio between net earnings and total invested capital. Net earnings represent the amount of money available for dividends on stock, bond interest, and Federal income taxes. Salaries to officers, which in many cases are in the nature of profits rather than salaries in the proper meaning of the latter term, usually are reported by corporations in the form of an operating expense, so that they are not a part of earnings as we shall show them. The total invested capital on which the profit rate is calculated usually is taken as the sum of the capital stock, surplus and surplus reserves, and long-term debt, plus or minus any adjustments for intangibles and revaluation of assets.

Anyone having occasion to work with corporate data of this kind will realize the difficulties involved in their compilation and interpretation. Concealment of earnings under operating expenses, "stock-watering," and fictitious asset valuations are all too common in modern accounting practice. So far as could be done from the financial statements available, the writer has sought to make adjustments in the data for imperfections of this kind. Admittedly all financial data are accurate only within comparatively rough limits. But these shortcomings in the way of precision will not be such as to invalidate the general conclusions to be drawn.

FOOD PROFITS COMPARED WITH THOSE OF OTHER INDUSTRIES

Before looking into the profits of specific types of food corporations, it will be of interest to compare their average level with those in other industries. The best data for this purpose are those furnished by Epstein in his work entitled, "Industrial Profits in the United States." Epstein has computed the percentage of profit to total capital, using a sample of more than 2,000 corporations for the years 1924 to 1928, inclusive. His data were taken from the annual reports of the corporations filed with the Bureau of Internal Revenue for purposes of income tax collection.

The average rate of profit made by corporations engaged in the processing of food products does not appear to be greatly different from that made by corporations engaged in other lines of manufacturing. (See table 28.) During the period 1924–28, 215 food corporations earned approximately 10 percent on their invested capital, which was slightly under the average of 10.4 percent earned by the entire sample of more than 2,000 manufacturing corporations. Included in Epstein's sample were corporations of all sizes and with various percentages of the total business in their respective lines. The data tell us very little other than that the general level of profits in the food industries is about the same as that to be found elsewhere.

TABLE 28.—*Percentage of profit to total capital for 2,046 manufacturing corporations 1924–28*

Year	215 food processing companies	289 textile companies	26 rubber companies	190 lumber companies	648 metal manufacturing companies	210 chemical companies	Total 2,046 manufacturing companies
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1924	10.1	6.6	6.8	12.4	9.2	8.9	9.5
1925	9.3	9.1	15.7	11.9	11.3	11.8	11.4
1926	10.9	7.0	7.6	11.4	12.2	11.6	11.7
1927	9.7	8.9	6.4	7.0	9.3	7.3	9.0
1928	10.3	6.6	2.3	8.2	10.4	11.1	10.4
Five-year average	10.1	7.6	7.8	10.2	10.5	10.1	10.4

R. C. Epstein, Industrial Profits in the United States, table 42, p. 242.

RATES OF RETURN FOR SPECIFIC TYPES OF LARGE FOOD CONCERNS

Moving now to profits for specific types of large food concerns, the reader is referred to tables 29 and 30, and to chart XI. The data in table 29 are those obtained by the Federal Trade Commission in connection with its agricultural income inquiry, and those in table 30 were compiled by the writer from the financial reports of the several corporations. Such differences as there are between the two sets of data are explainable mainly by the fact that the corporations are not identical.

Chain-store profits.

The highest profit rates to be found anywhere in the food industries are those of the big grocery chains. In 1929, the Federal Trade Commission found them to be earning 23.5 percent on their invested capital, and in earlier years their profits were even higher. (See tables 29 and 30.) It would be difficult to find anywhere in the economy a group of similar sized corporations whose profits have been so uniformly and consistently high as those of the grocery chains. Not even in the heyday of the older trusts were very many of them able to show such a high level of earnings as those of the chains during the 1920's.

TABLE 29.—*Rates of returns on total invested capital for leading food corporations as found by the Federal Trade Commission, 1929–35*

Year	6 leading grocery chains [1]	10 dairy companies [2]	10 leading meat packers [3]	11 leading flour milling companies [4]	4 leading baking firms [5]	9 leading fruit and vegetable canners [6]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1929	23.5	15.7	6.0	12.1	16.1	18.8
1930	20.0	14.2	5.5	8.9	12.1	11.4
1931	19.9	12.3	1.0	7.1	9.6	1.1
1932	17.1	6.4	.8	5.5	6.5	.5
1933	16.5	4.4	7.2	7.1	5.6	12.0
1934	13.6	5.2	7.2	8.4	4.9	10.8
1935	12.5			8.6	4.9	11.5

[1] Table 201, p. 891.
[2] Table 178, p. 853.
[3] Table 189, p. 871.
[4] Table 155, p. 818.
[5] Table 163, p. 829.
[6] Pt. II, p. 783.

Federal Trade Commission, Agricultural Income Inquiry, pt. I—Principal Farm Products, 1938.

TABLE 30.—*Earnings of leading food and tobacco corporations expressed as percentages of their capitalization, 1925–37* [1]

Year	5 food chains	4 dairy companies	4 meat packers [2]	3 flour millers	3 fruit and vegetable canners	3 baking companies	Miscellaneous food companies	4 tobacco companies	All corporations
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1925	----------	16.86	6.12	----------	10.06	----------	----------	17.50	----------
1926	25.71	17.05	5.63	----------	8.76	----------	24.05	17.32	----------
1927	25.17	16.10	3.19	----------	5.92	----------	23.25	16.89	----------
1928	23.88	18.01	5.46	13.45	10.10	16.86	23.11	16.60	14.84
1929	21.37	18.35	5.28	14.50	9.42	17.51	23.16	16.88	15.20
1930	19.43	16.22	5.01	10.21	3.37	13.69	21.45	18.65	14.28
1931	18.86	12.86	[3]—.29	7.78	[3]—8.55	12.12	19.36	18.87	11.83
1932	14.71	7.12	.39	8.19	[3]—10.54	8.90	15.89	17.42	10.22
1933	14.34	4.86	4.84	8.91	9.14	7.58	16.48	9.84	9.48
1934	11.73	5.70	6.29	9.59	7.92	6.87	14.81	11.86	9.95
1935	11.02	6.89	6.85	7.86	6.46	7.53	14.09	12.26	9.89
1936	11.54	10.03	5.62	9.97	9.88	12.00	17.45	14.39	11.89
1937	6.94	7.91	3.78	6.58	7.28	10.37	11.40	18.09	10.24

[1] Computed from the balance sheets and operating statements of the several companies. Earnings ratios were computed by dividing earnings by adjusted capitalization.
[2] Swift & Co. excluded in the years prior to 1930.
[3] Indicates deficit.

The first inclination is to say that here certainly is evidence of monopoly. But we already have seen that concentration of control, as measured by the percentage of the total grocery business in the hands of the chains, is not great and is, in fact, lower than that to be found in most other food lines. Few will argue that the chains have anything approaching a monopoly in this sense. The Federal Trade Commission has made many charges against the chains from the standpoint of fair trade practice, but it never has insisted that they are monopolistic in the broad meaning of the term, nor has it moved for their dissolution as in the case of some of the older trusts.

It becomes even more difficult to explain the high chain-store profits in terms of monopoly when it is realized that their profit rate has declined steadily as their percentage of the total business has increased. This tendency to a declining rate of profit was clearly in evidence even before 1930. Had their growth during these years been such as to give them any significant degree of price control, one would have expected their profit rate to rise rather than fall with increases in their size and percentage of business controlled. That it did not do so is at least prima facie evidence that exorbitant chain-store profits must have some other explanation.[1]

If profits may be taken as an indication, then competition appears to be keener in the retail grocery business today than it was 20 years ago. As a matter of fact, there is fairly general agreement on the part of the trade that this is true. Certainly, mass distribution has placed competition on a lower cost plane than it was formerly. Indeed, the accusation usually made against the chains is that they have reduced

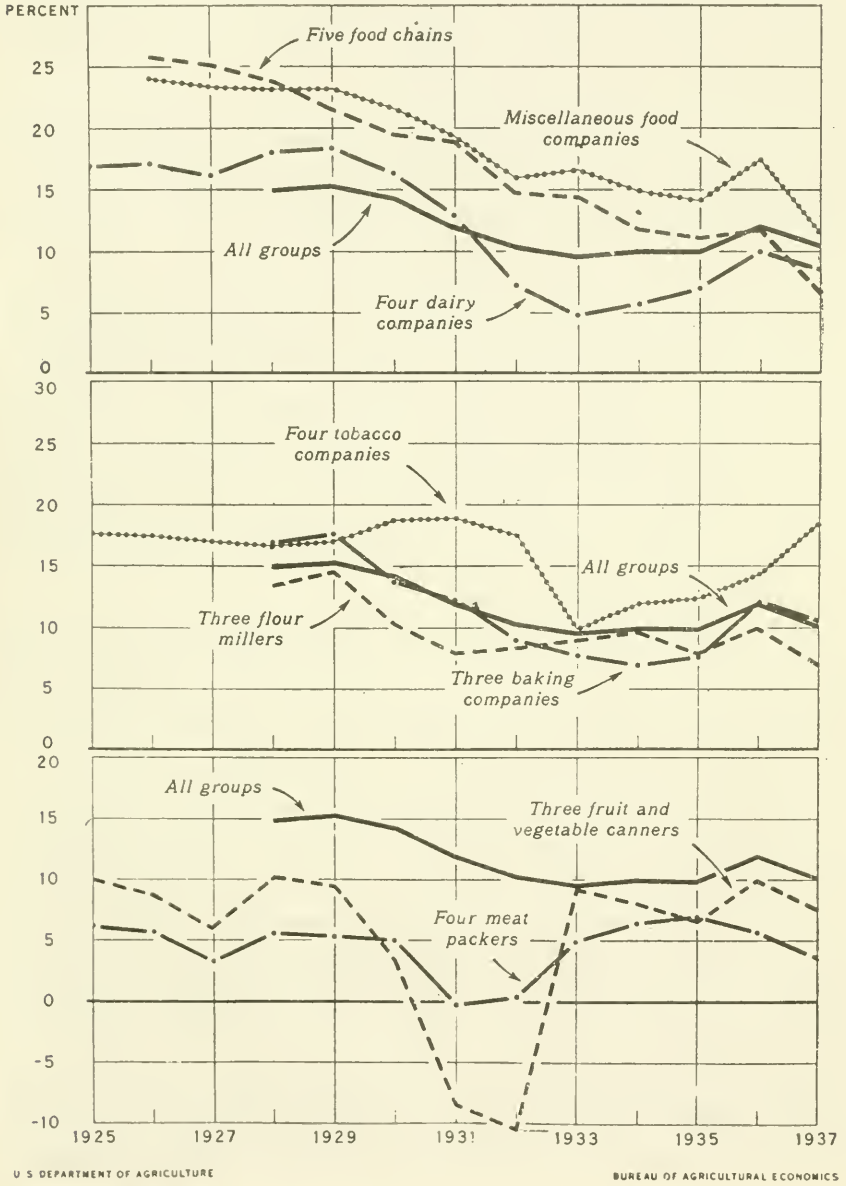
[1] Note on the relation of chain-store profits to diminishing returns. Several economists, notably Prof. Roland S. Vaile (cf. his "Grocery Retailing," University of Minnesota Studies in Economics and Business, No. 1, 1932), have analyzed chain-store earnings with a view to seeing whether or not diminishing returns have set in for the larger systems. Vaile observed that, as the size of these systems increased, their rate of return on invested capital tended to decrease. He therefore was led to conclude that "there is evidence that this point (the point of increasing costs) has been reached for some of the larger grocery chains, which may prevent their further expansion."

There is little basis for such a conclusion. Those familiar with the grocery industry know that factors other than their increasing size have been mainly responsible for the decline of chain-store profits during the last 15 years. Had Mr. Vaile looked a little more closely into the matter, he would have seen that size was positively correlated with the size of profit ratios as of any given period, which should have led him to a different conclusion.

retail prices to the point where independent grocers have difficulty in meeting their competition.

CHART XI

EARNINGS OF LEADING FOOD AND TOBACCO CORPORATIONS EXPRESSED AS PERCENTAGES OF THEIR CAPITALIZATION, 1925-37



U S DEPARTMENT OF AGRICULTURE BUREAU OF AGRICULTURAL ECONOMICS

Data from Table 30.

Profits in other food lines.

Profits in other types of large-scale food concerns have been considerably below those of the grocery chains, but, in most cases, somewhat above the general average throughout industry. The predepression level of their profits as found by the Federal Trade Commission shows the large dairy companies to have earned about 16 percent on their capital investment; the big millers, 12 percent; the wholesale baking concerns, 16 percent; and the fruit and vegetable canners, 19 percent. (See table 29.) All these concerns had their profits sharply reduced by the depression.

Profits of most of the large food concerns seem to have been trending downward even before the depression (table 30). If this may be taken as an indication of the long-run tendency, their profits are not likely to regain earlier levels even with complete economic recovery. Several other factors point to this conclusion. One is the general tendency for corporations as they grow older to become more overcapitalized, to build up what might be called a corporate bureaucracy within themselves, and in general to be less energetic in holding their position than they were in building it up. Moreover, in nearly all lines of food processing there are now several large firms having virtually the same advantages as to size and method of operation. The competition which they now must meet is not only that of the older marketing system but of other firms having whatever advantages there may be in large-scale operation. Unless there is collusion among such firms, their profits are not likely to be so great as they once were. Even though there were collusion as to price policies, it would have to be exercised within the limits set by handlers in the regular channels who still handle the greater part of the total supply in these fields.

The profits of the big meat packers.

One of the anomalies of the profit figures shown in table 29 is that the oft-accused meat packers have the lowest profit ratio of all the large-scale food corporations. The big packers have dominated the meat-packing industry for years. They repeatedly have been charged with violation of the antitrust laws and with various practices deemed by the Government to be in restraint of trade.[2] But seemingly they have not been able to profit greatly from their sins.

The Federal Trade Commission's figures show their rate of return on invested capital since 1928 to have varied from no higher than 7.2 percent to as low as eight-tenths of 1 percent. During these same years the grocery chains had a profit rate four times as high and most other large-scale food concerns, at least twice as high. It was charged by the Commission in an earlier investigation that the big packers made an exorbitant rate of profit during the World War, and they did. Their profits in these years ran as high as 15 to 18 percent. But even on this count, the big packers were able to reply that the profit rates of the independent packers were still higher.[3]

[2] Federal Trade Commission, Report on the Meat Packing Industry, 1920. In this report (pt. I, pp. 32-33) the big packers were specifically charged with having made illegal use of their power to manipulate livestock markets, restrict food supplies, control meat prices, and take exorbitant profits.

[3] Ibid, pt. V, p. 15. Profit rates of 65 independent packers averaged from 18 to 22 percent in the war years.

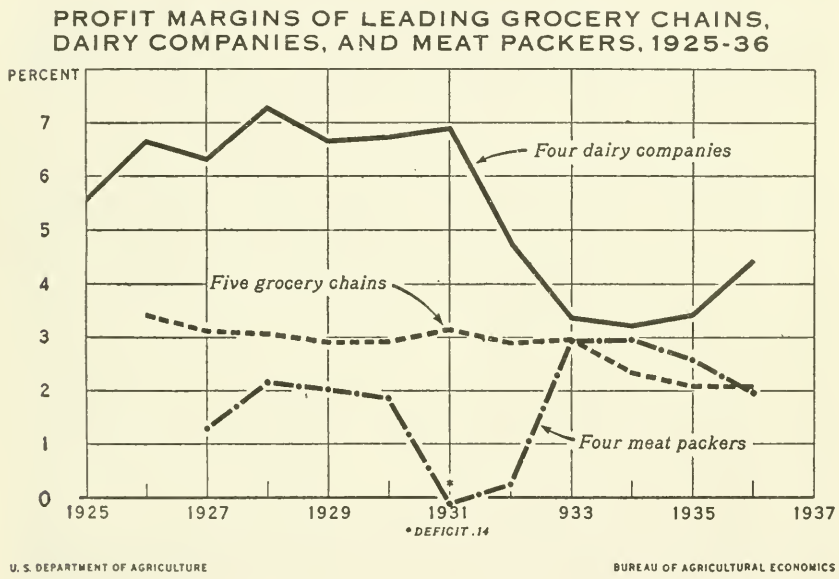
The fact that the big meat packers have had a low rate of return on invested capital does not mean that the charges made against them by the Federal Trade Commission are without foundation. The point is that, on the basis of profits alone, it is difficult to make out much of a case against them.

PROFITS AS A CONTRIBUTING FACTOR TO MARKETING COSTS

Before leaving the subject of profits, it will be well to consider them in relation to marketing spreads and the total costs of food products to the consumer.

Some idea of the proportion of marketing spreads represented by corporate profits may be obtained from table 31. (See also chart XII.) Table 31 shows the profit margins of three types of large-scale food concerns—the grocery chains, the meat packers, and the leading dairy companies. The profit margin is computed by dividing the earnings

CHART XII



Data from Table 31.

of a corporation by its dollar sales. The resulting percentage represents the proportion of its dollar sales retained by the corporation for payment of interest on borrowed cap tal and dividends on capital stock. This percentage is not to be confused with the rate of return on capital and gives no indication whatever as to whether or not this return is reasonable. Neither are comparisons of profit margins between different types of food concerns of any significance, since the amount of business done with a given amount of capital will vary, depending on the nature of the enterprise.

TABLE 31.—*Profit margins of leading grocery chains, dairy companies, and meat packers, 1925–36* [1]

Year	Earnings as percentage of sales			Year	Earnings as percentage of sales		
	5 grocery chains [2]	4 dairy companies [3]	4 meat packers [4]		5 grocery chains [2]	4 dairy companies [3]	4 meat packers [4]
	Percent	*Percent*	*Percent*		*Percent*	*Percent*	*Percent*
1925	----------	5.54	----------	1931	3.14	6.89	[5] −0.14
1926	3.42	6.63	----------	1932	2.90	4.75	.23
1927	3.12	6.30	1.29	1933	2.97	3.36	2.95
1928	3.07	7.27	2.14	1934	2.35	3.21	2.96
1929	2.91	6.65	2.02	1935	2.09	3.42	2.58
1930	2.92	6.72	1.85	1936	2.08	4.40	1.96

[1] The profit margins have been computed by dividing the earnings of the corporations by their dollar sales.
[2] Great Atlantic & Pacific Tea Co., First National Stores, Inc., Kroger Grocery & Baking Co., Safeway Stores, Inc., and American Stores Co.
[3] National Dairy Products Corporation, the Borden Co., Beatrice Creamery Co., and Fairmont Creamery Co. (Del.).
[4] Swift & Co., Armour & Co., Wilson & Co., and the Cudahy Packing Co. Swift & Co. excluded prior to 1930.
[5] Indicates deficit.

It is evident from the figures shown in table 31 that the earnings of these corporations represent only a small part of their gross receipts or dollar sales. Thus, out of the average dollar spent by the consumer in a grocery chain, only about 2 cents is retained by the firm to cover its capital costs and dividends. The dairy companies and meat packers retain a slightly higher percentage because they use more capital per dollar of sales. If the profits of the successive handlers of a food commodity were figured as a percentage of the price paid by the consumer, the profit margin would be somewhat higher than those shown for handlers performing only a single function. Even so, profits in themselves represent only a small part of the marketing spread as compared with various other elements such as wages, rents, and material costs.

It is not meant by this to imply that profits are unimportant or that monopoly is to be condoned simply because profits do not bulk large in relation to gross sales. A food monopoly, through limitation of the supply or restriction of the flow of productive factors into a particular line of enterprise, may be much more injurious to the social welfare than is apparent from its profits alone. But it is essential to see clearly just what the relationship of profits themselves is to food margins and to prices. Clearly such profits represent only a small part of the marketing spread, and to double or halve the profit rate would not greatly affect food prices.

CHAPTER XI

BUYING AND SELLING POLICIES OF MASS FOOD DISTRIBUTORS

The best food-marketing system is that which performs the necessary functions of processing and distribution in the least possible cost in terms of human and material resources. Looked at in this way, neither the preservation of competition nor of any particular type of marketing system is an end in itself. The ultimate objectives in food distribution are—or ought to be—narrower marketing spreads and reduced prices to consumers, so long as these ends are obtained without the sacrifice of useful marketing services. Our concern in the present chapter and in the one which follows it is therefore with the price and margin policies of large-scale food distributors.

SELLING-PRICE POLICIES OF THE FOOD CHAINS

The outstanding characteristic of chain-store merchandising in the grocery field is the low-price appeal. At no stage in their development thus far has their influence been in the direction of higher prices than those charged by their independent competitors.

The most thorough investigation yet made with reference to chain-store prices and price policies was that of the Federal Trade Commission in its chain-store inquiry. On the basis of its own data, the Commission concluded that "on the average, chain stores can and do sell at prices which are somewhat lower than the prices charged by independent retailers or even cooperative chains." [1] The price data on which this statement is based are shown in table 32.

The figures in that table show the chains to be selling on the average at prices from 5 to 7 percent below those of independents on identical items. These figures have never been disputed as a basis for generalization, and have been verified by a number of other studies made by other public agencies.[2] Average figures should not be taken to mean that chain-store prices are invariably below those of independents, for there will be many cases where this is not true. Neither do the Commission's data show the extent to which the lower selling prices of the chains may be due to their rendering less service to consumers in the way of credit and delivery of goods. The Commission made an effort to ascertain this, but was unable to do so because there was no relationship between the prices and the type of service rendered by independents.

[1] Federal Trade Commission, Final Report on the Chain-Store Investigation, S. Doc. No. 4, 74th Cong., 1st sess., 1935.

[2] See pp. 60–62, ch. VII.

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TABLE 32.—*Comparison of selling prices, cost prices, and gross margins of chain and independent grocery stores for identical food items, as found by the Federal Trade Commission*

City	Total average selling price		Total average cost price [1]		Gross margin [2]	
	Independents	Chains	Independents	Chains	Independents	Chains
Washington, D. C	$58.03	$54.07	$42.80	$41.50	$15.23	$12.57
Cincinnati	23.34	21.95	17.40	17.15	5.94	4.80
Memphis	38.11	35.96	27.84	26.86	10.27	9.10
Detroit	35.66	33.26	25.35	24.53	10.31	8.73

[1] After deduction of all discounts from net invoice cost.
[2] The gross margin of the chains is the spread between the net cost (after discounts) and the retail selling price. The gross margin of the independents is the spread between the cost to the wholesaler (after discounts) and the selling price in the retail store, except on a few items sold direct to the retailer by the processor, in which case the cost is that to the retailer.

So far as enhancing prices to consumers is concerned, there is no evidence that the chains have ever tried or succeeded in doing anything of this kind. The Commission's charge against them was rather that they engaged in price-cutting tactics to the detriment of other types of retailers. This, however, falls within the category of what is called "unfair trade practice" rather than of monopoly in the sense in which the term is commonly used. Except as they may be misled by "price leaders" into thinking all chain store prices are lower than they really are, it is difficult to see how consumers are injured by competitive practices of this kind. This statement ignores, of course, any long-run effects of such tactics on competitive conditions in the grocery industry.

The Federal Trade inquiry discloses the fact that most chain systems make it a policy to price their goods in accordance with company rules or standards as to mark-up, but that they are quick to deviate from this in order to meet any price competition which is offered in local neighborhoods.[3] The Commission was inclined to censure them for varying their prices between stores, holding that they sometimes used this as a means to establish themselves by crushing their independent competitors. There seems to have been some truth in this claim, but here again the interests of a particular group of retailers should not be confused with that of consumers. Consumers are not injured by local "price wars" unless they result in the elimination of local competition, and cases of this kind in the grocery industry are comparatively rare. At the same time, it would be a mistake to assume that "price wars" benefit consumers to the extent of the price reduction on particular items, since retailers will naturally seek to recoup their losses on other items or in other stores.

The one danger in grocery retailing, if indeed there is any, is a growing lethargy or indifference on the part of the chains to the low-price appeal. During the period of their rapid expansion, the chains almost without exception had an aggressive price policy calculated to bring new customers into their stores and expand their business. But close observers were able to note late in the decade of the 1920's that the chains were placing less emphasis on the price appeal and were giving less attention than formerly to methods for reducing retail

[3] Federal Trade Commission, Final Report on the Chain-Store Investigation, pp. 32-34.

costs. Competition had begun to take the form of institution advertising and more elegant store buildings and equipment.

Some of the older grocery chains therefore had a rather rude awakening several years ago when the supermarket type of store was introduced. For them it was a new experience to find themselves consistently undersold by this type of competitor. The effect on them, however, seems to have been salutary from the public standpoint. Most of the larger chains were quick to adopt the new idea themselves and began to convert some of their own retail units over into markets of this type. As a result of this newer technique of retailing with its emphasis on low prices, competition and rivalry between the chains on the selling end seems to be keener today than at any time in the past 10 years.

BUYING POLICIES OF THE FOOD CHAINS: QUANTITY DISCOUNTS AND ALLOWANCES

It may very well be true, and generally speaking it is true, that mass distributors are able to undersell their smaller competitors. But if they are enabled to do this only because of unwarranted price concessions in buying, then obviously their lower selling prices are no measure of their efficiency, nor can they lay any claim to having reduced marketing spreads in a real sense.

Before taking up the buying policies of mass distributors it will be well to recall briefly the functional set-up of large-scale food concerns and its relation to prices and buying methods. Among nearly all such concerns a considerable degree of vertical integration is to be found. Chain systems, as well as other types of large-scale handlers, have taken over many of the functions performed in the regular channels of distribution by specialized middlemen. Naturally the prices at which they buy in comparison with those of other handlers may be expected to vary considerably because of this factor. When, for example, chain grocery systems buy fruits and vegetables direct from growers and shippers at country points, the prices which they pay will not be the same as those paid by the independent grocer in the terminal wholesale market. Neither can a food processor reasonably expect to receive the same invoice price when selling direct to a mass distributor as when selling through a broker or intermediary whose charges must be deducted from this invoice price. What he can and should expect is the same net price after the deduction of all costs and charges incidental to making the transaction.

The buying operations of all the larger food chains are highly centralized. Local store managers of course purchase none of the items which they sell, except in very rare instances. Some products, particularly the perishables, are purchased by buyers in local warehouse districts, but even this practice seems to be giving way to purchases either at chain headquarters or through subsidiaries which buy for the entire system. This centralization has greatly increased the size of buyers in relation to that of sellers with important consequences from the standpoint of price making as well as price control.

The first advantage of the large buyer over the average seller is a better knowledge of demand and supply conditions. For example, the Atlantic Commission Co. (subsidiary of the A. & P.), buys fresh fruits

and vegetables in nearly all of the important producing areas of the country. Its buyers receive daily and even hourly instructions relative to general market conditions and prices to be paid. Against such buyers are pitted sellers whose knowledge of the market is usually confined to their own situation and locality. In such circumstances the chain buyer naturally has an advantage in the way of market information not only over the sellers but probably over most other local buyers as well.

The Federal Trade Commission has shown some apprehension over situations of this kind, and has claimed that some of the chains have used their superior knowledge of markets to play the sellers in one area against those in another. It is said that the chains frequently threaten to stop their purchases unless prices are reduced to the level at which they purportedly can buy elsewhere. So long as this practice results only in equalizing prices in different markets, no legitimate complaint can be made against it. As a matter of fact, when local gluts and shortages occur, as they frequently do in the case of perishables, the influence of large buyers in equalizing prices and supplies is salutary. The danger occurs when mass buyers constitute the only outlet for a group of sellers, so that their buying operations become the dominant factor in price determination. This, however, is a different matter and has little to do with the question of market information.

Members of the trade have often complained that the chains use their buying power to lower the price on certain commodities in order to obtain supplies for special sales in their retail stores. The Federal Trade Commission looked into some of these complaints, but stated that it was unable to prove or disprove them conclusively.[4] The notion that a reduction in retail prices initiated by mass distributors can be passed back to producers is widely held. It is based on the belief that other retailers, in order to meet the chain competition, will be forced to bid lower for their supplies and in this way force down prices all along the line. Price-making is a complex process and may indeed be temporarily influenced by considerations of this kind. But it is also true that a reduction in retail prices arising from any cause will tend to increase the movement into consumption; and that this in turn will require retailers to increase their purchases from wholesalers and suppliers; with the effect of strengthening prices.[5] If this takes place, it is difficult to see how retail price cutting can be reflected back to the producer unless the general market conditions warrant it.

Quantity discounts and trade allowances.

The most serious charge made against mass buyers in connection with their buying policies is that they have sought to obtain unfair and unwarranted discounts and allowances on their purchases. In its chain-store inquiry, the Federal Trade Commission went so far as to say that "lower selling prices are a very substantial, if not the chief factor in the growth of chain-store merchandising, and lower buying prices than are available to independents are a substantial, if not the chief, factor in these lower selling prices."

The evidence adduced by the Commission in support of this contention was of two kinds—(1) a comparison of the actual buying and selling prices of chains and independents on a sample of identical

[4] Federal Trade Commission, Agricultural Income Inquiry, 1938, pt. II, p. 605.
[5] For a more complete discussion of this subject, see A. C. Hoffman, Retail Sales Campaigns for Farm Products, Bureau of Agricultural Economics, 1938 (mimeographed).

goods, and (2) sales records of food processors showing discounts granted to different types of purchasers.

The Commission's data as to the buying and selling prices of chains and independents are summarized in table 32. The comparison included several hundred grocery items in each of four cities, identical as to brand and quality. The buying price of the chains was taken as the net cost to the chain after the deduction of all discounts and trade allowances. Since most of the goods sold by the independents were bought through wholesalers, the cost of these goods was taken as the price paid by the wholesaler after deduction of any discounts the wholesaler may have received. In other words, the gross margin in the case of the chains represented the difference between their selling prices and their net buying prices; whereas the gross margin of the independents was the difference between price paid by the wholesaler and the price charged by the retailer. The Commission's method of comparison is generally conceded to be as good as any that can be devised.

The data in table 32 show that in Washington, D. C., the chains charged $54.07 on a bill of goods for which the independents received $58.03, a difference of $3.96. For these goods the chains paid a net of $41.50, and the independent wholesalers $42.80, a difference of $1.30. Thus only about one-third of the difference in selling prices between the two types of stores can be explained by the difference in buying prices. Obviously some other factor must have been involved. Approximately the same situation was found by the Commission in the other three cities in which it obtained data. In Memphis, 45 percent of the chain-store advantage in selling prices could be attributed to lower buying prices; in Detroit, 34 percent; and in Cincinnati, only 18 percent.

TABLE 33.—*Total sales and allowances made by 457 food processors to different types of buyers, as found by the Federal Trade Commission, 1929 and 1930*

Kind of buyer	Number	Total sales	Total allowances	Allowances as a percentage of sales
1929				*Percent*
Corporate grocery chains	62	$300,947,853	$5,684,094	1.89
Independent grocery wholesalers	93	42,760,306	372,917	.87
Voluntary chains	44	24,909,498	249,201	1.00
1930				
Corporate grocery chains	62	298,988,934	5,840,230	2.02
Independent grocery wholesalers	93	39,003.072	354,012	.91
Voluntary chains	44	23,649,038	245,271	1.04

Federal Trade Commission, Chain Store Inquiry, Report on Grocery Discounts and Allowances, S. Doc. No. 84, 73d Cong., p. 3.

The data obtained by the Commission from food processors and manufacturers show even less basis for its claim that chain-store advantages arise mainly from special discounts and allowances. From a sample of 457 such firms it obtained figures as to the volume of sales made to different types of buyers, with the discounts and allowances made on each sale. The data are summarized in table 33, which shows the discounts expressed as a percentage of total sales.

Table 33 shows the discounts and allowances received by the corcorporate chains to have averaged a little less than 2 percent of the purchase price, as compared with about 1 percent for the voluntary chains and slightly under 1 percent for the independent wholesalers. The advantage of the corporate chains over other types of buyers was thus about 1 percent. We have already seen (table 32) that the selling prices of the chains averaged from 5 to 8 percent under those of the independents. Clearly this differential cannot be explained by special discounts and price concessions extorted by the chains. How the Federal Trade Commission can reconcile its conclusions in this matter with its own data is difficult to understand.

It is not improbable, however, that on occasion mass buyers can and do exercise their strength to threaten or coerce individual sellers into giving them special price concessions. The Federal Trade Commission's investigation revealed that 33 food processors out of a total of 129 insisted that they had been "coerced" by the chains into giving them preferential treatment. The charges against the chains in these cases were that they had insisted on unwarranted quantity discounts, advertising allowances, and brokerage rebates—all made under threat by the chains of withdrawing their patronage from the seller if not granted. It is not easy to draw the line in such cases between what is fair and what is unfair. Obviously the chains have a right to buy from whom they choose and for the lowest price at which the goods are obtainable, provided that the terms at which they buy are available to all other buyers who purchase in similar quantities and under the same conditions.

The small food processor who sells all or the major part of his output to the mass buyer is not infrequently at considerable disadvantage from a bargaining standpoint. In selling to a particular chain, he has perhaps given up his other trade connections, and these cannot be renewed quickly if his arrangement with the mass buyer is no longer satisfactory to him. It would probably be incorrect, however, to exaggerate this disadvantage, since any seller no matter how small can usually find some sort of outlet for his product through brokers and other specialized middlemen of this sort.

In the case of big buyers dealing with big sellers, the case is a little different, although here again the advantage is likely to be with the buyer. As the situation is today, no food chain is dependent on a single seller for its supply of goods, except in the case of specially processed articles. The seller, however—and this applies even to the biggest of them—may find himself seriously inconvenienced by the loss of a big chain-store account which he formerly had. As a result, he will go to considerable lengths to get and hold such accounts, and may temporarily be induced to make unwarranted price concessions. He is not likely, however, to continue this as a permanent policy. It is to protect themselves against situations of this kind that sellers commonly enter into long-term contracts with mass buyers, the agreement being that the price shall be in some fixed relation to the market price established on the organized auctions or exchanges for farm products.

It is of some significance in this connection that most of the chains manage to retain more or less permanent connections with those from whom they buy.[6] This statement applies not only to food processors

[6] Cf. Hoffman and Bevan, Chain Store Distribution of Fruits and Vegetables in the Northeastern States, pp. 27-31.

but also to farmers and local shippers who sell direct to them. Criticisms against the mass buyer come more often from those who do not sell to them than from those who do. It is, after all, to the advantage both of the mass buyers and of their suppliers to retain semipermanent and more or less amicable relationships. Generally speaking, the mass buyer today places less emphasis on trying to drive shrewd bargains here and there, and more on building up steady sources of supply on a price basis which insures their permanence.

The whole matter of buying methods and practices is in a state of uncertainty and confusion at the moment because of the recent passage of the Robinson-Patman Act. The Federal Trade Commission is interpreting the act in such a way as to preclude the giving or receiving of brokerage rebates and allowances on direct purchases, and has not thus far clarified its policy as to quantity discounts. There will perhaps be no definite clarification of the matter until the Federal Trade Commission's interpretation of the Robinson-Patman Act has been reviewed by the Supreme Court. The legal aspects of the matter will be made the subject of more extended discussion in a subsequent chapter.

THE CHARGES AGAINST THE MEAT PACKERS

Most suspect of all food corporations have been the big meat packers. They have been made the subject of repeated investigation by the Federal Government during the course of the last 50 years, and on several occasions have been enjoined from certain practices in which they had been engaged. A history of mergers and pools in the meat-packing industry was given in an earlier chapter.

Our present concern is with some of the practices of the meat packers as related to the problem of monopoly and price manipulation. In its exhaustive report on the meat-packing industry made just after the World War, the Federal Trade Commission charged the five leading packers with the following practices deemed to have been in restraint of trade and monopolistic in character:[7]

1. That the five packers "are in agreement for the division of livestock purchases throughout the United States according to certain fixed percentages."
2. That these companies "exchange confidential information which is used to control and manipulate livestock markets."
3. That they "act collusively in the sale of fresh meat."

In support of its contention that the packers were in agreement as to the percentage of the total supply of livestock each was to buy, the Commission cited the following figures as to their livestock purchases for the years 1913–17:

	Swift	Armour	Morris	Wilson	Cudahy
Year:					
1913	33.90	27.18	17.80	11.76	9.38
1914	34.01	27.16	17.97	11.56	9.30
1915	34.47	25.57	18.14	10.15	9.67
1916	34.59	24.07	17.86	10.94	9.57
1917	35.07	26.96	17.14	10.95	9.98

Federal Trade Commission, the Meat Packing Industry, pt. I, p. 52.

[7] Federal Trade Commission, Report on the Meat Packing Industry, pt. I, summary, pp. 28–45.

The Commission contended that these figures revealed such a remarkable uniformity from year to year that they could have been obtained only by agreement. Moreover, it argued, and produced evidence to show, that the percentages were nearly as constant from month to month and even from day to day as those for the total year's business. It held this as conclusive evidence that collusion existed between the packers in what might be called "sharing the market".

The packers sought to refute the Commission's charges on several counts. They contended first that the distribution of the business between them was not completely stable, although they could not refute the Commission's data concerning the facts. They did argue with some plausibility, however, that the stability of the figures themselves was of no particular significance as evidence of monopolistic control of prices and supplies.[8] Their claim was that each of the companies had reached a more or less stationary stage in its development, and that each had its regular sources of supply and trade outlets. In these circumstances they contended it was reasonable to suppose that each would tend to get practically a constant percentage of the business.

They also tried to explain the stability of the figures as the result of an effort on the part of each packer to maintain his relative position. According to their contention, this was a matter of some pride to them. Anent this, Swift & Co. said:

> The fact is that the packers are in such active competition with each other that not one of them is willing to lose ground to another in volume of business handled, and accordingly they watch each other so closely that no single packer is able to increase his business inordinately.[9]

In other words, their contention was that the Commission's figures only tended to show the keenness of their competition.

This argument is an ingenious one, almost too much so to be very convincing. In an industry in which supply and demand conditions change as rapidly as they do in meat packing, it is a little odd why each of several competing firms should have such a constant percentage of the business from month to month. One would suppose that differences in firm policies and expectations with respect to market trends would lead to more variable percentages. That it did not do it is at least prima facie evidence that the packers did not choose to incur the retaliation of their competitors by recklessly seeking to increase their portion of the business.

It would be a mistake, however, to insist that "sharing the market" is definite and conclusive evidence of price control. It might tend in this direction because of the likelihood that it would restrain the firms most likely to try to increase their supply and thus bid up the price of livestock to all packers. But in itself, a constant percentage of the business in the hands of a single firm or group of firms does not necessarily mean that the level of prices is being controlled.

Merely agreeing among themselves as to what percentage of the total shipments each will take is not tantamount to control over livestock supplies or prices by the big packers. The volume of livestock shipments is the result of the production and marketing decisions of farmers, not of the packers. It is therefore incorrect to think of the

[8] Hearings on the Packer Consent Decree, 1923, p. 1105.
[9] Swift & Co., Analysis of the Federal Trade Commission Report, p. 27.

packers as directly controlling the level of meat prices and supplies. What is subject to their control is the margin between the buying prices of livestock and the selling prices of dressed meat.

The Commission stated that—

> In the long run, the highest prices which the packers can pay for livestock are those which would equal the prices which they are able to get for the products minus the actual cost of operating the business and a small profit on investment—

and—

> * * * the lowest prices which it is advantageous for them to pay are those which will yield the maximum profit.[10]

As between these limits, the Commission contended the packers sought "to keep the actual prices of livestock as near as practicable to the level which yields them the maximum profit." In other words, they were accused of widening their margins beyond their actual costs of doing business.

Data for the calculation of packers' margins on an accurate basis are unobtainable. Market quotations on livestock and on dressed meat are not accurate enough for this purpose. Moreover, the vast number of packing-house byproducts would make a computation on this basis unreliable even if it could be made. Neither the Federal Trade Commission nor the packers offered any data as to margins which purported to prove or disprove the Commission's charge that such margins were unduly wide. Indeed such proof is impossible on this basis.

It is reasonable to presume that any advantage obtained by the meat packers through an undue widening of their margins would be reflected in a higher-than-average rate of return on their invested capital. But on this point we have already seen that the profits of the big packers are among the lowest to be found anywhere in the food industries, and are lower even than those of the small packers with whom they are in competition. It is not easy to make a case against the big packers on the basis of exorbitant profits.

In ordinary course, it would be presumed that any undue widening of packers' margins would attract new firms to the business. Meat packing, however, is not an industry which new firms can enter easily. There are, of course, numerous independent packers competing locally with the big firms. But there is at least some doubt as to whether their competition was always as active as it might have been. With respect to this, the Federal Trade Commission charged that the big packers tried to discourage competition from their smaller rivals by telling them that they "could not maintain themselves * * * if they should attract unfavorable attention by aggressively trying to increase their volume of business." [11] Consequently, the Commission believed that the small packers were not inclined to exert their full competitive powers and tended to "come in under the umbrella of the big packer prices."

This charge is another of the sort which can be substantiated only with circumstantial evidence. Of this, the Commission seems to have had plenty in this case. Whether or not such coercion of the small packers actually had the effect of widening packers' margins is not subject to statistical verification. The fact that the small packers now have a slightly larger percentage of the total meat business than

[10] Federal Trade Commission, Report on the Meat Packing Industry, pt. III, pp. 105-106.
[11] Federal Trade Commission Report on the Meat Packing Industry, pt. I, p. 114.

they had at the close of the World War would indicate at least that the effect of such coercion has not been to put them out of business.

The control of the big packers in meat distribution has always been greater than their control over slaughtering operations. All of the big firms own extensive distributing facilities and operate their own branch warehouses for making deliveries to local retail outlets. They also have their own sales force for the solicitation of retail sales and do not utilize the service of brokers and wholesale purveyors. Small packers obviously cannot integrate these functions and are forced either to confine their sales to local outlets or to sell through intermediaries in distant markets. The result is that the big packers appear in the past to have had a greater opportunity for coordinating and controlling local prices of dressed meat than for controlling prices of livestock. This seems also to have been the conclusion of the Federal Trade Commission.

One of the main charges made against the big meat packers by the Federal Government was that they sought to control shipments and supplies of dressed meats. Their first efforts along this line were the dressed meat pools, organized during the latter part of the nineteenth century.[12] The members of these pools pledged themselves to regulate their meat shipments into each district on the basis of quotas assigned to them by the pool. Of the existence of these pools and of their actual operation there was never any question. How successful they may have been in manipulating prices is another matter not subject to verification. In any case, they were dissolved by the Federal Government soon after the beginning of the twentieth century and have never been formally operated since.

The Federal Trade Commission insisted that even after the dissolution of these pools the big packers continued to act in collusion for the fixing of local dressed meat prices. It charged them with seeking to keep local prices in line, with attempting to prevent undue price cutting, with the exchange of sales information, and with actually visiting each other's plants for the purpose of insuring the carrying out of such collusive practices.[13] As a means of local price control, it was said that the packers reduced meat shipments into local areas or reshipped to other markets, froze meat so as to hold it over for later sale, and sold to other packers. It is a little difficult to see how these things in themselves could result in a permanent or widespread enhancement of dressed meat prices. Meat not sold in one area must be sold in another, and the freezing of meat obviously results only in changing the time of sale.

Several factors have been at work in the past 15 years to broaden and intensify competition in the local dressed meat trade. The first of these is the motortruck which has made it possible for local slaughterers and purveyors to compete more effectively with the big packers in soliciting and servicing retail outlets with meat products. Country towns particularly are no longer at the mercy of one or two sources of meat products, but are visited daily by the trucks and salesmen of numerous concerns.

Even more important in its effect on competition in meat distribution is the grocery chain. All of the larger chains have established their own meat warehouses for the purpose of servicing their retail

[12] Federal Trade Commission Report on the Meat Packing Industry, pt. II, pp. 9–18.
[13] Federal Trade Commission, op. cit., pt. II, pp. 108–131.

units with meat products. In a few cases they operate their own slaughtering plants, and frequently they purchase their meats from independent packers who operate no branch warehouses. In this way the nature of their operations tends to complement that of the small packer rather than of the large packer. The result is that the big grocery chains have put considerable pressure on the big packers to distribute and handle meat locally at less cost and with greater efficiency. As a matter of fact, the packers have used this as an argument in petitioning the Federal Government to permit them to engage in retailing operations, which they had agreed not to do under the terms of the packer consent decree.

Whether the meat packers were ever very successful in controlling either the prices of livestock or the prices of dressed meat is a subject about which there is much disagreement. The writer is inclined to think that they were less successful than is commonly thought, a conclusion shared by A. R. Burns in his monumental work entitled, "The Decline of Competition."[14] Whatever the situation at one time may have been, the evidence is reasonably clear that certain modern developments, particularly the motortruck and the chain store, have tended to sharpen competition in this industry.

[14] Cf. A. R. Burns, The Decline of Competition, especially pp. 180 and 188. With regard to conditions in the meat-packing industry, Burns states that "Although the meat-packing industry presents more information concerning sharing the market than any other, the effects of such a policy are not evident. It was never the whole market that was shared, and the lack of satisfactory statistics obstructs any conclusion concerning the change in the relative position in the industry of the large packers as a group. Their relations with other packers were more in the nature of those between a group of leaders and followers * * * It is difficult to prove any attempt to obtain monopoly profits, if for no other reason, because the onopoly profits available cannot be calculated * * * Possibly the large meat packers * * * have exerted pressure to maintain prices on a higher level than would otherwise have prevailed but the growth of small packers must have placed serious limitations upon their policy."

CHAPTER XII

LARGE-SCALE ORGANIZATION AND PRICE FLEXIBILITY

There has been great concern in recent years over what is thought to be an increasing degree of inflexibility in the economic system.[1] It has been observed widely that in times of business crises prices of some commodities decline sharply with falling demand, while in the case of others prices are maintained by a reduction of output. The latter type of adjustment—that is, rigid prices and flexible output—has come to be associated in the minds of many economists with the growth of large-scale organization. Since it is obvious that this type of price behavior is not compatible with a full and proper use of productive resources, large-scale organization has been subjected to much criticism on this score. In the present chapter our purpose is to see what evidence there may be that large-scale marketing organization has led to greater rigidity in the prices and margins of food products.

THE RELATIVE FLEXIBILITY OF FOOD PRICES

It was pointed out in an earlier chapter that the supply of most food products usually is determined in the first instance by the volume of agricultural production rather than by the marketing system. For reasons already made clear, farmers tend to maintain their aggregate volume of production in times of business crises despite the lower level of prices which they receive. Equally well known is the opposite tendency of many other industries to maintain prices by reducing supplies.[2] Under these circumstances we reasonably may expect food prices to be more flexible than those of most other products, and in general this ought to be true regardless of the degree of monopoly or large-scale organization which prevails in food distribution.

That food prices actually are more flexible than those of most other products has been demonstrated by Mason in his analysis of wholesale prices for the years since 1890.[3] The usual tests of price flexibility are the frequency and amplitude of price changes. By either test, prices of food products as a group are among the most flexible to be found anywhere in the economy.

[1] Economists are by no means agreed that prices really are more inflexible today than they were 50 years ago. For example, Rufus Tucker contends that there is "very strong reason to believe that a hundred years ago * * * rigid prices were proportionally more numerous and more important to the consumer than now." (American Economic Review, vol. XXVIII, p. 42.) On the basis of a study of wholesale prices since 1890, Edward S. Mason also was led to conclude that he found no support for the thesis that the price system is becoming more inflexible in a price-behavior sense. Mason, however, qualified this conclusion by saying "it may well be that with respect to those price responses to change in economic quantities which relate to business fluctuations, the 'system' is becoming more inflexible." (Cf. The Review of Economic Statistics, vol. XX, No. 2, p. 64.)

[2] A number of writers have sought to explain this difference in price behavior between agriculture and industry largely on the basis of monopolistic elements in the latter. (Cf. J. K. Galbraith, "Monopoly and Price Rigidities," Quarterly Journal of Economics, May, 1936, pp. 456-475.) This appears to be only a partial explanation of it. Stability of output in agriculture is due not so much to competition as to the fact that most of the production costs, including the labor of the farm operator, are in the nature of an overhead. Nor is it true that instability of output in industry is confined to those concerns whose opportunities for monopolistic control are greatest.

[3] Edward S. Mason, "Price Inflexibility," Review of Economic Statistics, May, 1938, pp. 53-64.

Most variable of all prices are, of course, those received by farmers. Mason's computations show the average amplitude [4] of changes in farm prices since 1929 to have been 118 percent, as compared with a range of 23 to 73 percent for prices of nonfood products (table 34). This table shows farm prices to have fluctuated more widely in percentage terms than did wholesale food prices, which is explained by the fact that certain processing and marketing charges tend to be relatively inflexible.

TABLE 34.—*Average amplitude of price change for 10 groups of commodities by 8-year periods, 1890–1936*

Group	1890–97	1898–1905	1905–13	1914–21	1922–29	1929–36
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Farm products	113.44	89.67	92.65	138.49	74.96	118.06
Foods	80.62	62.21	55.47	138.07	63.06	94.19
Hides and leather products	34.50	22.58	28.33	164.25	57.02	69.53
Fuel and lighting materials	61.70	83.79	30.22	103.03	62.73	65.25
Metals and metal products	51.31	58.18	40.09	159.36	49.31	34.32
Building materials	39.43	61.84	43.20	137.61	46.10	63.03
Chemicals and drugs	63.71	39.31	41.99	105.53	36.92	45.77
House furnishing goods	22.12	26.00	42.27	50.05	26.16	23.21
Textile products	36.95	38.87	28.02	178.32	51.34	73.30
Miscellaneous	39.36	43.33	37.98	103.87	39.98	56.39
Average	54.31	52.57	44.01	127.86	50.75	64.30

Review of Economic Statistics, May 1938, p. 62, table 2.

There is no evidence in Mason's data that the growth of large-scale organization in the food industries has led to greater rigidity of food prices. In every 8-year period since 1890, wholesale food prices have fluctuated more widely than have nonfood prices, with only two or three minor exceptions. The amplitude of their change has been as much above the average of all wholesale prices in recent years as it was in earlier years. Were food prices being stabilized significantly as a result of mass distribution, or for any other reason, this probably would not be true.

THE FLEXIBILITY OF FOOD MARGINS

More significant for our present purpose than the flexibility of food prices is the flexibility of marketing spreads and margins. Unfortunately most of the available data with respect to food margins are not of the sort which can be used for measuring the influence of any one factor, such as large-scale organization. In most instances, food margins have to be computed from data which leave much to be desired in the way of precision. There is, moreover, a very inadequate fund of data from which the margins of a particular type of processor or handler can be ascertained. Even though such margins could be computed, other factors such as wage rates probably would have more significance in explaining their changes over a peroid of time than would large-scale organization.

It nevertheless will be of interest to examine the general trend of marketing spreads for food products during the past several decades. For this purpose, the best data are those compiled by the Bureau of

[4] The amplitude of price change as used here may be defined as the percentage ratio of the difference between the highest and the lowest monthly quotation and the arithmetical average of prices for the commodity involved during the period studied.

Agricultural Economics showing the spread between farm and retail value of 58 food products for the period 1913–38. The farm value of the 58 products was computed from the farm prices published by the Bureau of Agricultural Economics; and the retail value was derived from the retail prices obtained by the Bureau of Labor Statistics. The basic data as to farm and retail prices are not such as to permit the computation of exact marketing spreads, but they suffice to show the changes over a period of years.

It will be seen from table 35 that food marketing spreads since the World War have been nearly twice as high as in pre-war years. For an identical bill of goods, the spread between the farm and the retail value was $118 in 1913, $242 in 1920, $220 in 1930, and $191 in 1938. In 1933 the spread was as low as $172, a reduction of about 20 percent below the spread of 1930. Clearly, marketing spreads for food products have been much less flexible during the course of the depression than have those for farm prices, and in this respect their behavior more nearly resembles that of industrial prices.

TABLE 35.—*Estimated farm and retail value of 58 food products, 1913–38*

Year	Farm value	Retail value	Margins	Year	Farm value	Retail value	Margins
	Dollars	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*
1913	134	252	118	1926	202	418	216
1914	137	258	121	1927	190	406	216
1915	134	258	124	1928	194	407	213
1916	155	285	130	1929	195	415	220
1917	223	370	147	1930	171	391	220
1918	245	424	179	1931	121	322	201
1919	267	470	203	1932	88	270	182
1920	272	514	242	1933	92	264	172
1921	179	404	225	1934	108	295	187
1922	170	374	204	1935	138	331	193
1923	173	384	211	1936	152	342	190
1924	170	381	211	1937	160	353	193
1925	198	410	212	1938	130	321	191

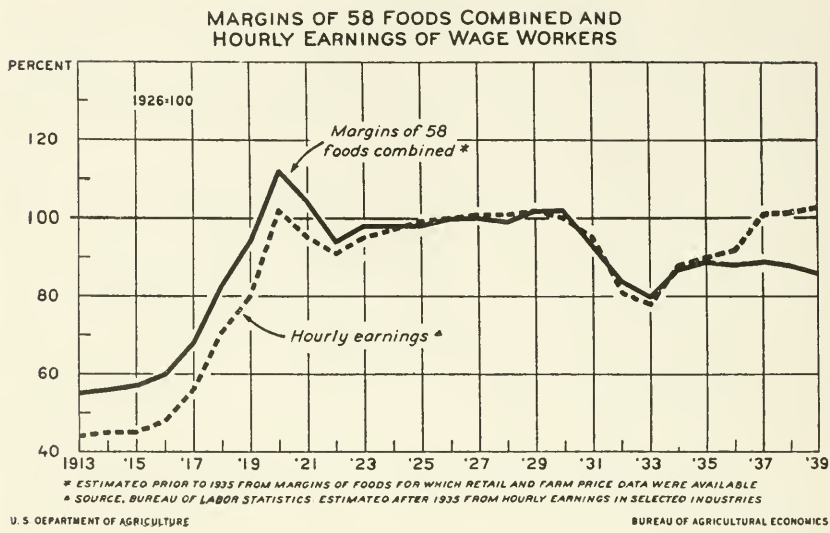
R. O. Been and F. V. Waugh, Price Spreads Between the Farmer and the Consumer, Bureau of Agricultural Economics (mimeographed), table 8.

In themselves, these figures enable us to say very little with respect to the influence of large-scale organization on food margins. Year-to-year changes in food margins are due mainly to four factors; changes in hourly wage rates, in the efficiency of the marketing system, in the amounts of processing and services, and in the profits of food handlers. Of these factors, the first (hourly wage rates) is by far the most important and explains most of the changes which have taken place in marketing spreads since 1913. (See chart XIII.)

Certainly we are not warranted in saying, on the basis of these data, either that large-scale organization has widened or that it has narrowed marketing spreads for food products. Whatever its influence has been, it has been overshadowed by changes in hourly wage rates, into which most of the costs of food distribution are ultimately resolvable.

It can be said that, during the course of the present depression, food margins were reduced about as much as was warranted by the decrease in hourly wage rates. Such rigidity as these margins have appears to be due more to the rigidity of wage rates than to any other factor.

CHART XIII



STABILITY OF OUTPUT

It is assumed frequently that stable prices and fluctuating supplies are associated closely with large-scale organization, and that industries in which this form of organization predominates are more likely to reduce output in times of business crises than are industries comprised of numerous small units. Whether or not this assumption is valid for the nonfood industries need not concern us here. But most certainly it is not always valid in the food industries where the supply is subject to a different set of controlling factors.

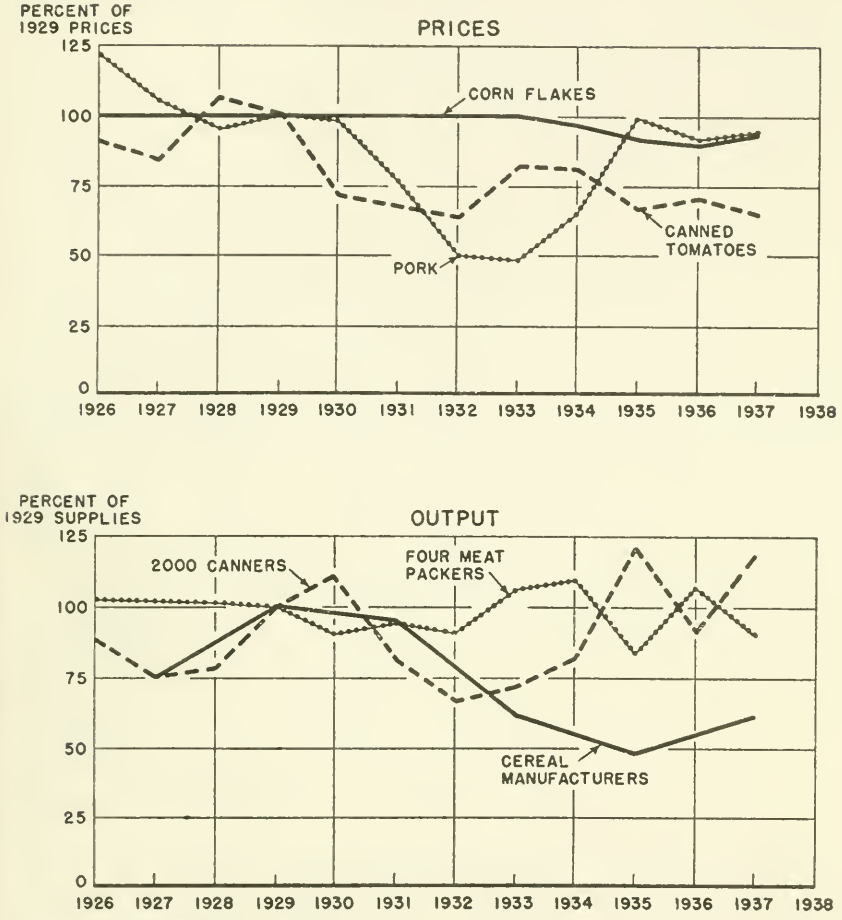
So far as food products are concerned, the stability of the supply from year to year depends not so much on the size of the marketing firms or the degree of competition between them as on whether the farmer or the processor controls the volume of production. As we have seen, this in most instances is controlled by the farmer. But there are some food products for which this is not true, and these furnish an interesting contrast from the standpoint of price and supply behavior.

To illustrate this, we have selected three food products, each subject to different types of supply control and processed under different degrees of large-scale organization. These products are pork, canned vegetables, and corn flakes. In the case of pork, the supply is determined by what farmers choose to market; but for the other two products, supply control is in the hands of the processor. The packing of pork and the manufacture of corn flakes are carried on under conditions of large-scale organization, whereas there are more than 2,000 separate firms engaged in the canning of vegetables.

Chart XIV shows the wholesale prices of these three food products together with the output of firms engaged in their manufacture. (See also tables 36 and 37.)

CHART XIV

Prices and outputs of three food products subject to different types of supply control, 1926–37



FROM TABLES 36 AND 37

The first thing to be noted is the contrast in the behavior of the wholesale prices of pork and corn flakes, during the past 12 years. The processing of both products is centralized in the hands of a relatively few firms. But prices of corn flakes have been very rigid, while those of pork were cut nearly 50 percent during the course of the depression. The explanation of this, of course, is that farmers maintained the volume of pork production despite lower prices; whereas the makers of corn flakes reduced their output in order to maintain prices. The point to be emphasized is that, so far as stability of output is concerned, the important thing is not large-scale organization in marketing, but whether or not this output is directly related to the volume of agricultural production.

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Less easy to explain is the behavior of the vegetable canning industry. Here is an industry, comprised of many small firms, which is generally assumed to be one of the most competitive of the food groups. Yet the output of the vegetable canners is less stable and was reduced more during the worst years of the depression than was that of the four big meat packers.

TABLE 36.—*Average annual wholesale prices of three food products subject to different types of supply control: Pork, canned tomatoes, and corn flakes, 1926–37*

Year	Pork [1]		Canned tomatoes [2]		Breakfast cereals [3]	
	Wholesale value for 100 pounds	Percentage of 1929 price	Wholesale price for dozen cans	Percentage of 1929 price	Wholesale price per case	Percentage of 1929 price
		Percent		*Percent*		*Percent*
1926	$14.86	122.4	$0.96	92.3	$2.41	100.0
1927	12.73	104.9	.88	84.6	2.41	100.0
1928	11.73	96.6	1.11	106.7	2.41	100.0
1929	12.14	100.0	1.04	100.0	2.41	100.0
1930	11.90	98.0	.76	73.1	2.41	100.0
1931	9.25	76.2	.72	69.2	2.41	100.0
1932	6.09	50.2	.66	63.5	2.41	100.0
1933	5.80	47.8	.85	81.7	2.42	100.4
1934	7.90	65.1	.85	81.7	2.34	97.1
1935	12.02	99.0	.70	67.3	2.25	93.4
1936	11.32	93.2	.74	71.2	2.17	90.0
1937	11.50	94.7	.68	65.4	2.26	93.8

[1] Bureau of Agricultural Economics, Livestock, Meats and Wool Market Statistics, 1937, p. 66.
[2] Bureau of Agricultural Economics, The Outlook for Tomatoes for Mfg., 1939. (Mimeographed.)
[3] U. S. Bureau of Labor Statistics, Wholesale Price Bulletins.

TABLE 37.—*Output of three types of food processors: Four leading meat packers, 2,000 vegetable canners, and several corn cereal manufacturers, 1926–37*

Year	4 meat packers [1]		2,000 vegetable canners [2]		Corn cereal Manufacturers [3]	
	Total slaughter	Percentage of 1929 slaughter	Total pack	Percentage of 1929 pack	Total manufacture	Percentage of 1929 output
	Tons	*Percent*	*Cases*	*Percent*	*Pounds*	*Percent*
1926	3,424,000	102.8	52,918,000	88.0		
1927	3,392,000	101.8	45,708,000	76.0	293,465,000	76.4
1928	3,405,000	102.2	47,016,000	78.1		
1929	3,331,000	100.0	60,163,000	100.0	383,867,000	100.0
1930	3,046,000	91.4	66,743,000	110.9		
1931	3,140,000	94 3	49,042,000	81.5	371,169,000	96.7
1932	3,047,000	91.5	40,092,000	66.6		
1933	3,530,000	106.0	43,547,000	72.4	236,983,000	61.7
1934	3,623,000	108.8	49,386,000	82.1		
1935	2,794,000	83.9	73,155,000	121.6	184,348,000	48.0
1936	3,577,000	107.4	55,383,000	92.1		
1937	3,020,000	90.7	71,283,000	118.5	238,337,000	62.1

[1] Bureau of Agricultural Economics, courtesy Packers and Stockyards Administration.
[2] Bureau of Agricultural Economics, Division of Crop and Livestock Estimates.
[3] U. S. Biennial Census of Manufactures, flour and other grain mill products and cereal preparations.

The vegetable canning industry appears to offer an excellent illustration of the relationship between the nature of costs and stability of output. Plant and equipment overhead represents a comparatively small part of the canner's cost. His main items of expense are wages, cans, and raw materials, all of which are variable. This being the case, he is almost certain to respond to falling prices with a

sharp curtailment of output—and this will be true under conditions of competition as well as under monopoly.

If our analysis of the present chapter is correct, there is no evidence that food prices are less flexible today than they were before the advent of large-scale organization in the food industries. Nor have food margins been more flexible during the course of the recent depression than would seem to be warranted by the relative rigidity of hourly wage rates. So far as food supplies are concerned, they have been maintained at a much higher level in recent years than have supplies of most industrial products. That this has been true is not ascribable to the marketing system but to the characteristics of agricultural production.

It should not be inferred from this that there is no inherent danger in food monopoly. Its manifestations, however, will come mainly through a widening of food margins rather than by direct limitation of the food supply. Food corporations are no less avid in the pursuit of profits and no more public-minded than others that close their plants and cease production in times of business crises. But the nature of their position is such that their self-interest does not lead to so much instability as will be found in most other lines of industry.

CHAPTER XIII

PATENT CONTROL IN THE FOOD INDUSTRIES

A topic closely related both to the specific problem of monoply and to the broader subject of large-scale organization is that of patent control. The purpose of the patent system is to provide greater incentive for technological progress by guaranteeing the inventor exclusive rights to the use of his discovery for a period of 17 years. The patentee thus has what amounts to a legally conferred monopoly during the life of his patent. This legal right is not analogous to private monopoly either in its social implications or in its ultimate objective; but the short-run effect on price and production policies is likely to be not greatly different in principle.

In the ensuing chapter we shall seek to describe the role played by some of the more important patents in the food industries. The four groups of food patents which have been most important commercially are those relating to milk products, the breakfast cereals, the quick-freezing process, and the flour-milling industry. In numerous instances the origin and early growth of some of the leading firms in these lines can be traced directly to basic patents which they held.

Research relating to the history and character of food patents is virtually nonexistent. Most of the source material used in the present chapter has been obtained from an examination of the patents on file in the United States Patent Office. One of the chief difficulties encountered by one not familiar with the technical processes involved was in knowing which are the basic patents. On this phase of the problem the writer received invaluable assistance from governmental research workers in the respective fields involved. Another difficulty was that the assignment of patents can be traced only with the greatest difficulty in the years prior to 1895 and in some cases it is impossible to find any records other than the original patent grant. From other sources, however, it has been possible to trace the early history of most of the important ones, and when this could not be done it has been so indicated in the text.

PATENTS AFFECTING THE DAIRY INDUSTRY

For probably no agricultural commodity have patents been more important than for milk and milk products. Although the basic processes of making butter and cheese have been known for centuries and hence are not patentable, innumerable innovations have been made during the past 50 years in the various techniques of processing milk products. Methods for making dry milk, condensed and evaporated milk, and processed cheese—to name only the more important ones—all have been developed within this recent span of years. Particularly significant at the moment are new chemical discoveries in the field of casein utilization which may expand greatly the use of milk byproducts for industrial purposes.

Nearly all the significant discoveries in milk processing during the past several generations have been patented by private individuals or concerns.[1] In many instances, control of important processes by means of the patent right has given the holder marked commercial advantages and, as we shall show, in a few cases seems to have been the major factor in the growth of larger corporate concerns in this industry.

Patents relatively unimportant for butter, natural cheese, and ice cream.

No patents relating to butter have any great commercial significance at the present time. As already stated, the mechanics and chemical processes involved in making butter are centuries old. A few patents relating to the treatment and deodorizing of cream are now in effect but are of little commercial significance. Methods for making plastic cream (which might make possible the more economical shipment of butterfat from which butter could be made) have been developed and patented, but thus far are not being widely used.

The making of natural cheese is also an old and universally used process. Insofar as patents relate to it, they apply mostly to equipment which can be purchased by any cheese manufacturer. However, the making of processed cheese from natural cheese is a comparatively recent development in which patents have had a very important role, as we shall see in a moment.

Ice cream, like natural cheese and butter, is made by well-known and widely used methods. Numerous patents are held, of course, on manufacturing equipment but are not such as to affect the basic process. Patents apply to ice cream "stabilizers" (soluble protein substances for improving the body and texture of ice cream), but there are a number of such products on the market and no firm enjoys anything approaching a monopoly of their manufacture.

Fluid milk and cream.

The chief process involved in preparing milk and cream for consumption in fluid form is pasteurization. The general principles of pasteurization were developed more than 70 years ago by the great French scientist, Louis Pasteur. Commercial application of pasteurization to fluid milk, however, was not made until the beginning of the twentieth century.

No patents ever were granted in this country relating to the principle of pasteurization itself. Machinery and equipment used in the process, however, have been patented, although most of the important patents of this type have expired.

Among the first types of pasteurizing equipment was the Potts pasteurizer, developed by the University of Wisconsin in 1899. At about the same time a Danish type of heater was introduced in this country, the principle of which still is used on modern pasteurizing equipment. Neither appears to have been patented.

The first notable patents relating to milk-pasteurizing equipment were issued to Joseph Willman in the early part of the twentieth century. Among these was one issued in 1909 describing a machine for the so-called "holding method" of milk pasteurization.[2] Most modern pasteurizing equipment is based on this method, or on some

[1] An important exception has been the Babcock test for determining the butterfat content of milk and cream, as developed by the late Stephen M. Babcock.

[2] U. S. Patent No. 913,600, Process of Pasteurizing Milk, issued to Joseph Willman, February 23, 1909.

adaptation of it. Mr. Willman for a time manufactured the pasteurizing equipment covered by his patents but later sold his enterprise to the Davis Milk Machinery Co., which was in turn merged with the Creamery Package Manufacturing Co., one of the largest of the present concerns in its field. The Willman patents were at one time of considerable commercial value, but have expired and are now in general use by manufacturers of dairy equipment.

A recent innovation in milk-pasteurizing equipment is the plate heat exchanger. This machine was developed in England in 1923 and is manufactured in this country by the York Ice Machinery Corporation, of York, Pa. The latter company has American patents on the machine and is the sole manufacturer of this type of pasteurizing equipment. It is being rapidly adopted for use by many of the larger dairy companies.

Considerable interest is being shown at present in developing a paper container for fluid milk and cream. The use of such container seems almost certain to increase greatly in the next few years because of its adaptability for handling fresh milk through grocery stores. One such container has been developed by the American Can Co., which sells it to any dairy firm desiring to use it. Machinery for filling and closing the container in the dairy plant is rented by the American Can Co. Several other concerns are also in the market with patented containers, so that no single firm can be said to have control of the article.

Processed and packaged cheese.

Processed cheese is made by patented methods of heating and pasteurizing natural cheese, to which usually is added a small amount of an emulsifying salt. Its chief commercial advantages over natural cheese are greater keeping qualities, more uniformity as to taste and texture, and better adaptability to packaging in small units. At the present time approximately one-third the American and foreign types of cheese produced in this country is marketed in some form of processed cheese.

The dominant factor in the processed cheese industry is the Kraft-Phenix Cheese Corporation, subsidiary of the National Dairy Products Corporation. For the past 15 years, its patents have given it exclusive control over the methods of making processed cheese. The company itself manufactures most of the processed cheese which is made, although in recent years it has leased the process to several other firms on a royalty basis.

The patents on which the Kraft-Phenix Cheese Corporation based its claim to the making of processed cheese were obtained about 20 years ago. The first of these was issued to J. L. Kraft in 1916,[3] who at that time was one of the owners of a local cheese business in Chicago. The patent described a method for heating cheese to a temperature of about 175°, after which it could be run off into hermetically sealed containers for permanent keeping. According to the patentee, his was the first successful method for heating cheese for purposes of sterilization without its disintegration and the loss of its cheesy character. The process was intended to be used for the soft varieties of cheese which, in their natural forms, sometimes became semiliquid in advanced stages of curing.

[3] U. S. Patent No. 1,186,524, Process of Sterilizing Cheese and An Improved Product Produced by Such Process, issued to J. L. Kraft, Chicago, Ill., June 6, 1916.

Another patent covering a method for processing all forms of cheddar cheese was issued to J. L. Kraft in 1919.[4] The process was similar in principle to that already described for the soft cheeses, but it was of much greater commercial importance because it applied to cheese of the cheddar genus, which represents the common type made in this country. The process described in the patent was a simple one, involving the grinding of natural cheese into small pieces, heating it to what the patentee called a "critical" temperature, adding a little water and, in some cases, a small percentage of coconut oil to enable the cheese to withstand the effects of hot weather. No complicated equipment, no chemical processes, and no special treatment other than that just described were mentioned in the patent, yet it was one which gave the Kraft Cheese Co. virtual control of the processed cheese industry until very recently when the patent expired.

Several other patents relating to processed cheese were granted, one of them for the addition of sodium phosphate to the cheese, for the purpose of improving its texture after pasteurization. Such a patent [5] was granted to one George Garstin in 1921, who assigned it to the Phenix Cheese Corporation of New York, later merged with the Kraft Cheese Co.

Another rather important processed cheese patent covered a method for blending whey solids with cured cheddar cheese to produce a product for which the patentee claimed "a more appetizing flavor than the usual so-called 'processed' cheese." [6] One of the advantages of the method was that it utilized whey solids which often are wasted by cheese factories. The patent was granted in 1927 to one Elmer E. Eldridge, who assigned it to the Pabst Cheese Corporation of Milwaukee, Wis. The latter corporation was acquired in 1928 by the Kraft Cheese Co.

The main patents for processed cheese have expired in the course of the last few years. A number of recent patents relating to it have been granted, not only to the Kraft-Phenix Corporation, but to a number of other firms and individuals. It remains to be seen whether or not any of these newer patents will give their holders a degree of control over the making of this cheese similar to that heretofore exercised by the Kraft-Phenix Cheese Corporation. From present indications, they will not.

Another recent innovation in the curing and packaging of cheese is the valve-closed metal container. Within such a container natural (not processed) cheddar cheese can be cured and stored with a minimum of loss from spoilage and rind waste. Moreover, it provides a means of handling natural cheese in small, merchandisable packages in the retail store, heretofore a great advantage of processed cheese over natural cheese.

The chief feature of the metal container is a valve by which the gas generated by the cheese in process of curing may escape without the entrance of air into the can. Several patents [7] relating to such a

[4] U. S. Patent 1,323,868, Process for Treating Cheese. Issued to J. L. Kraft, Chicago, Ill., December 2, 1919.

[5] U. S. Patent No. 1,368,624. Cheese and Process for Sterilizing Same. Issued to George H. Garstin and assigned to Phenix Cheese Co., February 15, 1921.

[6] U. S. Patent No. 1,634,410. Processed Cheese and Method of Making the Same. Issued to Elmer Eldridge and assigned to the Pabst Cheese Corporation of Milwaukee, Wis., July 5, 1927.

[7] U. S. Patent No. 1,941,048 (issued in 1933), U. S. Patents Nos. 1,950,325-7 (issued in 1934) to William F. Punte and assigned to Continental Can Co., Inc., New York.

container have been assigned to the Continental Can Co., one of the large manufacturers of metal containers. Thus far this concern has the only metal cheese container in commercial use. Whether or not other firms can perfect one without infringement of the Continental Can Co.'s patents is, of course, conjectural.

Condensed milk and evaporated milk.

Methods for the condensing of milk were developed about the middle of the nineteenth century. Although most of the basic patents long since have expired, they were at one time of great commercial value and helped lay the basis for several of the larger dairy corporations of the present day.

The inventor of condensed milk manufacture was Gail Borden, founder of the present Borden Dairy Co. His patent was taken out in 1856,[8] and it was a basic one. It described the production of condensed milk by evaporation in vacuo. Mr. Borden began commercial manufacture of condensed milk under his patent around 1860, but it was not until the twentieth century that his company attained anything like its present size.[9]

Meanwhile, several other patented processes relating to the production of condensed and evaporated milk were being developed. The most important of these was a method of preserving the unsweetened condensed milk by heat sterilization, which obviated the need for adding sugar or other preservatives to insure keeping. The originator of the idea was one J. B. Meyenberg, who obtained a patent on his process in 1884.[10] A small company, known as the Helvetia Milk Condensing Co., was formed in 1885 to manufacture evaporated milk by the Meyenberg process. The Helvetia Milk Co. was reincorporated in 1889 as the Pet Milk Co., one of the present-day leaders in the industry.

These two processes, the Borden method of vacuum evaporation and the Meyenberg method of heat sterilization, form the basis of the modern evaporated-milk industry.[11] There have been, however, many improvements in the machinery and equipment used by the industry. Most of these improvements, of course, have been patented and some of them have been quite valuable to the patentees. As a general thing, patents relating to machinery are held by the manufacturers of dairy equipment rather than by the dairy companies themselves. Naturally the manufacturers of patented equipment are anxious to sell or rent as many of their machines as possible, so the effect of equipment patents generally has not been to limit directly the use of the patented machine. Patent control, however, may have had considerable influence on machinery prices.

As we have already seen, the evaporated-milk industry is largely concentrated in the hands of five or six companies. Patent control undeniably has been an important factor in the growth of some of these companies. The maintenance of their present position, however, does not depend on patent control. Most of the important patents affecting the evaporated-milk industry have expired, and the methods

[8] U. S. Patent 15,553. Issued to Gail Borden, August 19. 1856.

[9] For a good history of the development of this industry and the part patents played in it, see O. F. Hunziker, Condensed Milk and Milk Powder, La Fayette, Ind., 1914, pp. 1–11, 4th edition.

[10] United States Patents Nos. 308,421 and 308,422. Issued to J. B. Meyenberg in 1884.

[11] One of the disadvantages of evaporated milk as made today is its caramel flavor, the removal of which would be of great economic importance in the industry. A patent relating to this, the success of which has not yet been commercially demonstrated, was issued to Charles O. Ball and assigned to the American Can Co. in 1934.

and equipment involved are available to any firm desiring to use them. For instance, several of the larger grocery chains and some of the producer cooperatives have successfully entered the evaporated milk business during the last 15 years. The small or new enterpriser in the industry is handicapped not so much by patent control as by the amount of capital required, and especially by the inability to market his product successfully without an integrated sales organization.

Dried milk and milk powder.

Closely related in origin and history to the condensation of milk is the manufacture of dry milk powder. The difference between condensed milk and dry milk powder is mainly one of degree of concentration. The patent history of dried milk, however, is somewhat different from that of condensed milk.

The first usable process for drying milk was developed by an Englishman who secured a British patent in 1855.[12] His method consisted of adding potash to fresh milk, which was then evaporated in open pans, until of a doughlike consistency; after which it was dried between heated rollers and pulverized. Since then, however, new and better principles for milk drying have been evolved, so that the British patent was of little significance for the industry in this country.

There are two main methods for milk drying now in common use in this country. The first is the film-drying system, by which the milk is dried on revolving drums charged with steam or hot water, from which the thin film of dried milk may be removed with an adjustable knife or scraper. The second is the spray-drying system in which a fine mist of milk is introduced into a current of hot air, the milk powder falling in the form of a snowlike deposit on the bottom of the hot-air chamber. The first method is adaptable to small plants and is widely used, but the larger volume of dried milk is produced by the second.

Numerous film-drying machines have been developed and patented. Most of the important ones have expired. Film-drying machinery is at present being manufactured by numerous concerns and is freely available to any dairy manufacturing enterprise.

For the spray-drying process, however, patents have played a more important role. The first successful application of the principle was known as the Stauf process, patented by Robert Stauf, of Germany, in 1901.[13] The Stauf patent was purchased by the Merrell-Soule Co., of New York, in 1905, and thus was laid the basis of that firm's paramount position in the dried milk industry for many years. The Stauf patent expired in 1918. During the life of this patent, no firm could use the spray-drying process for making milk powder without paying tribute to this company. The Merrell-Soule Co. was acquired by the Bordon Co. in 1927, although by this time its earlier basic patents had expired.

The spray-drying of milk today is done mainly by the Gray-Jensen process, which was secured by several patents issued during the years 1913–18.[14] Machinery for the use of this process is manufactured today by the Douthitt Engineering Co., of Chicago, Ill. The method is being used by many of the larger manufacturers of dairy products.

[12] O. F. Hunziker, op. cit., pp. 424–428, fourth edition.
[13] United States Patent No. 666,711, issued to Robert Stauf on January 29, 1901.
[14] United States Patents Nos. 1,078,848 (1913), 1,007,784 (1914), and 1,266,013 (1918).

Casein and casein products.

One of the most interesting aspects of the dairy industry at present is the increasing use of milk byproducts for industrial purposes. The use of casein for such purposes is especially important. Developments in this field are so recent and fast-moving that their ultimate significance cannot now be foretold. That casein patents will have considerable economic importance in the next few decades, however, is certain.

Casein itself is an old and well-known dairy product. It has been made for many years in dairy plants of all types and sizes by the so-called vat process. No basic patents apply to this method. Recently, however, there has been developed a new method, known as the continuing recovery process, which promises considerable change in casein manufacture. Advantages of the new method are that it is more rapid, cheaper, and better adapted to use in large dairy plants.

The patent for this new process of casein making was issued to William H. Sheffield, of New York, in 1929, and is now held by the National Dairy Products Corporation.[15] The latter firm uses the method in its own plants, and at present is leasing machinery for its use to other users on a royalty basis.

One of the more important uses of casein is in the making of adhesive glues and cements. Patents covering the process are controlled by the Borden Co. Among the first of these patents were several granted to A. A. Dunham in 1926 and subsequently assigned to the Borden Co.[16] Among the Dunham casein patents is an exclusive one covering waterproof casein glue. Casein is not indispensable to the making of glue and adhesive cement, but, insofar as it is so used, it is commonly done under the Dunham patents.

Another recently developed use of casein is in the making of paints, for which casein serves as the base. There appears to be a large potential outlet for casein in paint manufacture. Patents for the process were issued to E. C. Atwood, of the Atlantic Research Associates, an affiliate of the National Dairy Products Corporation.

A very interesting possibility at the moment is the use of casein for the making of synthetic fiber from which textiles can be woven. The process was first developed and announced in Italy in 1935. Production there is already on a commercial scale, $20,000,000 worth of the fiber having been produced in 1938. The fiber has the appearance and many of the qualities of wool. Its economic potentialities as a source of textile fiber are self-evident. Because it thus far has been produced in this country only on an experimental basis, its commercial costs have not been definitely determined. It is the opinion of chemists, however, that it can be manufactured and sold at a price comparable with that of rayon, which is about 50 cents per pound.[17]

Only one patent covering the process of making casein fiber has been issued thus far in this country. It was granted to two chemists (E. Whittier and S. P. Gould) in the United States Department of

[15] United States Patent No. 1,716,799, issued to William H. Sheffield in 1929, and now owned by the National Dairy Products Corporation.

[16] United States Patents Nos. 1,537,939; 1,551,471; and 1,551,472. (Issued to H. V. Dunham, 1926.)

[17] See press release by the U. S. Department of Agriculture, Washington, D. C., August 15, 1938.

Agriculture and dedicated, as are most patents obtained by Government employees in line with their regular duties, to the free use of the people of the United States.[18] Other patents relating to the same process by the same chemists are pending, but have not yet issued.

So far as can be seen at the present time, the patents applied for by Whittier and Gould are basic to the process of casein fiber manufacture. If this proves to be true, it will be one of the few instances in the dairy industry where commercially important processes are secured by public rather than by private patents.

Irradiation with ultraviolet light.

A recent discovery of great nutritional and therapeutic importance is a process for the irradiation of food products with ultraviolet light to increase their vitamin D content. The process is used extensively in the dairy industry for the irradiation of fluid and evaporated milk. The purpose of the irradiation is to increase the vitamin D content, which is the nutritional factor that prevents rickets. Since its discovery the method has been widely used commercially, especially by the dairy industry.

The method was developed at the University of Wisconsin by Prof. Harry Steenbock. The patent for it (United States No. 1,680,818) was issued to him in 1928 and assigned to the Wisconsin Alumni Research Foundation. The latter organization leases rights to the process to any firm whose purposes appear to it legitimate, and uses the royalties derived for the purpose of encouraging further research and investigation along the same general lines. The Steenbock patent is another of the few commercially important ones not held by private firms or individuals.

THE QUICK FREEZING OF FOOD PRODUCTS

A recent and very rapid development in the food industries is the preservation of certain food products by the process of quick freezing. The principle of freezing food to protect it from spoilage long has been understood, but quick freezing to preserve taste and texture has been discovered only within the last several decades. The advantage of quick freezing over the slow methods is that the ice crystals formed are much smaller, which causes less damage to the cells of the products. Quick freezing also checks certain chemical and enzymic actions which produce off-flavors and discoloration of the product.

Some idea of the growth and present status of the frozen-food industry may be obtained from table 38. The process at present is being applied mainly to fruits and vegetables and to fish. The pack of frozen fruits and vegetables has nearly trebled in the last 3 years, and that of frozen fish has nearly doubled. Opinion is almost unanimous that the industry will be expanded greatly in the next few years.

[18] United States Patent No. 2,140,274. Issued to E. Whittier and S. P. Gould and dedicated to the free use of the people of the United States.

TABLE 38.—*Volume of quick-frozen foods and number of companies engaged in their production, 1936–38*

Commodities	1936		1937		1938	
	Output	Companies reporting	Output	Companies reporting	Intended output	Companies reporting
	Pounds	*Number*	*Pounds*	*Number*	*Pounds*	*Number*
Fruits and vegetables (fruit juices included)	89,009,000	27	161,374,766	37	242,901,000	29
Fish	54,335,000	13	82,369,000	17	93,000,000	11
Poultry	24,790,000	5	27,599,000	5	34,480,000	4
Meat [1]	1,075,000	2	2,065,000	3	5,070,000	2
Total	169,209,000	47	273,407,766	62	375,451,000	46

[1] Meat frozen by packers for sale to institutional trade is not reported.

C. R. Mundee and F. C. Porcher, Quick-Frozen Foods, Bureau of Foreign and Domestic Commerce 1938 (mimeograph).

There are, as will be shown, numerous patents relating to quick freezing, and some of them are important. No single firm or individual, however, has patents which give it exclusive rights to the basic principle of quick freezing. The chief factor in the frozen-food industry at the present time is the General Foods Corporation, which controls the Birdseye process subsequently to be described. Several other methods of quick freezing are in use, however, and numerous other firms engage in the business (table 38).

Early history of quick freezing.

Although quick freezing was not commercially important until after the World War, its history goes back nearly 100 years. As early as 1861, one Enoch Pifer was granted a United States patent for the freezing and storage of fish. His method consisted of placing fish under (but not in contact with) metal pans containing a mixture of ice and salt.[19] Interestingly enough, the Supreme Court held his patent invalid because it had been preceded by the ice-cream freezer.

Next in the field were D. W. and S. H. Davis, who froze fish in metal pans by packing them in alternate layers of salt and ice. They were issued patents covering the process in 1869, and considerable quantities of fish were, and still are, frozen by this method.

During the latter part of the nineteenth century, numerous other patents were issued relative to the freezing of fish, although none of them was such as to preclude the obtaining of later and more important quick-freezing patents. Most of these earlier methods used salt as a freezing medium, and a few used direct immersion of the product in brine. Progress also was made in methods of sharp freezing (i. e., freezing in uncirculated air), but this method is not directly analogous to modern ways of quick freezing.

Freezing by direct and indirect contact with refrigerant.

It is generally considered that commercial quick freezing dates from about 1920. The first process to be applied commercially was direct immersion of the product in brine. Such a process was developed in Europe just before the World War, and was introduced into the United States by Otteson in 1918. Otteson's methods were covered by foreign patents and by several American patents.[20] His

[19] D. K. Tressler and Clifford F. Evers, The Freezing Preservation of Fruits, Fruit Juices and Vegetables, The Avi Publishing Co., Inc., New York, 1936, p. 48.

[20] United States patents Nos. 1,129,716 (1915); 1,532,931 (1925); 1,562,360 (1925).

method of direct brine immersion, however, was not widely used commercially because of the likelihood of salt penetration into the product.

Somewhat related in principle to the above method is that of freezing the product by means of brine spray. H. F. Taylor patented a machine for freezing fish by such a process in 1923.[21] Later, he and others improved this process by spraying brine on the cans in which the fish were packed.

Another method of quick freezing is that of indirect immersion, sometimes called freezing by indirect contact with the refrigerant. There are at least a half dozen patented variations of this process, all in commercial use. Among the first patents of this type was one granted in 1921 to P. W. Petersen.[22] His method consisted of placing the product (usually fish) in narrow metal containers immersed in cold brine. Kolbe improved on this method by devising a way for keeping the pans from becoming flooded with brine.[23] Cooke added still other variations by conveying the product over cold brine on an endless chain of flat aluminum plates.[24]

A method of a somewhat different sort from any thus far described is the so-called "Z" process. It was developed by M. T. Zorotschenzeff, to whom a series of patents was issued beginning in 1933.[25] The process is used commercially, especially for poultry and other meat products. Freezing is accomplished by means of an atomized liquid refrigerant which is sprayed either directly on the product or on a package containing it.

The Birdseye process.

The process in most common use today, especially for the freezing of fruits and vegetables, is the Birdseye process. The process was developed by Clarence Birdseye, who subsequently assigned the patent rights to Frosted Foods Co., Inc., a subsidiary of the General Foods Corporation.

Birdseye obtained the first of his patents in 1924.[26] It described a method for freezing fish by the can-immersion principle. It was similar in many respects to Petersen's method, which already has been described. In fact, Petersen brought suit against the General Foods Corporation in 1930, charging an infringement of his patent. The case was dismissed in 1932 by the United States district court at Boston.[27]

Quick freezing under the Birdseye process is done now by two types of patented machinery. The first is known as the "double belt" system, in which the product is frozen between two metal belts running through a freezing tunnel. The metal belts are cooled by a spray of calcium chloride brine, which is similar in principle to some of the spray processes already described. This type of freezing apparatus is suitable only for permanent installations and is being replaced by the new multiplate method.

The multiplate method is covered by a series of patents issued to Birdseye and assigned to General Foods in 1930 and in 1931.[28] As

[21] United States patent No. 1,468,050, issued in 1923.
[22] United States patents Nos. 1,388,295 and 1,388,298, issued in 1921.
[23] United States patent No. 1,527,562, issued in 1925.
[24] United States patent No. 1,795,330, issued in 1931.
[25] United States patents Nos. 1,894,813 (1933); 1,995,729 (1935); 2,134,295 (1938).
[26] United States patent No. 1,511,824, issued in 1924.
[27] Cf. The Canner, vol. 74, p. 16, for an account of this litigation.
[28] United States patents Nos. 1,773,079-81 (1930); 1,817,890, and 1,822,077 (1931).

the name implies, the apparatus consists of superimposed hollow metal plates, between which the food can be placed and frozen under any desired pressure. Low temperatures are obtained by means of cold brine circulated within the hollow plates. The entire apparatus is enclosed within an insulated cabinet which can be moved easily by truck from place to place. This compactness and mobility of the multiplate equipment constitutes one of its main advantages.

Important litigation is currently in progress, challenging the validity of the Birdseye patents.[29] In July of 1938, the Booth Fisheries (a concern engaged in the quick freezing of fish) brought suit against the General Foods Corporation, charging that the Birdseye process controlled by the latter is an infringement of some of the Cooke patents owned by Booth Fisheries. In a denial filed by the General Foods Corporation, it is claimed that the Cooke process never was used commercially and that the latter was itself an infringement of certain prior patents. The case was brought before the United States district court of Wilmington, Del., but a decision has not yet been handed down. The outcome of this case will obviously have an important effect on the patent situation in the frozen-food industry.

Other methods of quick freezing.

There are at least a dozen other patented methods of quick freezing, most of them variations of principles already described. Among these are the Haslacher process (to utilize the refrigeration always available in artificial-ice plants); the Bloom method (brine spray); and the Murphy process (circulating cold air).

A special type which is growing in commercial application is the Grayson process in which freezing is effected by blasts of very cold air.[30] One could list at least a half dozen others.

Summation of patent situation for quick freezing.

It is evident from the foregoing discussion that there are many ways by which foods can be quick frozen, and that no single firm or individual has patents which tend to limit use of the principle itself. Most of the patents relate to machinery and equipment for quick freezing. Holders of such patents usually permit manufacture on a royalty basis by companies engaged in the making of refrigerating equipment. There are numerous companies of this kind. With the notable exception of the Birdseye apparatus, any food processor desiring to engage in the quick-freezing business can purchase the necessary equipment from any one of several manufacturers of such machines.

The outstanding example of quick-freezing patents held exclusively by a food processor is the Birdseye process controlled by the General Foods Corporation. This corporation is today the largest single factor in the industry. Its patents, particularly in the freezing of fruits and vegetables, have undoubtedly contributed to its present dominant position. But it would be a mistake to overemphasize the role of patents in this case.

The chief advantage possessed by General Foods in the field of quick freezing appears to be that it has a distributive system for getting frozen foods into retail stores and local food outlets. Because of the special storage equipment required, frozen foods cannot be

[29] See The Food Field Reporter, issue of July 25, 1938.
[30] United States patent No. 1,814,915, issued in 1931 to R. V. Grayson and C. M. Foster.

handled easily in the ordinary channels of food distribution. The small processor of frozen foods has thus had some difficulty in marketing his product, an obstacle not encountered to the same degree by the General Foods Corporation. Other advantages possessed by the latter firm at the present time are that its products are widely advertised and sold under the claim of superior quality. Things of this sort, rather than its patents, appear to be mainly responsible for the present position of the General Foods Corporation in the frozen-food industry.

One of the chief obstacles to the expansion of the frozen-food industry has been the high cost of equipment for handling the product in the retail store. Here again General Foods may have some slight advantage because of its patented store cabinets. There are, however, several other types of cabinets available to all retailers or distributors without restriction other than that of cost.

Thus far, the corporate grocery chains have not undertaken the retailing of frozen foods on an extensive scale.[31] There are perhaps several reasons for this, the chief one of which seems to be the high cost of the retail equipment. Patent control by firms already in the business does not seem to be an important deterrent to the entrance of new factors, particularly when the scale of their operations is large enough to overcome some of the marketing difficulties described above.

PATENT CONTROL FOR BREAKFAST CEREALS

The manufacture of breakfast cereals is carried on today mainly by large firms specializing in that enterprise and operating on a national scale. While unimportant at the moment because of their expiration, basic patents at one time gave their holders almost exclusive rights to the manufacture of certain kinds of these cereals. The origin and development of several of the present leading firms in this field can be traced directly to some of the patented processes which their founders either developed themselves or purchased from the original patentees. It is probably correct to say that patent control in this field has played a larger role than in any other branch of the food industries. For this reason, the history of patents and processes for breakfast cereals is especially interesting.

There is today a bewildering variety of breakfast cereals. Nearly all of them, however, fall into one of the four following classes, according to the types of process used in their manufacture: (1) The cooked cereals; (2) the puffed cereals (puffed rice, etc.); (3) shredded biscuit; and (4) cereal flakes. The cooked cereals (oatmeal, farina, etc.) are made according to methods known for years. A number of patents for their manufacture were taken out during the latter half of the nineteenth century, but they were not such as to restrict the basic process involved and were of relatively little commercial importance. Cooked cereals were, and still are, made by a number of companies which have little more than a brand name to differentiate their product from close substitutes. This has not been true, however, for the ready-to-serve breakfast cereals.

[31] Cf. Quick-Frozen Foods, issue of October 1938, p. 9.

Shredded cereal biscuit.

The most common form of cereal biscuit is Shredded Wheat, a product originated and for years made exclusively by the Shredded Wheat Co. The Shredded Wheat Co. traces its origin back to 1901, at which time it was incorporated as the Natural Food Co., that name having been changed to the present one in 1908. The assets of the Shredded Wheat Co. were acquired in 1930 by the National Biscuit Co.

At one time the Shredded Wheat Co. held exclusive patents covering the manufacture of shredded cereal biscuits, and for many years was the only company engaged in the making of such products. The basic patent was one issued to H. D. Perky in 1895 and later assigned to the Natural Food Corporation.[32] This patent described a method of making cereal biscuits from porous threads of filaments. The process consisted of cooking whole wheat, allowing it to cool and partially dry, and then running it between compression rollers, one of which had a series of fine circumferential grooves from which the product emerged in threadlike form. It then was massed together in biscuit form and toasted. The essential feature of the process was the filamentous character of the fibers, and the original patent was such as to prevent any other firm from making biscuits composed of cereal in such form.

Numerous patents, some of them still in effect, relate to the manufacture of shredded cereal biscuit. None of them, however, is such as to retain for the Shredded Wheat Co. its former control of the manufacturing process. The Kellogg Co. (another cereal firm) began the manufacture of shredded wheat biscuit after the expiration of the Perky patent in 1912, and products of this general type today are made by a number of companies.

Considerable controversy and litigation has developed in recent years regarding the name "Shredded Wheat." In 1927 the Kellogg Co. began the manufacture and sale of an article which it described as shredded wheat biscuit. The Shredded Wheat Co. brought suit against the Kellogg Co., charging that the action of the latter constituted an infringement of its trade-mark. The case was dismissed in 1930, but in 1932 the National Biscuit Co. (which meanwhile had acquired the Shredded Wheat Co.) again brought suit against the Kellogg Co. This case also was dismissed by the district court, but the decision was appealed and finally it reached the Supreme Court. In a decision recently handed down, the Supreme Court found for the defendant, holding that the National Biscuit Co. had no exclusive right to the term "Shredded Wheat" as a trade name.[33] As the matter now stands, the National Biscuit Co. no longer has exclusive control either of the manufacturing process or the name of Shredded Wheat biscuit.

Puffed cereals.

Another form of breakfast cereal is puffed grain, usually wheat or rice. The process for making this cereal, like that for making shredded cereal biscuit, was also covered from the first by patents and was limited for many years to the Quaker Oats Co., which acquired the original patents.

[32] United States patent No. 548,086, issued October 15, 1895, to H. D. Perky.
[33] U. S. Supreme Court, Nos. 2 and 56, October term, 1938.

The basic patent for the process of making puffed cereals (United States patent No. 707,892) was issued to A. P. Anderson in 1902. In 1905 the Quaker Oats Co. formed a subsidiary known as the Anderson Puffed Rice Co. to acquire the right to the above patent. Manufacture of Puffed Wheat and Puffed Rice was immediately begun by the Quaker Oats Co., which firm had exclusive rights to the manufacture of these products during the life of the Anderson patent.

The Anderson patent described a process of treating starch materials under air pressure in a dry air condition and then suddenly reducing the pressure so as to gasify the liquids contained in the starch particles. The resulting product was a dry, porous article, preserving its original shape and substance, but in greatly enlarged form. Grain had previously been subjected to treatment under heat and pressure, but always in a moist condition so that the resultant product was paste-like and unsuitable for eating in that form. The Anderson patent was the first relating to puffed dry cereal, and it described the puffing process in such a way that the operation could not be carried on successfully without the likelihood of patent infringement.

The manufacture of puffed cereals is still done according to the general method described by Anderson, but many improvements have been made in the process and in the machinery for carrying it on. Numerous patents have been issued relative to the process, some of them still in effect. For the most part these later patents relate to machinery, and their effect is not such as greatly to advantage their holders. Puffed cereals are made at the present time by several cereal companies, the original Anderson patents having expired soon after the close of the World War.

Cereal flakes.

A third type of ready-to-serve breakfast food is flaked cereal (corn flakes, Post Toasties, etc.). Products of this type were first placed on the market more than 30 years ago. Earlier methods of manufacture were, of course, patented, but the nature of the patents was not such as to limit manufacture to a single firm for a very long period.

The first patents relating to cereal flakes were issued to J. F. Gent. In 1880 Gent described a process for separating the hulls from corn kernels, steaming the granular product thus obtained, warm-rolling it under pressure so as to flake the cooked grits, and then toasting the flakes.[34] He amplified this general method in another patent obtained in 1887 (United States patent No. 372,065). It is not known to whom Gent's patents were assigned, but if his process was used commercially it was in a very small way.

The next patents—and these were the commercially important ones—were issued to J. H. Kellogg, brother of the founder of the present cereal company of that name. Kellogg's first patent, issued in 1896, applied to the making of dry cereal flakes from whole wheat.[35] He first soaked the grain, then cooked it to the stage where the starch was hydrated (which hydration, he claimed, was very important to the process), rolled the product between cold rollers, and then toasted the flakes thus obtained. His general method was seemingly quite similar to that described by Gent in his patent of 1880. The question of infringement, however, was not involved, because the Gent patent expired shortly after the Kellogg patent was obtained.

[34] United States patent No. 223,847, issued to J. F. Gent in 1880.
[35] United States patent No. 558,393, issued to J. H. Kellogg in 1896.

Corn flakes first were put on the market by the Kellogg Toasted Corn Flakes Co., incorporated in 1906 to manufacture this and similar breakfast cereals. The name of this company subsequently was changed to the Kellogg Co. and is so known today.

The original Kellogg patents apparently were not such as to give it exclusive control of the making of corn flakes because the Postum Cereal Co. began the manufacture of a similar product (Post Toasties) in 1907. However, manufacture of corn flakes was limited largely to these two firms for many years—whether because of patent control or for other reasons, the writer is unable to ascertain.

Several patents relating to the manufacture of corn flakes were taken out by both the Kellogg Co. and the Postum Cereal Co. shortly after the World War.[36] All these patents related to improvements in machinery and methods of manufacture and were in no sense basic to the method itself. Even these later patents have expired, or soon will. Machinery for the manufacture of these or similar cereal products are made by a number of tooling and machine equipment concerns and can be bought by any cereal processor.

Summation of the situation with respect to cereal patents.

It is evident that patent control has been very important in the manufacture of breakfast cereals and has contributed directly to the growth of several of the present leading concerns in this field. Patents never were, and are not now, of much importance to the making of cooked cereals. But for years the manufacture of dry puffed cereals was limited by patent to the Quaker Oats Co., just as the manufacture of shredded cereal biscuit was limited to the Shredded Wheat Co.

Most of the important cereal patents have now expired. Those still in effect relate mostly to details and improvements in the basic processes.

The manufacture of breakfast cereals, especially the ready-to-serve kinds, is still pretty largely concentrated in the hands of a few leading firms. Any legally conferred advantages which such firms might have over other manufacturers, however, inhere largely in their trade-marked brands rather than in the manufacturing process itself. The value of these brands unquestionably is considerable because some of them became household words during the years when few firms had exclusive patent rights to the manufacture of certain cereal products.

FLOUR-MILLING PATENTS

Two technological developments literally revolutionized the flour-milling industry during the latter part of the nineteenth century. The first of these was the roller mill to replace revolving disks for the grinding of grain, and the second was the air-blast purifier. The significance of the roller mill was that it multiplied by many times the capacity of the milling unit and thus contributed directly to the growth of large-scale organization in the milling industry. The air purifier made it possible to make an acceptable flour from spring wheat. The purifier had even more important economic consequences than the roller mill in that it was one of the main factors leading to the subsequent growth of the spring-wheat industry.

[36] U. S. Patents 1,286,766, issued in 1918 to the Postum Co.; 1,321,753 and 1,321,754, issued in 1919 to the Kellogg Co.

The origin of the roller mill goes back at least 100 years and there is some doubt as to who its real inventor was. Edgar[37] believes it to have been a Swiss miller named Helfenburger, who built an experimental mill of this kind as early as 1820. Dedrick[38] credits a Hungarian named Mechwart with the first practicable roller mill in 1830. It is a well-known fact that numerous mills of this kind were in operation in Europe before 1850, although they were crude affairs and it remained largely for American millers to bring them to their present degree of perfection.

The first roller mill in the United States was put into operation at Minneapolis in 1874 by the Geo. H. Christian Co.[39] The rolls were made by an American foundry. Several years later, similar equipment was installed by the G. Washburn and C. A. Pillsbury Cos., both of which were destined later to become leading firms in the industry. The use of the roller mill, however, was not long confined to these companies, and by 1890 was in operation in most of the merchant mills of the country.

The principle of the roller mill—i. e., the grinding of the grain between two revolving rolls rather than between two circular discs—was known long before its introduction into America. The principle itself was therefore not patentable. Many American patents nevertheless were issued regarding improvements in the machinery. Such patents related to methods of adjusting the rolls, types of corrugation on the rolls, and methods of applying power—all of which were important but not basic.

An examination of the United States patent files reveals that many patents relative to roller mills were granted prior to 1890. The names of more than a dozen inventors appear and assignments were made to at least a half dozen manufacturers of milling equipment. In no instance did the milling concerns themselves obtain important patents relating to roller mills.

It is impossible to assess the commercial importance of these roller-mill patents other than to say that none of them was indispensable to the method itself. No single firm appears to have had anything like a monopoly in the manufacture of milling equipment. The rapidity with which the roller mill was installed throughout the country within the short span of a few years indicates that it was freely available to all millers who wished to purchase it. No patents of any consequence remain in effect regarding such machinery at the present time.

The air purifier.

The patent history of the air purifier, however, was greatly different from that of the roller mill. While not such as to limit or withhold the process from use by millers, patent control played a much more important role and appears to have led to a serious miscarriage of justice in this case.

For many centuries millers had followed the practice of separating the flour from the outer layers of the grain by means of cloth sieves, a process commonly known as bolting. The method worked reasonably well for the hard wheats, but was not very successful for the soft varieties. The air purifier was simply a method of separating the

[37] Wm. C. Edgar, The Story of a Grain of Wheat, D. Appleton & Co., New York, 1903, p. 166.
[38] B. W. Dedrick, Practical Milling, 1st ed., National Miller, Chicago, 1934, p. 97.
[39] Cf. H. A. Bellows, A Short History of Flour Milling, the Miller Publishing Co., Minneapolis, 1924, pp. 37–38.

flour from the bran particles by means of an air current used in conjunction with the bolting process. The key to the new process was the application of air which, if patentable, was obviously destined to give the patentee important rights.

The originator of the idea for an air purifier is commonly conceded to have been a Frenchman named Perrigault, who patented a crude machine of this kind in France as early as 1860. But apparently no commercial use was made of this machine either in France or elsewhere until more than 10 years later.

The first successful air purifier was built for a small Minneapolis mill in 1870 by a Frenchman named E. N. LaCroix. To him certainly goes the credit for introducing the idea in America, as well as for building the first practicable machine. LaCroix appears to have been more interested in perfecting and operating his machine than in securing patents for it. For whatever the reason, he made no move in this direction for several years.

Employed in the same mill as LaCroix was another workman named G. T. Smith who perceived the commercial possibilities of the former's machine. Smith accordingly applied for and was issued a patent on an air purifier under date of April 1, 1873. His patent (U. S. Patent No. 137,495) was basic in that it covered the use of an air blast in separating flour from wheat middlings. He claimed "* * * the process of manufacturing flour from middlings by subjecting them to successive grindings, boltings, and purification by currents of air * * *." The terms of the grant obviously were broad.

LaCroix then hastened to secure patents on his own machine, but too late. He received his first patent on June 3, 1873, just about two months after the Smith patent issued.

Meanwhile, Smith lost no time in interesting capital in the manufacture of an air purifier and had gone actively into the business. In 1878 the Smith Middlings Purifier Co. was formed. This company, of course, had Smith's patents and moved immediately to obtain a monopoly in its field by getting control of all similar patents. To this end, it brought infringement suit against all flour millers using purifying machines other than those made by itself, of which there were by this time some thousands. To defend themselves against the suit by the Smith Co., the millers formed an organization and reputedly spent more than $100,000 in litigation costs.

The whole matter finally was settled out of court by compromise According to the terms of the "compromise," the Smith Co. dropped its suit against the millers, in return for which they agreed not to purchase any purifiers other than those made by the Smith Co. This, of course, gave the Smith Co. a virtual monopoly over the manufacture of purifying machines, which it enjoyed for about 10 years. How much this added to the cost of milling machinery it is impossible to say, but Edgar [40] says the Smith Co. made "immense sums" during the life of its patents.

Patent control is of no particular importance in the flour milling industry today. All of the earlier patents have expired, and those which remain in effect relate only to minor improvements in milling machinery. Even these patents are held by manufacturers of milling equipment and supplies rather than by milling concerns themselves, so that any patented improvements are available to all millers alike.

[40] Edgar, op. cit., p. 160.

In recent years the manufacturers of milling equipment have made great progress in improving the machinery and mechanizing the operations of the small mill, so that mills of this type are relatively less disadvantaged than they were 10 or 20 years ago.

PATENT CONTROL IN OTHER FOOD LINES

In none of the other major food lines have patents been so important commercially as in the four fields already described. It will nevertheless be of interest to summarize the situation briefly for the other major food industries. In doing so, the writer has not attempted to examine the patent files as carefully as was done in the previous cases and has been forced to rely mainly on general sources and the opinions of those more familiar with food-processing techniques.

Meat packing.

Patents are not, and never have been, of great importance in the slaughtering, preparation, and curing of meat. Even in the modern slaughterhouse, most of the work is necessarily done by hand. Many mechanical aids have been introduced in the course of the years, but such equipment is not manufactured by the meat packers themselves, and all packers have equal access to it.

The outstanding development of the past century in the handling of fresh meats was artificial refrigeration. The role of this development in centralizing the meat industry was described in an earlier chapter of this study. Our concern with it here is in connection with the topic of patent control.

The first important American patents relating to artificial refrigeration issued soon after 1850. Most of these patents were taken out by scientists and professional inventors having no connection with the meat-packing industry.[41] Usually they were assigned to manufacturers of refrigerating equipment. One of the few meat packers to hold patents relating to refrigeration was T. D. Kingan, founder of the present company of that name. His patents, however, were of little consequence in the growth and development of his meat-packing business.

One of the products connected with the meat-packing industry for which patents have been quite important is oleomargarine. The packers themselves, however, never controlled the basic patents for this product. As a matter of fact, they were sued on several occasions by holders of such patents who charged infringement.[42]

There are literally hundreds of packing-house byproducts, and many patents relate to them. However, the more important of these products—tankage, bone products, soap, gelatin, glue, etc.—are processed by the packers according to methods in general use throughout the industry to which no exclusive patents apply.

Among the newer types of packing-house byproducts are the pharmaceuticals made from the glands and membranes of livestock. All of the larger packers are conducting extensive research relative to the use and methods of obtaining such products. Numerous patents pertaining to pharmaceuticals of this kind are to be found in the Patent Office, many of them assigned to the meat packers. How important these may be it is impossible to say, but the products themselves

[41] R. A. Clemen, The American Livestock and Meat Industry, the Ronald Press Co., New York, 1923, pp. 216–218.
[42] Ibid., p. 359.

represent only a fractional percent of the total value of livestock products.

The preservation of food in metal containers.

Food processors engaged directly in the business of putting food products into tin cans have no patents worthy of mention. The making of metal food containers is largely centralized today in the hands of two firms—the American Can Co. and the Continental Can Co. These two firms sell the cans to the food processors and rent them machinery for the filling and closing of the cans.

The tin can itself has been in use for many years, and there are no basic patent rights to its manufacture. A recent innovation of some importance in can manufacture is the treating of the inside of the can with lacquers so as to insure better preservation of certain food products. Methods of doing this, of which there are several, are patented by the two leading can companies. As would be expected in an industry so highly centralized as can manufacture, most patents pertaining to metal containers are assigned to one or the other of these two companies. Patent control, however, does not appear to be an important element in the present position of either one.

Patents owned by General Foods and Standard Brands.

The two food concerns which today possess patents of the greatest aggregate value of any in the food industries are the General Foods Corporation and Standard Brands, Inc. Both these firms handle a wide variety of products, many of them made by special patented methods. It was mainly to obtain control of their patents and trademarks that some of the subsidiaries of these two concerns were acquired.

Among the General Foods patents are those pertaining to the Birdseye process of quick freezing which have already been described. The Postum Co., holder of some of the breakfast-cereal patents discussed earlier, is also a subsidiary of the General Foods Corporation. Another important group of patents held by this concern relates to the packing of certain foods in vacuo (the so-called Vitapack process).

Listed among the subsidiaries of General Foods is also the Sperti Lamp Co., and General Development Laboratories, both classified as patent-owning units.

Patents held by Standard Brands, Inc., probably are not less valuable than those of General Foods. There is of course no way of assessing the actual value of such patents to either firm, but the following figures for Standard Brands, Inc., relative to income from royalties are of some interest in this connection.[43]

TABLE 39.—*Income from royalties for Standard Brands, Inc., 1935–37*

Year	From subsidiaries of the patent company	From other firms
1935	$337,766	$121,922
1936	368,912	122,977
1937	464,224	133,171

Compiled from reports of the corporation filed with the Securities and Exchange Commission Washington, D. C.

[43] This corporation is one of the few whose financial reports to the Securities and Exchange Commission are such that the income from patent royalties is shown separately.

The figures in the first column of the above table arise out of the fact that the patents owned by Standard Brands (a holding company) are leased on a royalty basis to its subsidiaries which do the actual manufacture of the products. These royalties, amounting to nearly half a million dollars, thus represent an intracorporation transfer of funds which may or may not be an accurate measure of the value of the patents but at least give some rough idea of it.

The second column shows the revenue derived from royalties paid by outside firms using processes patented by Standard Brands. Such royalties (around $133,000 in 1937) are not large in relation to the operating income of the company, but it must be remembered that income derived from this source is net in that it involves no direct expense outlay.

CONCLUSIONS: REVISION OF PATENT LAW AND PROCEDURE

It is evident from the foregoing discussion that technological innovation has been, and will probably continue to be, a factor of no little moment in the food industries. Because most of the basic methods of food processing and preparation have been known for centuries, it may seem strange at first thought that this is true. On the whole, fewer innovations have been made in the food industries than in many other fields where science and invention have played a more spectacular part in recent years. But the fact is sometimes lost sight of that many of the foods which we eat today were unknown two generations ago, and that changes of great commercial importance have recently taken place even in the basic methods of processing and preserving food products.

The outstanding fact developed by our inquiry into food patents is that most of the important ones are held today by the larger food corporations. In several cases the origin and present position of some of these firms can be traced directly to certain basic patents which they possessed. Outstanding examples of this are to be found in the dairy industry and among manufacturers of breakfast cereals. Many of the older basic patents have long since expired, but some of the advantages which they once gave their holders still inhere by reason of established brands and trade connections which patent control helped to make possible.

It would be a mistake to conclude that patent control has been the major factor, or even one of the primary ones, in bringing about the general growth of large-scale organization in the food industries. As we have seen, there are some food lines in which patents never have been important and there are many large food concerns which at no time in their existence possessed any valuable patents. The point is that most of the key patents in the food industries are now held by the larger food corporations. Whatever commercial advantages may arise out of patent control in this field are likely therefore to go mainly to the organizations of this kind.

The reasons for this are obvious. Most of the commercial research being done today is carried on in the laboratories of the larger corporate concerns. Small firms have neither the funds nor the facilities for work of this kind. When patents of potential value are taken out by unaffiliated individuals, they usually are acquired by corporations interested in the particular process involved. The chief excep-

tions to this general statement are the public patents granted on the basis of research done by public agencies.

The patent system of the United States originally was set up to benefit the public by advancing the useful arts and it unquestionably has contributed to this end. The framers of these early laws, however, could not foresee how they might operate in an economy of large-scale enterprise. The original intent was to encourage the individual inventor by giving him exclusive rights to the use of his discovery for a period of 17 years. Modern science and discovery, however, is no longer individualistic. Most of the important technological innovations are made today by scientists and engineers employed by industrial concerns. The benefits of the patent privilege accrue not directly to these individuals, but to the firm which employs them.

It is properly contended that some form of patent privilege is necessary to encourage industrial concerns to devote funds to the research from which progress comes. But it is also true that the patent system has certain abuses and shortcomings as it now operates, and that some of these might be obviated without destroying the incentives to technological advancement.

The charge most commonly brought against the patent system is that it sometimes results in the public being deprived of the full benefits of new techniques because patents are "salted away," or because their application is limited to a single firm which has what amounts to a monopoly. There is not much evidence of important food patents being "salted," but many of them have tended to limit the application of new methods to one or a few firms.

The first suggestion for improvement in this respect is the voluntary patent pool. A patent pool is simply an agreement on the part of a number of competing firms to grant each other the use of their respective patented processes. Such a pool has been operated for years by the leading automobile manufacturers, and unquestionably has had the salutary effect of bringing engineering improvements into immediate and general use throughout the industry.

Patent pools, however, are not to be found in the food industries, and it is doubtful if they ever will be. Most of the food industries are comprised of a few large firms and many small ones. The small firms, having little or nothing to contribute to a patent pool, could hardly expect to share in the benefits of one. For example, the large dairy firms, which now have most of the important dairy patents, conceivably might form a patent pool among themselves. But it is quite improbable that they would extend voluntarily the use of their patented processes to all who chose to apply them. Probably any significant change in the present situation will have to come therefore through some change in the patent laws themselves.

The first major point of issue is the length of the patent period, now fixed by law at 17 years. At one time a period of this length might have been necessary to enable an inventor to perfect his discovery, interest capital in its development, and derive a just measure of compensation from it. But this situation scarcely can be said to obtain today. What might be called economic tempo is much faster in our time than it once was. The progress of research and discovery is so rapid that an individual inventor hardly can expect to hold an important process secret and develop it privately in any circumstance.

Moreover, new processes can be perfected and new products put on the market almost overnight, particularly by the large going concerns to whom most important patents now issue. No one can say with certainty, but probably a much shorter period than 17 years now would suffice to maintain the incentive for research and progress. In this connection, the Science Advisory Board in a special memorandum on patent reform has this to say:

> The justification for the extension in a democratic country of an absolute monopoly to an inventor for 17 years, on the basis that this is a reasonable reward for his disclosure * * * no longer applies generally.[44]

A second suggestion for revision of the patent system pertains to the greater equality of access to patented processes. As the patent system now operates, the patentee may retain the sole use of his process, or he may allow others to use it on a royalty basis. If he follows the latter course, the patentee exercises sole discretion in naming the parties to whom he will lease his process, and determines with them the royalties to be paid. In our examination of food patents, we have seen that holders of important patented processes usually did not lease rights to other firms, although in some cases this was done to a limited extent.

Two things might be done to insure greater equality of access to patented processes: One would be to provide for the compulsory licensing of all patents so that they could be used by parties other than the patentee, presumably on some royalty basis. Obviously this is drastic in its implication and goes directly to the heart of the present system.

Less drastic is the proposal that, if a patentee chooses to lease his process, it be offered on equal terms to anyone who wishes to use it. The purpose of this would be to prevent a few favored lessees, who had nothing to do with developing the process, from enjoying advantages not equally available to all enterprisers. A necessary corollary to this proposal would be to provide for some degree of governmental supervision over the terms and conditions of royalty payments.

Anyone having occasion to examine patents relating to the food industries cannot but be struck by the trivial nature of many of them. Most such patents are of no particular consequence one way or the other, except as they burden the staff of the patent office and cause some degree of inconvenience to processors who must take care not to infringe on them.

In a few cases, however, comparatively simple innovations have been patented in such a way as to insure for the patentee virtual control over important food processes. For instance, the processed cheese patents hinged on the mere cooking of natural cheese, and the shredded biscuit patent on the filamentary fiber. Neither could be classed as a major contribution to the science and technique of food processing and there were several methods other than those patented for doing substantially the same things. Yet the terms of the patent grant were such as to insure the patentees virtual control over their respective lines of food manufacture for 17 years.

Situations of this kind prompt the suggestion that two types of patent grants might be made—the first, to cover new techniques of a

[44] Second Report of the Science Advisory Board, Washington, D. C., September 1935, p. 333.

major character; and the second, those of minor or secondary importance. Some inventions are of a sort that large and perhaps perilous expenditures are required if they are to be developed commercially. Cases of this kind ought obviously to have more patent protection than trivial innovations relating to methods and processes which are already in general use. Certainly there will be general agreement that the patent right should not—as has sometimes been the case—defeat the very purpose for which it was intended, namely, that of encouraging not only the discovery but the use of new and improved production methods.

CHAPTER XIV

LEGISLATIVE AND JUDICIAL POLICY [1]

Legislation affecting large-scale organization in the food industries has been of three general types: (1) The Sherman Act and related legislation designed to preserve competition; (2) price laws affecting the terms upon which commodities may be bought and sold (notably the Robinson-Patman Act and the so-called "fair-trade" laws); and (3) punitive taxation, as exemplified by State chain-store taxes.

Our treatment of these three topics in the present chapter necessarily will be somewhat cursory. The general status of the food industries under the Sherman Act and the charges made against them on the grounds of monopoly and restraint of trade have been dealt with at some length in earlier chapters. At this point we shall concern ourselves only with the broad outlines of public policy.

Price maintenance legislation and punitive taxation are comparatively recent developments so far as the food industries are concerned. It is too soon either to predict their ultimate course or to appraise their economic consequences. It is probably correct to say, however, that legislation of this sort will exert more influence over the type and scale of food distribution in the next several decades than the older antitrust laws ever have done.

THE BROAD OUTLINES OF PUBLIC POLICY TOWARD BIG BUSINESS

Legislative policy with respect to the size of business enterprise in the United States first was laid down by the Sherman Act, passed in 1890. The objective of this act was the preservation of competitive enterprise. Its central provision was to declare illegal "every contract, combination in the form of trust, or otherwise, or conspiracy, in restraint of trade or commerce * * *" Subsequent legislation has modified the form, but not the objective, of the Sherman Act.

It is important to note at the outset that the Sherman Act was passed primarily for the protection of the public rather than for the special benefit of the small enterpriser. While the complaints of the latter undoubtedly weighed heavily with the legislators, their main concern was to protect users and consumers of goods and services against exorbitant profits and undue price enhancement by the monopolist.[2] Certainly this was uppermost in the mind of Senator Sherman, whose objective seems to have been much different from that of some recent legislators whose purpose is only to aid small firms in lines of industry which are admittedly competitive.

Since the passage of the Sherman Act, Congress has passed several pieces of legislation designed to augment or supplement its provisions.

[1] This chapter was written in the latter part of 1938. Since that time there have been important developments, particularly in the interpretation of the Robinson-Patman Act, which are not discussed in this study.

[2] O. W. Knauth, The Policy of the United States Toward Industrial Monopoly, Columbia University Press, 1914, pp. 13–42.

Most important of these was the Clayton Act of 1914. In this legislation Congress undertook to spell out a little more clearly what it meant by the term "restraint of trade" and to lay down certain further principles regarding corporate amalgamation. The Clayton Act specifically forbade any corporation engaged in interstate commerce from acquiring or holding any part of the capital stock of a competing corporation "where the effect of such acquisition was to substantially lessen competition between the corporation whose stock was so acquired and the corporation making the acquisition * * *" This still left opportunity, as we shall see, for varying judicial interpretation, but it was at least somewhat more specific than the Sherman Act itself.

A further provision of the Clayton Act forbade price discrimination to different buyers not based on differences in selling costs, or the effect of which was substantially to lessen competition and create monopoly. The act did not compel a one-price policy, and it left to the courts the problem of deciding when competition was "substantially lessened." This provision as to price discrimination received very little attention, and until recent years it was practically a "dead letter." It is important mainly as a precedent for recent price legislation, notably the Robinson-Patman Act.

For more than 20 years after the passage of the Clayton Act, Congress enacted no important antitrust legislation, and until the last few years did not appear greatly concerned about the problem. Judicial interpretation of the older legislation during these years was such that businessmen felt reasonably free to proceed with the formation of large enterprises. Indeed the basic principle of the antitrust legislation; i. e., the preservation of competition, was abandoned temporarily by Congress itself when it passed the National Recovery Act at the outset of the "New Deal."

Judicial interpretation of antitrust legislation.

The most interesting aspect of our antitrust laws has not been the legislation itself, but the judicial interpretation made of it. Violations of both the Sherman Act and the Clayton Act are, of course, subject to the jurisdiction of the courts. As the matter actually has worked out, it has been the courts and not Congress which have determined our public policy with respect to corporate development during the last two generations.

The first case to reach the Supreme Court under the Sherman Act was the *Knight case* of 1895. This case involved the American Sugar Refining Co., which was charged with having violated the law by the acquisition of four independent refineries. Despite the fact that the American Sugar Co. had almost complete control of sugar refining at that time, the Court held that it had not violated the Sherman Act and found for the defendants. Its ruling turned on a technicality, but it was nevertheless interpreted to mean that corporate mergers were largely exempt from the provisions of the Sherman Act. Businessmen went ahead largely on that assumption for the next 10 years.

The next case to come before the Court was the *Northern Securities case* of 1904. The complaint of the Government involved a holding company which reportedly had been organized by financial interests for the purpose of controlling the operations of several competing railroads.

This time the Court completely reversed itself and found for the Government. The ruling was such as to imply that practically any merger of previously competing firms was in contravention to the Sherman Act.

Meanwhile other cases were moving through the lower courts and were being decided against the defendants on the basis of the *Northern Securities case*. Two of these—*The Standard Oil Co. case* and the *American Tobacco Co. case*—finally reached the Supreme Court in 1911. And again the Court changed its interpretation of the Sherman Act, this time applying the so-called "rule of reason."

The "rule of reason" as applied by the Court meant simply that corporate consolidations per se were not necessarily unlawful under the Sherman Act, but that they might become so when their intent was to monopolize trade or to restrain competition. This the Court sought to determine on the basis of numerous indications such as the proportion of the total business controlled, the policies and trade practices of the purported monopolist, any evidence of exorbitant profits or prices, and any other factors the court chose to consider.

In the years since 1911, numerous other cases have been brought before the Supreme Court under the Sherman Act, to all of which the Court has sought to apply its "rule of reason." [3] Its decisions have varied somewhat, but on the whole they have been such as to encourage business men to go ahead with the formation of any enterprise calculated to show any operating advantages, and with some which did not.

It has become the fashion nowadays to censure the Supreme Court for its wavering and contradictory interpretation of the Sherman Act. Jerome Frank suggests that while a member of the Court rarely, if ever, changes his mind, the Court does change its membership.[4] Quite properly he calls attention to the fact that the Court's decisions in questions of this kind sometimes are determined by the economic and political preconceptions of its members.

But the explanation is hardly so simple as that. The truth is that the Court could not, and cannot yet, make up its mind unanimously, consistently, and irrevocably whether big business is good or bad. When it undertook to interpret the antitrust laws it was confronted with all the perplexities of the problem which Congress should have, but usually did not, take into account. If its policy has been wavering and uncertain, it is because the Court has wrestled with problems in connection with the rise of big business which even now are not fully appreciated by some of the Court's critics.

Legislation to control rather than dissolve big business.

Two general lines of action are open to the public when it is confronted with monopoly; one is to dissolve it as the antitrust legislation was intended to do, and the other is to regulate or control it. We have just reviewed briefly the legislation and judicial procedure under the first line of action. This has been the dominant policy of the American people since the rise of big business in this country, but there have been also some elements of the second.

In the course of the last generation, Congress abandoned the idea of trying to preserve competition in some industries and enacted legislation giving them public-utility status. Among the first laws of this

[3] For a more complete discussion of some of these cases, see National Industrial Conference Board, "Mergers and the Law," ch. III.

[4] Jerome Frank, Law and the Modern Mind, Tudor Publishing Co., New York, 1936, p. 23.

kind was the Shipping Act of 1916. This act specifically relieved steamship lines from the provisions of the Sherman Act, and permitted them jointly and under governmental supervision to do certain things theretofore prohibited. In the interest of more efficient and orderly operation, the steamship lines were allowed to operate pools for the apportioning of traffic, fix rates, allot ports, and pool earnings. All their action along these lines, of course, was made subject to governmental approval through the United States Shipping Board.

Next to be freed from the provisions of the Sherman Act were corporations or associations engaged exclusively in foreign trade. The Webb-Pomerene Act of 1918 and the Merchant Marine Act of 1920 extended to such firms privileges similar to those granted the steamship lines under the Shipping Act.

The most signal exemption from antitrust legislation granted up to that time was given to the railroads by the Transportation Act of 1920.[5] This legislation specifically authorized the railroad companies to consolidate control of lines which theretofore had been in competition. It was a complete reversal of the earlier policy of trying to maintain competition in this industry. The railroad problem is today as acute as it ever was, but a return to competition is not even considered as the solution.

Many other pieces of legislation designed to regulate monopolistic elements in industry and commerce are on State and Federal statute books. Most important of these are, of course, the various State laws for the regulation of public utilities. In this field competition is clearly impossible and public policy literally has been forced in the direction of regulation. But it is a policy which the people have been loath to adopt, and which applies today in only a comparatively small sector of the economy.

THE ROBINSON-PATMAN ACT

The main purpose of the antitrust laws was to protect the public against undue price enhancement by purported monopolists. Recently, however, we have had a series of State and Federal laws, the purpose of which is not to reduce prices but to prevent what is termed unfair price cutting.

At first thought these two types of legislation appear to be flatly contradictory in purpose. Actually, however, there is no real contradiction and the explanation of the paradox is simple enough. Price-maintenance laws of whatever type are designed primarily to protect the regular marketing channels against the inroads of the mass distributor by depriving the latter of the weapon of price cutting by which he is presumed to destroy competition and unfairly injure his smaller competitors. The method is different but the end is the same. Both types of legislation look toward the preservation of competition in its old forms—the antitrust laws, by the dissolution of the monopolistic elements; and the price-maintenance laws, by curbing the growth of large-scale organization. If this appears to be an oversimplification of the matter, it is because proponents of price-maintenance laws have not always been wholly candid as to their real purpose.

[5] Act of February 28, 1920, 41 Stat. 80, U. S. Code, title 49, ch. I, sec. 5.

Provisions of the Robinson-Patman Act.

Most important of the price-maintenance laws, so far as the food industries are concerned, is the Robinson-Patman Act. This act, passed in 1936, is an amendment to section 2 of the Clayton Act of 1914, which in turn was a supplement to the Sherman Act. In the main, it represents an effort to clarify certain provisions with respect to price discrimination, which in the older laws had been practically a "dead letter."

Section 2 of the Clayton Act contained the following provision:

* * * it shall be unlawful for any person engaged in commerce * * * to discriminate in price between different purchasers of commodities * * * where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly * * * Provided, That nothing herein contained shall prevent discrimination in price between purchasers on account of differences in the grade, quality, or quantity of the commodities sold, or that makes only due allowance for differences in the cost of selling * * * [6]

Obviously this provision of the Clayton Act was a loose one. It did not compel a one-price policy and it did not seek to define, except in the vaguest of terms, either the limits of price discrimination or the rules by which businessmen were to be guided in this matter. The problem of deciding whether or not price discrimination had been carried to the point where competition was "substantially lessened" was left, of course, to the courts. In its interpretation of this provision, the Supreme Court limited its application even further by holding until 1929 that it was not meant to apply to competition between buyers.[7] This of course exempted the grocery chains from indictment while this ruling held. Under the circumstances, it is not to be wondered at that businessmen paid little attention to this part of the Clayton Act and continued to operate as though it were not on the statute books.

The Robinson-Patman Act was intended to clarify this situation and to set forth specifically the terms and conditions upon which price differentials, quantity discounts, and rebates of one kind or another are legitimate. Like the Clayton Act, it forbids these practices where their effect is substantially to lessen competition or create a monopoly. But it also goes further than this and forbids price discrimination when it may work to the injury of a competitor, either of the seller or of the buyer. What this added provision of the law does is to include protection to a firm which is discriminated against, even though the effect may not be such as to limit competition in a broad sense. In other words, two standards of judgment are to be applied to price discrimination: (1) Does it unduly restrain competition? (2) Is it fair as between individual competitors?

The law does not prohibit price differentials per se. It permits the granting and receiving of quantity discounts and similar allowances, provided that they are limited to actual savings in cost of manufacturing, selling, or delivering. And provided also that they are available on an equitable basis to all firms dealing under like conditions. The Federal Trade Commission is empowered to make determinations as to cost differences and, on the basis of these determinations, to set limits for price differentials.

[6] The Clayton Act, Public, No. 212, 63d Cong., sec. 2

[7] *Mennen* v. *Fed. Trade Comm.* (288 Fed. 774). This decision was reversed, however, by a decision handed down in 1929 (*Van Camp* v. *American Can Co.* (278 U. S. 245)).

The sponsors of the Robinson-Patman Act were interested primarily in preventing the mass distributor's underselling independents in the retail market; and this was to be accomplished by limiting the buying advantages which large-scale, integrated distributors hitherto had enjoyed. Whether or not the objectives of the sponsors are legitimate depends on whether or not the buying advantages of the mass distributor are legitimate.

There can be nothing but condemnation for price discrimination not based on cost differences or efficiency factors. And there can be no objection to doing away with much of the secrecy and subterfuge surrounding business dealings in matters of this kind. But to use legislation as a means of preserving a particular type of marketing organization or to thwart the growth of a different type is a questionable purpose.

The terminology of the Robinson-Patman Act is not necessarily subject to criticism on the latter grounds. The important thing is how it will be administered by the Federal Trade Commission and interpreted by the Supreme Court. Policy with respect to this has not yet been fully clarified, but on the basis of the limited experience to date there are some indications of what it is likely to be. It is to this which we now turn.

Present administrative interpretation.

Some indication of the way in which the Federal Trade Commission intends to interpret the Robinson-Patman Act may be obtained from two cases involving food concerns. The first of these was an order against the Biddle Purchasing Co., a brokerage agent for a number of grocery wholesalers and voluntary grocery chains; and the second was an order against the Great Atlantic & Pacific Tea Co.

The Biddle Purchasing Co. was engaged in the business of selling a market-information service and also in purchasing supplies for wholesalers and distributors throughout the country. Its practice was to charge the manufacturers and processors from whom it purchased a brokerage fee which it remitted in full or in part to the buyers of the commodities involved. The Federal Trade Commission charged that this was a violation of section 2 (c) of the Robinson-Patman Act, which forbids the granting or receiving of commission or brokerage fees to or from any intermediary acting in behalf of either the buyer or the seller. It contended that the Biddle Purchasing Co. was acting as the buyers' agent in this case, and hence was not providing a bona fide brokerage service. On that ground it ordered the Biddle Co. to cease the practice of receiving and granting a commission for its services, and this order was sustained by the United States circuit court of appeals.[8]

The significance of the *Biddle case* lies in its definition of a bona fide broker. No agent having any connection whatsoever, either with the buyer or seller, according to present interpretation, is entitled to receive a fee or commission for its services. Obviously this precludes the deduction of a brokerage fee from the purchase price by a buying subsidiary of a corporate grocery chain.

More instructive and far-reaching in its implications was the case involving the Great Atlantic & Pacific Tea Co. Prior to the passage of the Robinson-Patman Act the Tea Co. received rebates in lieu of

[8] United States Circuit Court of Appeals, Second District, *Biddle Purchasing Co. et al.* v. *Federal Trade Commission*, May 2, 1938. On October 17, 1938, the Supreme Court denied a petition for writ of certiorari.

brokerage from many firms from which it bought goods. It was in a position to obtain these rebates because it purchased directly from the food processor, who was thus saved the brokerage fees he had to pay when selling through the regular channels. After the passage of the Robinson-Patman Act the Tea Co. followed the practice of asking for quantity discounts equal to the brokerage rebates it formerly had received. Testimony before the Federal Trade Commission indicated that this arrangement was satisfactory to the sellers and that such sellers granted the same terms to other buyers who purchased in like quantities and under similar conditions.

The Commission nevertheless held that this practice was in violation of the Robinson-Patman Act on the grounds that the buying agents for the Atlantic & Pacific Tea Co. were not bona fide brokers and that the company hence was not entitled to receive any discount in any form for their services. It forbade the company from "making purchases of commodities * * * at a so-called net price, and every other price which reflects a deduction arrived at by deducting * * * any amount representing brokerage currently being paid by sellers * * *." Respondent has appealed from the order to the United States Circuit Court of Appeals, but a ruling has not yet been handed down.

What this ruling actually does is to fortify, at least temporarily, the position of the specialized middleman in food distribution. If the mass distributor is not entitled to receive brokerage fees on his direct purchases (or a discount in price equal to such brokerage), then obviously he has no incentive to go around the regular channels and deal directly with farmers and processors. If there were no other alternative, then the effect of the Robinson-Patman Act indeed would be to reinsert the specialized middleman into the system of mass distribution, a position from which the economics of the situation would tend to eliminate him.

But it is by no means certain that the final outcome of the Robinson-Patman Act, whatever the interpretation placed on it, will benefit greatly either the specialized middleman or the independent food retailer. Under the terms of the present act, a seller could not be indicted for violation if he should sell all his output to one buyer, such as a chain system. The result, then, is likely to be that processors and sellers of food products will divide themselves sharply into two groups—those who sell all their output to the mass distributors, and those who sell none to them. There is evidence that this trend is already under way. Obviously such a situation would have many disadvantages, even for the handlers in the regular food channels whom the Act was intended to assist. The line of demarcation between the two systems of distribution would be further accentuated, sellers would be limited in their outlets and buyers hampered in their sources of supply. And still more contractual rigidity would be injected into a situation which already has too much of it.

What the chains are likely to do probably will depend on the terms they can obtain from processors and handlers on direct purchases. Their organization is such in many cases that they have no need for the services of an independent broker or wholesaler, and they will not pay willingly for the services of such agents. If they cannot obtain, because of the Robinson-Patman Act, what they believe to be satisfactory price terms from food processors they will have more incentive

than ever to acquire or merge with the independent processors from whom they formerly purchased their goods. Such an outcome would be contrary to the very purpose for which the law was intended.

RESALE PRICE MAINTENANCE

Another form of price legislation is that represented by the resale price-maintenance laws (sometimes referred to as "fair trade laws"). Laws of this type pertain to the right of a manufacturer to specify the price at which his goods are to be sold by retailers and wholesalers. Forty-two states now have laws of this kind, most of them passed within the last 2 years. In 1937, Federal legislation (the Tydings-Miller "rider" to the District of Columbia Appropriation bill) also was passed. This "rider" permitted manufacturers to make resale price-fixing contracts with distributors in all States having fair trade laws, without fear of violating the Federal antitrust laws.

The chief purpose of such laws, like that of the Robinson-Patman Act, is to help the independent retailer meet the competition of chain systems. The fair-trade laws are justified sometimes on the ground that they are necessary to protect the manufacturer from having his product made a "price football." It is true that such laws have had the support of some manufacturers, who in a few instances may benefit from them. But the most ardent supporters of the fair-trade laws have been the associations of independent retailers, just as the chief opponents have been the chains.[9]

The first fair-trade law was passed by California more than 30 years ago. The law declared it to be an infringement of a copyright or patent to sell an article at a price other than that stipulated by the manufacturer, if he chose to stipulate one. In a decision handed down in 1908, the Supreme Court held that this restriction as to resale price could not validly be made.[10] In another decision several years later, the Court declared that a system of contracts between manufacturers and distributors regarding the price at which articles were to be sold was in violation of the antitrust laws.[11]

Efforts to pass resale-price-maintenance laws were made intermittently during the next 20 years, but without much success. Then in 1936 the Supreme Court validated a fair-trade law passed by California in 1931. On the basis of that decision nearly every State in the country has rushed forward in the last 2 years to pass similar legislation.

Because it has become the model for most legislation of its kind, the California law [12] is of particular interest. Originally it provided only that a manufacturer could draw contracts with distributors specifying the price at which his article could be sold at retail. Naturally a price cutter would refuse to enter into such a contract, so that the law as first passed was virtually a "dead letter." It then was amended to provide that a price contract drawn by a manufacturer was binding upon all distributors regardless of whether or not they were themselves parties to such a contract. By making a contract with a single retailer,

[9] Sumner S. Kittelle. The Fair Trade Decision and the Growth of Resale Price Maintenance Legislation, p. 11. (Reprint of an article appearing in George Washington University Law Review in November 1937).

[10] 210 U. S. 339, 28 Sup. Ct. 752 (1908).

[11] 220 U. S. 373, 31 Sup. Ct. 376 (1911).

[12] Calif. stat. 1931, c. 278, as amended in 1933 by Stat., c. 260.

a manufacturer thus could fix the price at which all others would have to handle his product.

In upholding the California law, the Supreme Court passed over most of the important issues which its opponents thought were involved.[13] The latter contended that it constituted price fixing in an industry not affected with a public interest, that it deprived of their constitutional rights retailers who had not entered into specific price contracts, and that it went beyond what was reasonably necessary to prevent harmful price cutting. The Court, however, did not question the essential reasonableness of the law. Neither did it raise objection to the power of a State legislature to engage in this kind of price fixing nor to delegate to a manufacturer the power to fix prices. It justified its decision mainly on the ground that the statute sought to protect the manufacturer in the enjoyment of the goodwill inhering in his brand or trade-mark, and that to do so was a proper legislative function.

Thus far few food processors have attempted to fix the retail price of their products. There are several very good reasons why they have not. One is that consumers probably would be quick to shift to other brands if the price of any one brand was inordinately high. Moreover, there is probably the fear in the minds of some processors that the grocery chains, which have consistently fought resale-price maintenance, would refuse to push an article sold under its terms. As a matter of fact, the chains might even welcome resale-price maintenance on nationally advertised products as a means of increasing the sale of their private brands. In this event the fair-trade laws, like the Robinson-Patman Act, probably would prove a boomerang to the very groups most active in sponsoring them.

Equalizing prices in different types of retail outlets.

A recent legal development vitally affecting food distribution is the attempted use of the fair-trade laws to equalize prices in different types of retail stores. During the course of the last few years most of the larger grocery chains have converted many of their small retail units into large supermarkets, featuring self-service and lower prices to consumers. Some of them have instituted the practice of pricing their goods in these supermarkets below those in their regular stores, claiming that the difference in prices represented the difference in retail costs.

Recently, however, this practice has been challenged under the fair-trade laws of several States. The charge against the chains was that the practice was being used to injure their competitors and to lessen or destroy competition. Thus far three States (Minnesota, Kansas, and California) have sought to enjoin food chains from having two sets of prices in their retail units located within the same trade area.

Whether or not the fair-trade laws can be used to equalize prices in this way is not yet definitely known. None of the three cases mentioned above has reached the Supreme Court. Only one of them has reached a Federal district court, and in this case the court held that the fair-trade laws could not be used to equalize prices in this fashion.

[13] 299 U. S. 198, 57 Sup. Ct. 139 (1936).

The opinion of the court in the Minnesota case expresses so succintly the view of the writer in this matter that he can do no better than quote from it: [14]

Differentials in prices justified by differences in selling costs at different stores have not heretofore been considered as iniquitous, wrongful or unfair, nor as having any tendency to destroy competition or foster monopoly. In fact, such price differentials have been regarded as beneficial to the public and not harmful to anyone; and, even though they may affect competition, they cannot be considered as the evil which the Legislature was seeking to stamp out. The effect upon competition of differences in prices honestly based on differences in selling costs is the normal and natural result of fair competition between merchants whose overhead expenses differ. This type of competition is to be encouraged in the public interest, rather than restrained.

CHAIN-STORE TAX LAWS

Another way in which public policy is affecting the type and scale of business enterprise in the food industries is through State chain-store tax laws. The purpose of such laws is openly and avowedly to help the independent retailer by imposing special taxes on their chain competitors.

At the present time more than 20 States have special chain-store tax laws on their books (table 40). Most of these laws were enacted within the last 3 or 4 years.

TABLE 40.—*Chain-store tax laws: States having such laws and type of tax in each State, as of Dec. 31, 1937*

State	Type of tax
Alabama	Graduated up to $112.50 for each store over 20.
California [1]	Graduated up to $500 for each store over 10.
Colorado	Graduated up to $300 for each store over 24.
Florida	Graduated up to $400 and 5 percent of gross receipts for each store over 15.
Idaho	Graduated up to $500 for each store over 19.
Indiana	Graduated up to $150 for each store over 20.
Iowa	Graduated up to $155 for each store over 50.
Kentucky	Graduated up to $300 for each store over 50.
Louisiana	Graduated up to $550 for each store over 500.[2]
Maine	Graduated up to $50 for each store over 25.
Maryland	Graduated up to $250 for each store over 25.
Minnesota	Graduated up to $155 for each store over 50, plus graduated percentage of gross sales.
Mississippi	Graduated up to $300 for each store over 40.
Montana	Graduated up to $30 for each store over 10.
North Carolina	Graduated up to $225 for each store over 200.
South Carolina	Graduated up to $150 for each store over 30.
South Dakota	Graduated up to $10 for each store over 10, plus graduated percentage of gross sales.
Tennessee	15 cents on each $100 of average capital invested.
Texas	Graduated up to $750 for each store over 50.
West Virginia	Graduated up to $250 for each store over 75.
Wisconsin	Graduated up to $250 for each store over 25.

[1] Law defeated in a referendum at general election in 1936.
[2] The Louisiana law is on the basis of all stores operated by the chain, whether in Louisiana or elsewhere.

The type of chain-store tax law is quite similar in most States, but there is considerable variation in the rate of the tax. The tax per store varies from $200 to $500 per year in most States, and is as much as $750 in Texas (table 40). The usual form is a graduated annual license tax, based on the number of stores operated by the chain within the State. A notable exception is the Louisiana law (recently upheld by the Supreme Court) in which the tax rate is based on the

[14] U. S. District Court, District of Minnesota, 4th Div. *The Great Atlantic and Pacific Tea Co. v. Attorney General for the State of Minnesota et al.*, N. 2931, April 29, 1938.

total number of stores operated by the chain, regardless of where they are located. Three States—Florida, Minnesota, and South Dakota—supplement the graduated license tax by a further tax on gross receipts.

Judicial review of chain-store tax laws.

Most forms of chain-store tax laws have been declared constitutional by the Supreme Court. First to be sustained was the Indiana law in 1931. In this case the Court was called upon to examine the validity of a license tax graduated from $3 on the first store up to $25 on all stores over 20. By a decision of 5 to 4, the Court declared the law was constitutional.

The Court appeared to base its decision on the fact that chain systems had special operating advantages, and that to levy special taxes upon them was, therefore, not discriminatory. In other words, the court contended that the chains could legally be made to pay the tax because they were more efficient. In this connection, it also remarked that voluntary chains of independent retailers were not, in the nature of things, as efficiently operated as the corporate chains, thus paving the way for a subsequent exemption of voluntary groups from chain-store taxes. It is to be noted that in this case the Court did not pass upon the propriety of the law, nor did it discuss the question of public policy in relation to chain stores.

Next to reach the court was a case brought against the Florida law by the Louis K. Liggett Co. This law imposed a graduated tax up to $400 per store, and a graduated gross-receipts tax up to 5 percent of the total receipts of all chains with more than 15 retail units. The Court sustained the graduated per store tax, as it had done in the Indiana case, but voided the gross receipts tax.

The interesting thing about the Florida case was the dissenting opinion of Justice Brandeis, who contended that the law should have been upheld in its entirety. With complete candor, Justice Brandeis recognized that the purpose of the law is to protect the independent retailer, and then proceeded to argue that it is the proper function of legislation to do so. His opinion ran in part as follows:[15]

> Through size, corporations * * * have become an institution—an institution which has brought such concentration of economic power that so-called private corporations are sometimes able to dominate the State. The typical business corporation of the last century, owned by a small group of individuals, managed by their owners, and limited in size by their personal wealth, is being supplemented by huge concerns in which the lives of tens or hundreds of thousands of employees * * * are subjected * * * to the control of a few men. Ownership has been separated from control * * *. The changes thereby wrought in the lives of workers, of the owners, and of the general public are so fundamental and far-reaching as to lead scholars to compare the evolving "corporate system" with the feudal system; and to lead other men of insight and experience to assert that this "master institution of civilized life" is committing it to the role of a plutocracy * * *. Such is the Frankenstein monster which States have created by their corporation laws * * *. By furthering the concentration of wealth and power and by promoting absentee ownership (the chains) are thwarting American ideals * * * converting independent tradesmen into clerks * * * and sapping the vigor and the hope of smaller cities and towns.

In essence, what Justice Brandeis does is to identify the public interest with the well-being of the small business enterpriser. His opinion in this case is the most forceful reiteration of the creed of nineteenth-century liberalism that has come from the Court in recent

[15] United States Reports, vol. 288, pp. 565–569.

years. It represents the view of a great number of people who would prefer to tax big business out of existence rather than attempt its regulation.

The last chain-store tax to be brought before the Supreme Court involved the Louisiana law. This law differed from those of other States in that the graduated tax was based on the total number of stores operated by the chain, regardless of whether they were located in Louisiana or not. Obviously such a law would fall very heavily upon large chains with stores in all parts of the country. If a number of other States were to enact similar laws it is evident that the tax burden on such chains would be unbearable.

In a case brought before the Supreme Court by the Great Atlantic & Pacific Tea Co., the Louisiana law was nevertheless held to be constitutional.[16] The Court based its decision on the fact that the operating advantages of a chain increase with an increase in the number of its stores. The decision turned on virtually the same point as that made in upholding the Indiana law in 1931; namely, that chains may properly have special taxes levied against them because they are able to pay the tax. Nowhere does the Court seem to recognize that consumers may be adversely affected by penalizing what it admits is the more efficient system of retail distribution.

[16] United States Reports, vol. 301, No. 652.

CHAPTER XV

CONCLUSION: TOWARD A NEW PUBLIC POLICY

In the preceding chapters we have sought to describe the character of large-scale organization in the food industries and to evaluate its economic significance. The nature of our undertaking has made it necessary to include a wide variety of topics and to present a rather voluminous body of factual material. In the few remaining pages, we shall try to recapitulate briefly our conclusions, and to focus attention on some of the main issues which are involved.

Some of these issues obviously transcend what is usually thought of as the field of economics. The problem of mass distribution has its broad social aspects as well as its economic ones. For many people, economic individualism and small-scale enterprise have a value in themselves, apart from any purely economic considerations. Other people are inclined to emphasize considerations of the latter kind, and to create for themselves a different set of social values more nearly in conformity with modern economic tendencies. Needless to say, each of us is likely to settle such matters in his own mind on the basis of predilections and opinions to which no objective tests or standards can be applied.

Large-scale organization has long since been accepted as a fait accompli in many parts of the economy, but it has not been so accepted in food distribution. As we saw in the last chapter, public policy has sought—and still seeks—to preserve older business patterns in this field by the enactment of various legislative measures designed to penalize and limit the growth of mass distribution.

In the opinion of the writer, such a policy is both impracticable and unwise. If our analysis of the matter is correct, mass distribution has advantages from the standpoint of reducing food costs which are clear and incontrovertible. It is, moreover, no less a product of the times than is large-scale organization in other fields. Basic to this trend in all parts of the economy have been technological changes and innovations which make this form of business enterprise all but inevitable if we are to maintain our present mode and standard of living. This is not to imply that all corporate developments in the food industries can be explained or justified on the basis of technological factors alone. But to overlook them is to miss the underlying cause of what is happening.

Some form of large-scale organization is clearly needed if we are to have anything approaching maximum efficiency in the handling of food products. The best use of modern food-processing technique requires larger plant units than those of 30 or even 20 years ago. Innovations made in food distribution are even more important than those made in food processing. The outstanding feature of mass distribution is the integration of successive marketing functions within a single firm. If the objective is to reduce selling costs, there are

obvious advantages in reducing by means of vertical integration the number of buying and selling transactions necessary to move goods along in the marketing channels.

The most likely place to effect significant savings in food distribution is in the field of retailing. The retail margin is usually the largest single element in the cost of food distribution, and often it is larger than all other transportation and marketing costs combined. Because their operations have been primarily in this phase of distribution, the innovations made by the grocery chains probably have been more important from the standpoint of reducing food costs than those made by other types of large-scale food concerns.

Marketing costs are high partly because of the duplication of services and facilities arising out of competition itself. This is true in all phases of food distribution, but particularly, in the field of retailing where the number of grocery stores has multiplied out of all proportion to the needs of the consuming public. Unnecessary facilities of this kind must result either in wider margins than would otherwise be the case, or in lower rates of compensation to the labor and capital used in marketing enterprises. The present situation in the food industries appears to have some elements of both.

Interwoven with the growth of large-scale organization is the problem of monopolistic control. Obviously it avails the public nothing if the advantages of mass distribution from the standpoint of efficiency are diverted to the selfish purposes of proprietary groups. It is not enough that large-scale organization be able to effectuate economies in food distribution, these economies must also be reflected in narrowed marketing spreads either through the pressure of competition or some form of public control.

The criteria commonly used by the Federal Trade Commission and the courts for proving the existence of monopoly are (1) concentration of control, (2) profits, and (3) price policies.

Despite the tremendous growth of food corporations in recent years, concentration of control in this field does not approach that found in many other parts of the economy. Concentration of control in itself may be irrelevant to the real problem of monopoly—which, of course, lies in the limitation of output below (or a raising of prices above) what would obtain under competitive conditions. But insofar as economic centralization is used as the criterion of monopoly, not many of the food industries can be singled out for indictment on these grounds without also indicting many other industries.

Many of the large food concerns, and particularly the grocery chains, make a higher-than-average rate of return on invested capital. It would be wrong, however, to conclude from this that these concerns are monopolistic in the usual meaning of the term. Their profits have been high not because they have been able to manipulate food prices and margins, but mainly because they have had operating advantages over the regular marketing channels. Profits of the large food concerns were showing a tendency to decline even before the depression of 1930. There are several reasons for this, chief of which appears to have been more intense competition between the large firms themselves, which have been able to match each other in operating efficiency.

Monopoly becomes injurious to the public when it results in higher prices and wider margins than would otherwise prevail. Yet curiously enough, the charge usually made against the mass distributors is not that they have raised food prices, but that they have unduly reduced them. It may be true that this is injurious to other types of handlers and in some cases even unfair to them. But the public interest in the matter should not be confused with that of any particular groups of private enterprisers.

Large-scale organization in the food industries has not been without certain offsetting disadvantages and abuses from the public standpoint. Investigations made by the Federal Trade Commission and other governmental agencies have shown instances of unfair and even illegal operations on the part of some of the big food corporations. Financial manipulation and overcapitalization of assets have demonstrably accompanied some of the corporate expansion in this field. Moreover, some of the acquisitions and mergers of large food concerns appear to have had no basis in greater operating efficiency, and were obviously entered into for reasons of bargaining advantage. Neither the writer nor anyone else can say how important abuses of this kind have been in terms of dollars and cents to consumers.

This brings us to the question of public regulation and control. The writer is not insensible to the danger of uncontrolled private monopoly. When such a situation develops, one of two general courses are open; either an attempt to restore competition by the dissolution of the monopolistic elements, or some form of governmental regulation—maybe even operation—of the marketing functions which are monopolized. Which of these two general courses should be followed will depend on the special circumstances surrounding each case. Where there are no clear and attainable economies in large-scale organization, the preservation of competition is the easier and perhaps the better course. Otherwise, public policy should go in the direction of control rather than the dissolution of big business.

Admittedly, public regulation is inherently difficult, often ineffective, and sometimes corrupt. But where competition breaks down or fails to produce a proper balance, there is no other alternative. A wrong-headed policy cannot be defended on the grounds that it is the easier course to pursue.

We have not yet reached the point in most of the food industries where competition has seriously broken down. It is being questioned, however, in a few lines, notably fluid milk distribution. It is not without significance that a growing number of people are beginning to think in terms of public utility status for this industry.

Those who look with disfavor on mass distributon may agree with all we have just said, but nevertheless may oppose it on other grounds. Many Americans have an admitted antipathy toward big business. Part of this stems from a reasonable fear of uncontrolled private monopoly, but over and above this is a feeling that somehow it is alien to our social and economic traditions. Usually we cling to old economic patterns long after they have become outmoded, even at some sacrifice of material well-being. Few of us would be willing to give up the automobile to restore the position of the blacksmith or the carriage-maker; but many gladly would make lesser sacrifices for the small businessman in other fields.

There is a tendency among us to idealize nineteenth century business patterns. Usually this is done on the assumption that they made for flexible prices, reasonable efficiency, and proprietary satisfaction. But let us look a little more closely at these things.

The nearest thing we ever have had to monopoly in grocery retailing, for example, was the old village grocery store. The prices which it charged were not elastic and usually not very competitive until the automobile made them so.

So much sentiment is shown for the preservation of what is called individualism that it becomes pertinent to inquire why and for whom. To the wage earner it is largely a matter of indifference whether his employer is a large enterpriser or a small one. He has no great amount of economic security in either case. So far as wages and hours are concerned we have seen that, in the food industries at least, it is usually the large firms rather than the small ones which pay the higher wages. This is not because the big corporations are more open-handed with respect to labor but because the scale of their operations affords labor a better chance to organize and because big firms often have economic advantages which enable them to pay higher wages than their smaller competitors.

Many small firms are able to stay in competition with the mass distributor only because their proprietors and employees are willing to work long hours and at relatively low rates of pay. As we repeatedly have said, this respresents economic tenacity rather than economic efficiency. Carried to the extreme, it sometimes results in "sweat-shop" conditions for which there can be no justification in these times. It is, of course, an individual's right to "sweat" himself in his own enterprise, but when this is done it must be set against whatever satisfactions there may be in individual proprietorship.

APPENDIX

SOME ASPECTS OF THE THEORY OF BILATERAL OR SUCCESSIVE MONOPOLY [1]

The theory of monopoly (and monopolistic competition) has been developed mainly for firms engaged in the same type of enterprise. The assumption is tacitly made either that such firms combine all the functions of producing and marketing the commodity involved, or that they represent the only monopolistic element in an otherwise competitive chain of operations. Actually, however, monopolistic control may be exercised at more than one point in this chain of operations, a situation commonly referred to as one of bilateral monopoly. When this occurs, it is demonstrable on the basis of theory that the outcome will be far different from—and in some respects may be the reverse of—that which would obtain under conditions of simple monopoly.

As an hypothetical example of bilateral monopoly, we may take the case of two firms, one having complete control of the processing of a food product and the other of its retailing. For simplicity it will be assumed that no other handling operations are involved, or that if they are involved, they would be competitive.

To illustrate the first principle which would govern the outcome in such a situation, it will be convenient to refer to diagram I in chart XV. In this diagram, D′D′ has been derived from the consumers' demand curve by the deduction of the retailing costs, and similarly SS represents the farm supply curve plus the unit costs of processing the product. Equilibrium under competition would, of course, obtain at point P, with quantity OQ produced and offered to consumers. If either processing or retailing were monopolized while the other remained competitive, equilibrium would come at point P^1, with the supply (OQ^1) now equal to half that under competition.

Suppose now that separate and independent monopolies developed in each field. The most profitable policy for both, assuming that they could hit upon some method of dividing the total quantity of monopoly profit to be derived, would be to offer quantity OQ^1. This is, of course, the same outcome as that under single monopoly.

But it is quite improbable that the monopolists would be able to agree on how to divide this total profit. Jockeying between them would almost certainly develop, each trying to obtain a larger share of the profit by widening his profit margin per unit. To see what would happen now, let us turn again to diagram I.

We may start by assuming that the processor is first in the field with his monopoly, in which case he is offering a supply of OQ^1 to competitive retailers at a price of Q^1P^1. All the monopoly profits are his. But now some firm contrives to get control of retailing.

[1] Cf. ch. VIII, pp. 84–85. The writer is indebted to Mr. R. O. Been, of the Bureau of Agricultural Economics, for many helpful suggestions in the preparation of this appendix.

Obviously the retail monopolist will not permit equilibrium at point P^1, since this would leave him nothing above his actual costs of doing business.

On the expectation that the processor will maintain his price at Q^1P^1, the retailer will put his margin above his costs equal to P^2p^2, which will maximize his total profit under the given conditions.

CHART XV

Diagrams illustrating the effect of successive monopoly (one monopolist above the other)

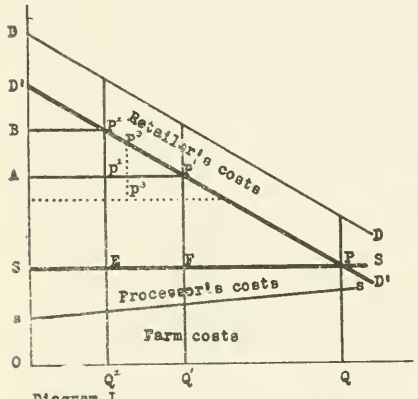

Diagram I

In no event would the food supply be larger under successive monopoly than under single monopoly, and it would probably be much smaller (diagram I).

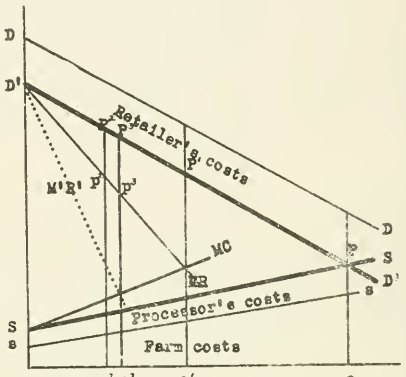

Diagram II

The greater the number of successive monopolists and the less they conspire together to increase their combined profit, the worse will be the plight of farmers and consumers (diagrams II, III, IV).

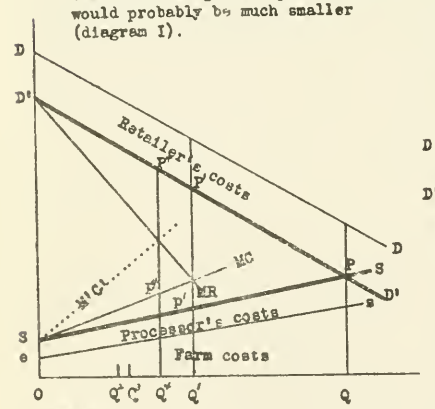

Diagram III

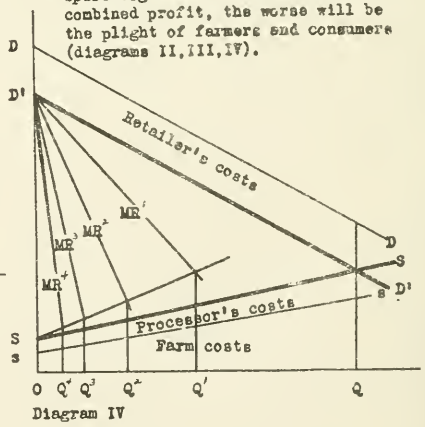

Diagram IV

But see to what this leads: Supply will be restricted to OQ^2 [half that under single monopoly and only one-fourth that of competition, using straight-line relationships as has been done in this diagram (with curvilinear relationships, the results would be qualitatively the same, however)]. Clearly everyone is worse off than before, except

the retail monopolist who now has some monopoly profit represented by ABP^2p^2 in the diagram I.

The unfortunate result just demonstrated is not changed in principle by different assumptions which either monopolist might make as to the price policy of the other. Suppose that the processor, after seeing what happened when he tried to maintain a price of Q^1P^1, decided to lower it somewhat, the retailer now making his profit margin P^3p^3. This will result in slightly larger supplies and everyone is better off than before, but supply is still more restricted than it would have been under single monopoly.

We have now defined the limits within which the supply will vary, depending on the policies of the two monopolists. But we do not need to drop the matter here. If the two monopolists act independently of each other, there appears to be a determinate solution from which neither monopolist would find it to his advantage to deviate. Or rather there are several determinate solutions, depending on the particular assumptions made.

These determinate solutions are demonstrated in diagrams II and III of Chart XV. It is assumed in diagram II that the processor fixes a price to which the retailer adjusts; and in diagram III, that the processor adjusts to the retailer's price. The solution in both cases involves the use of marginal revenue (MR) and marginal cost (MC) curves. In both diagrams, equilibrium under single monopoly will result in a supply of OQ^1, since it is here that marginal cost is equal to marginal revenue for the monopolist.

When the second monopolist (the retailer) comes onto the scene he will presumably find the processor selling at a price of Q^1P^1 (diagram II). The retailer would then try to maximize his profit by fixing his profit margin at P^2p^2 (where his marginal revenue as described by MR is just equal to the price of Q^1P^1 fixed by the processor). Supply is then limited to OQ^2, which, as we have already seen, is the lower limit of restriction for two successive monopolists.

The processor will now find it to his advantage to lower his price slightly so as to increase his total profit. This he would do until final equilibrium would result in a supply of OQ^3.[2] From this point it will not pay the processor to deviate, since here his marginal cost will equate the return which he can expect from the retail monopolist.

If it is assumed that the retailer fixes the price to which the processor must adjust, the solution is that shown in diagram III. The processor, being a monopolist, will adjust his operations so as to offer varying quantities of supply at prices described by his marginal cost curve (MC). The marginal cost of the product to the retailer is then shown by M^1C^1, which is derived from MC as MC was from SS. The retailer will thus seek equilibrium at the point where his marginal return equates M^1C^1, which in diagram III results in a supply of OQ^4.

The outcome so far as farmers and consumers are concerned is about the same in diagram II as in diagram III, and it would have been exactly the same if the slopes of D^1D^1 and SS had been equal in both cases. The effect on the monopolists themselves, however, is

[2] The solution is obtained as follows: Since the processor is selling to a retail monopolist instead of competitive retailers, the price which the processor could obtain for varying quantities of supply is described by MR rather than by D^1D^1. The line which describes the marginal revenue for the processor is thus represented by M^1R^1 (which is derived from MR in the same way that MR was derived from D^1D^1). With M^1R^1 representing his marginal revenue and MC his marginal cost, the processor will equate the two at a point where the supply is OQ^3, the price charged by the processor is Q^3p^3, and the retailer's unit profit is P^3p^3.

vastly different. When the processor was assumed to fix the price to which the retailer was forced to adjust (diagram II), the retailer got only a small part of the monopoly profit; but when the assumption was reversed (diagram III), it was the processor who got the lesser share.

Instead of assuming that the monopolists fix the prices at which they buy and sell to each other, it might be assumed that they fix their margins. In this case the equilibrium outcome would be slightly different from the one we have described above, but the basic principle would be the same.

THREE OR MORE SUCCESSIVE MONOPOLISTS

We pass now to the case of three or more successive monopolists, one above the other. The principles according to which the outcome is finally determined are much the same as those we have just deduced for the case of two successive monopolists, except that supply is almost certain to be limited even further.

The solution for three or more successive monopolists is shown in diagram IV. Again we use marginal revenue and marginal cost curves, as in diagrams II and III. As we have shown, equilibrium for a single monopolist would give a supply of OQ^1. If a second monopolist enters the picture, supply will be further limited to OQ.[2]

Now suppose we introduce a third monopolist. In order to get some share of the profit, the third monopolist will increase his margin and in doing so he will tend to limit supply still further. He will not get much profit because, according to our assumption, he must operate within the restricted limits of supply left to him by the first two monopolists. The final outcome for three monopolists as shown in diagram IV will find supply limited to OQ^3 (or thereabouts, depending on the relative slopes of consumer demand and supply costs).

On the assumption that the first monopolist fixes a price to the second monopolist, and the second to the third, the third monopolist will get the least profit. The advantage among the monopolists would be reversed (as we have shown in diagrams II and III) if the fixing of price ran in the opposite direction.

The same sort of solution could be shown for any number of successive monopolists, with the situation becoming progressively worse for farmers and consumers as more monopolists managed to insert themselves into the marketing system.

A MODIFICATION OF THE ASSUMPTIONS

It may be objected that the assumption of complete monopoly at successive stages in the marketing system is very unrealistic and so it is. But so, for that matter, is the usual text-book assumption of horizontal monopoly.

The highly restrictive tendency of successive monopoly would be modified, but not changed in principle, by assumption of monopolistic competition rather than of complete monopoly in any or all of the marketing functions.

Suppose, in our earlier example, that retailing were carried on under conditions of monopolistic competition. The retail margin would then be determined in accordance with the principles of ordinary oligopoly,

which means that it would vary from that of competition to that of complete monopoly, depending on the assumptions each firm made as to the effect of its actions on the others. Similarly the processing function might also be only partially monopolistic, which would lead to a further modification of the outcome. Under these conditions supply might be less restricted than under complete monopoly in each function, but more restricted than if the oligopolists were vertically integrated.

THEORY OF SUCCESSIVE MONOPOLY CONTRASTED TO THAT OF OLIGOPOLY

The solutions shown for successive monopoly are vastly different from those demonstrated by Chamberlin and others for horizontal monopoly and monopolistic competition. Those familiar with the main outlines of theory will recall that under oligopoly the outcome as to price and supply will vary from that of monopoly to that of pure competition, depending on the assumption each firm makes as to the effect of its policies on those of its competitors. It is unnecessary for our present purpose to go into the various refinements of this principle. Its import for us here is that in no event would the public be worse off under oligopoly than under complete monopoly, and that in most cases it would fare much better.

But if our analysis of the matter is correct, the reverse is true for successive monopolists. Two or more monopolists, one above the other, would never provide as many goods and services as a single monopolist combining all their operations. And what at first seems even more of a paradox, the public would be helped rather than harmed by the conspiring of the monopolists to increase the amount of their combined profits.

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