AN INVESTIGATION OF THE RETAILING OF FROZEN FOODS

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The retailer of today has four principal methods of distributing perishable foods. Two of these methods, namely; distribution of foods in the fresh and canned state are almost universally accepted by all grocers. The third method, dehydrated foods, has gained little popularity except during war years when other forms of foods were in scarce supply. The fourth method, frozen foods, has grown in popularity very rapidly in the past twenty years. Today, many food retailers are asking, "How important are frozen foods to the retailer?"

I. THE PURPOSE OF THE INVESTIGATION

The purpose of this investigation is (1) to show the progress which has been made in frozen food retailing up to the present time; (2) to compare the consumption, sales and price of frozen foods with the canned and fresh product; (3) to show the importance of frozen foods to the retail grocer; and (4) to point out some of the merchandising techniques used in promoting the sales of frozen foods.

II. VALUE TO FOOD DISTRIBUTION

This investigation has brought together many of the articles written on frozen foods and has pointed out some of the trends in frozen food retailing. Some of the surveys which have been made on frozen foods have been used to point out specific examples of amounts of frozen foods purchased, where they were purchased and other points of interest to the retailer. This investigation has been an attempt to present the true facts on frozen food retailing as they are today.

In this report, no attempt has been made to present frozen foods as being a product that the retailer should or should not carry in his store. Instead, some of the advantages and disadvantages of handling frozen foods have been presented which could help the retailer decide for himself if he should carry frozen foods.

III. PREVIEW OF ORGANIZATION

This is the order in which the investigation will be presented.

1. History of frozen food industry with emphasis on the retailing function.

2. The retailers of frozen foods with some examples and results of sales by department stores, grocery stores, locker plants, specialty stores and the direct delivery routes.

3. The competitive position of the frozen food industry. A comparison of the consumption of frozen foods with the consumption of the fresh and canned product, and some comparisons of sales and price at the retail level.

4. Merchandising methods, brands and varieties sold, promotions, types of cabinets, product information and location of cabinets in the store.

5. Summary, conclusions and suggestions for further study.

IV. PROCEDURE

The original plan of investigation was to compare the dollar sales of selected frozen commodities with the sales of the fresh and canned counterpart. In the investigation it was found that data on the dollar sales of the commodities were not available.

The plan was then changed to compare the consumption of selected frozen foods with the consumption of the canned and fresh counterpart.

Material for the investigation was obtained from periodicals, books, government documents, correspondence with companies in the frozen food industry and through personal observation.

V. DEFINITION OF TERMS USED

Frozen foods. In this report the term "frozen foods" will include, fruits, vegetables, concentrates and speciality foods. Frozen meats, poultry, fish and ice cream are omitted as each of these commodities have been developed separately and are often displayed separately in the larger food stores.

Quick-freezing. This term is used to distinguish foods frozen at a low temperature of zero or below, from "cold-pack" or foods frozen at 10 to 15 degrees fahrenheit.

Concentrates. Concentrates will apply to all citrus juices, coffee, apple cider, tomato juice, grape juice, lemonade base and other liquids which are concentrated from their single strength.

Specialty foods. This term will include any frozen food item other than those listed above. In this list such items as pies, cooked foods, bakery products and unusual foods are usually considered to be specialties.

CHAPTER II

HISTORY OF THE FROZEN FOOD INDUSTRY

I. FORMS OF PRESERVING FOOD

Primitive forms. In the early stages of evolution, man learned either by accident or experience to provide against famine and starvation through the storage of foodstuffs at harvest. Primitive man kept food in natural caves and later, with the discovery of fire, learned that meat cooked with fire usually lasted longer and tasted better than raw flesh from wild boar and game. Hundreds of years later salt came into use as a preservative for foods. Probably in its earliest form salt was used more to hide the disagreeable flavor of already decaying food than to prevent food spoilage. Smoking or curing of food by heat treatment and salt then came into practice.[1]

Down through the ages food habits have had to adjust themselves to the availability of foods. In most climates this has been greatly affected by the facilities to preserve and store foods during seasonal or famine periods.

Canning. Canning of foods was developed in France during Napoleonic times when war was making fierce demands on the food supply. Napoleon offered a prize to anyone who could discover a better method of preserving

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1 Clifford F. Evers, Frozen Food Industry. Industrial and Engineering Chemistry. 40:2251-53. December, 1948.

food. So from a necessity created by war we have the process of canning. Canning was first introduced into this country about 125 years ago by William Underwood in New England.[2]

The great advantages of canning foods are that canned foods are substantially imperishable and convenient for use. One big disadvantage is that they must be sterilized after they are put in the can. Such sterilization, except in very acid products, requires so much cooking that the canned food does not resemble the fresh product.

<u>Electronic sterilization</u>. There has recently been announced a laboratory method for sterilizing meats and fish in cans by high frequency electronic treatment. Another method calls for use of very high supersonic waves. Foods treated by these methods have lost none of their fresh flavor and can be stored without refrigeration for long periods of time. This method should be very competitive with other methods of preserving foods if it can be developed on a commercial scale.[3]

<u>Dehydrating</u>. The art of drying or dehydrating perishable foods is very old. More than 3,000 United States patents have dealt with the subject. Dehydrated foods naturally have a great economic force behind them. They are light in weight and compact to ship. For instance, one carload of canned spinach contains as many edible portions as seven carloads of fresh spinach. One carload of quick-frozen spinach is equivalent

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2 Clarence Birdseye. Future Development in Food Preservation. <u>Refrigeration Engineering</u>. September 1947. p. 219.

3 Ibid.

to eleven carloads of fresh spinach. But, one carload of dehydrated spinach contains as many portions as a train load of 21 refrigerated cars carrying fresh spinach. Economies of storing, retailing and holding in the home are proportionate.

During times of war, dehydrated foods are manufactured in tremendous quantities. Before World War II there were about 20,000 dry pounds of fruits and vegetables processed in the United States each year. This went up to 250,000,000 pounds in 1945.[4] After the war, production dropped faster than it had increased.

__Frozen foods__. Man undoubtedly began freezing flesh foods just about as soon as he moved into areas which became frigid in winter. It would seem, therefore, that commercial freezing is very old. Actually it is less than 100 years old. Slow freezing came into use about 1865 with the artificial freezing of fish and poultry; this was followed by the freezing of meat about 1880 and of small fruits for remanufacture about 1905.[5] The commercial freezing of vegetables and fruits for table use is of much more recent origin. It was started in 1929 and is usually considered as being the beginning of the quick-freezing process.

II. EXPERIMENTS OF CLARENCE BIRDSEYE

Clarence Birdseye, on a hunting and fishing trip in Labrador, noticed that fish frozen in the minus 30 to 40 degrees fahrenheit weather was as

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4 Ibid.

5 Evers, __Op. Cit.__, p. 2251

tasty and good as the fresh product when thawed and cooked. Since he knew that the mere freezing of a food would not preserve its natural flavor and texture, he decided that the rapid freezing at the extremely low temperatures of the region had accomplished the miracle.[6]

When Birdseye returned home he began experimenting on the quick freezing of food products by artificial refrigeration. His first multiple quick-freeze was a new garbage can containing a layer of steel plates and fitted with coils through which passed a refrigerant of sodium chloride brine. Fillets of codfish and rabbit meat were placed between the steel plates and frozen at minus 40 degrees fahrenheit and kept for five weeks. When thawed and panned they were as tasty and fresh as from the game bag or net.[7]

What Birdseye proved was that the faster a food can be frozen at deep temperatures of around minus 40 degrees fahrenheit, the less chance of forming the large ice crystals of the slow freezing at zero. It is these ice crystals that tear down cellular walls and tissues, leaving gaps through which escape the natural juices, nutrients and flavor.

After many experiments, Birdseye was ready to go into commercial production of quick-frozen foods. The first full line of the Birds Eye Brand of frozen foods - including meats, poultry, seafoods of various kinds, fruits and vegetables - went on sale in twelve stores in Springfield, Massachusetts in 1930. They sold 80,000 packages that year, 800,000 in 1931 and 1,200,000 in 1932.

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6 Modern Foods For Modern Menus. General Foods Corporation. New York. 1942. p. 4.

7 Evers, Op. Cit., p. 2251

In 1929 Birdseye sold his rights in the multiple-plate quick-freezing process to General Foods Corporation for (a reported) 22 million dollars.

III. THE DEVELOPMENT OF ZERO STORAGE AND DISPLAY CASES

The introduction of quick-frozen foods into the retail selling field resulted in a major problem which had to be solved to insure commercial success in the sale of quick-frozen foods. This problem was the selection of low temperature, mechanically refrigerated cabinets or display cases adaptable for use in the retail store. The general requirements were (1) a temperature of 0 degrees Fahrenheit to + 5 degrees Fahrenheit, with a minimum of temperature variation, (2) the storage space to be conveniently accessible and to afford sufficient space for an ample supply of the varieties of product and (3) the initial cost and operating expense to be as low as possible.[8]

Since frozen foods were new to the public, it was believed that display of the actual products was necessary if they were to be sold. Early designs which were acceptable from a refrigerating and mechanical standpoint had the disadvantage of high cost. This initial high cost of the early display cases, together with the construction difficulties, made it necessary that thought be given to further development of a non-display type of cabinet. Ice cream cabinets were on the market which could maintain the required temperature but their construction features and general appearance did not make them completely adaptable for use in retailing

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8 Donald K. Tressler and Clifford F. Evers, The Freezing Preservation of Foods. (New York; The Avi Publishing Company, Inc. 1943) p. 142

frozen food. After much research and testing, a cabinet was designed exclusively for the merchandising of frozen foods. This cabinet, which was first placed in service in 1934, provided a combination of storage space and a display feature.

A second type of cabinet used for the retail distribution of frozen foods is the blind storage cabinet, so called, as it has no provision for actual display of the products. It has been estimated that approximately 90 percent of the stores selling frozen foods in 1941 used a cabinet of this type.[9] These cabinets are much like ice cream cabinets in design and construction and are adapted for use of frozen foods by the addition of display boards, lights and colored photographs of the products.

The cost of the first retail cabinets, which Birds Eye sold to its distributors, was from $1,200 to $1,800 each. These cabinets were expensive to operate and, with a few exceptions, the grocers found the overhead and operating expense too high for the volume of sales. For this reason many gave up the distribution of Birds Eye products. The price was lowered to $900 but they were still too expensive. The cabinets, which were designed exclusively for frozen food retailing and placed in service in 1934, cost around $300 and were rented to the grocer for $10 per month. These cabinets were for the storage of Birds Eye products exclusively.

In 1937 and 1938, many reliable manufacturers entered the field offering cabinets for sale direct to the retailer and on extended terms of payment. The price of these cabinets ranged from $170 to $550.

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9 Ibid. p. 565.

The relative merits of display and "blind" cabinets have been a live subject of discussion in the industry. Practical considerations against the display cabinets are higher first cost and operating expense. According to reports, the original display-type Birds Eye cabinets required six to eight kilowatts per day as compared to two to three kilowatts for the non-display cabinet. A more even comparison may be made of cabinets listed by one manufacturer in the Food Industries' Directory.[10] A 19.6 cubic-foot blind cabinet weighs 1,300 pounds and is operated by a one-third horsepower motor; a 20.7 cubic-foot display cabinet weighs 1,700 pounds and is operated by a one-half horsepower motor.

Since 1945 the display type cabinet has gained in popularity. Visibility in this type cabinet is attained by display above it through the use of pictures, mirrors or by having the cabinet so designed that the packages will be visible through the side walls. This cabinet is well suited to self-service merchandising.

IV. RETAILING OF FROZEN FOODS

In their first retail sales operations, Birds Eye usually selected the largest independent retail grocers with the highest-class trade to handle the new food products. But with no national and practically no local advertising, the grocer, who had invested $1,200 - $1,500 in a frozen food cabinet, found that his customers did not demand quick-frozen foods and probably had never heard of them.

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10 Harry Carlton, The Frozen Food Industry. (Knoxville, Tennessee: University of Tennessee Press, 1941) p. 47.

The retail grocer, who had installed an expensive case, found that its cost and maintenance were eating into his profits. If he had a fresh-fruit, vegetable and meat department, he saw no reason for spending time and money promoting frozen foods which added to his expenses but did not increase his overall volume.

Most of the early frozen foods were of poor quality - caused in part because they were frozen so slowly. The quality was so poor that prices were low; that in turn, meant that still lower grade raw materials were used. Added to this poor quality, were poor methods of retailing the product in the store. The frozen product was often allowed to stand all day on the grocer's counter, being put in the ice cream cabinet only at night. Some frozen products, especially fish, were allowed to thaw and then sold as the fresh product. Such practices as these, and the sale of cold storage products as frozen foods, have given frozen foods some very bad publicity which is hard to overcome.

As an example of how frozen foods were accepted in the early days, consider two of the laws passed in New York State. One of the laws stated that it was illegal to use frozen fish in Sing Sing Penitentiary. Another was, every store that retailed frozen foods had to have a sign eight inches high posted over the door, saying, Frozen foods sold here.

By the summer of 1935 retail distribution of frozen food was in a state of collapse, except in New York City, Boston, Rochester and Syracuse where Birds Eye had tried out a new experimental sales policy.[11] The main features of this new sales and promotion policy were:

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11 Ibid. p. 8.

1. Retail efforts were concentrated in the Northeast.

2. A less expensive mechanically refrigerated storage case was offered the retailer on a rental basis.

3. An established wholesale grocer was given exclusive distribution in each district.

4. A prominent food-advertising agency was given direction of the promotional advertising. Advertisements were directed to the housewife through her local daily paper.

Following out the new retail distribution policies, Birds Eye had 1,200 stores equipped with cabinets by the end of 1935.

By 1937 there were several other brands of frozen foods on the market besides the Birds Eye Brand. Among these was Honor Brand, which was a distributing agency for independent packers. As more brands came on the market, there was more advertising and more outlets for frozen foods.

In 1937, it was estimated that, 60 percent of the frozen food pack went to processors for remanufacture, 30 percent to hotels and institutions while only 10 percent went to the retail trade.[12]

During the war years, frozen foods, like most all food products, were in heavy demand and sometimes in scarce supply. Many of the new packers who entered the field at this time did not pack a quality product. Fortunately, few of these packers are still in the business today.

With the addition of frozen concentrates to the frozen food line in 1945, the industry leaped ahead with unbelievable speed. Citrus concentrates were almost an immediate success. Sparked with extensive

12 Carlton. Op. Cit. p. 63.

advertising campaigns, the grocers were given a frozen food item with a fast turnover-like bread or milk. Sales of other frozen food items increased. Larger cabinets were installed in many stores; thousands of other retailers added frozen foods to their line and yet thousands of other retailers added extra cabinets for the sale of concentrates alone.

The number of stores handling frozen foods was estimated at from 35 to 65 percent of the total of the 475,000 grocery stores in the United States in 1949.[13] For some types of stores, such as large super markets and some groups of chains, the number of stores handling frozen foods approached one hundred percent. But, one-half of all grocery stores retailing frozen foods indicate that frozen foods are not the expensive luxury item they were in 1930.

13 J. Stanford Larson, James A. Mixon and E. Clinton Stokes. Marketing Frozen Foods - Facilities and Methods. (United States Department of Agriculture, Washington. 1949) p. 122.

CHAPTER III

THE RETAILERS OF FROZEN FOODS

It has been estimated that about 56 percent of all commercial frozen food is distributed through facilities at the retail level. The other 44 percent reaches the consumer through wholesalers and distributors. Out of the 56 percent going to consumers in retail-size packages, it is estimated that by far the larger part is marketed through retail stores. The remainder is sold by house-to-house salesmen and through locker plants.[1]

In view of the fact that selling frozen foods through the retail grocery store is a new development in the industry and considering how little the possibilities of such outlets have been promoted, it is believed that herein lies a great potential field for increasing outlets for farm products. The growth and expansion of frozen foods, especially in the immediate future, depends to a large extent upon how they are presented to the public at the retail outlets.

I. THE SUPER MARKET

The super markets appeared on the American retailing scene in the early 1930's but, as many food shoppers know, they are now institutions that are unique in the field of food merchandising. The Super Market Institute defines a super market as "A departmentized retail establish-

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1 J. Stanford Larson and others. Marketing Frozen Foods - Facilities and Methods. (Washington: United States Department of Agriculture: 1949) p. 122.

ment having the four basic food departments: self-service grocery, meat, produce and dairy plus any other departments and having minimum annual sales of $250,000."

This self-service type of store is a "natural" for frozen foods and the small compact frozen food package is well adapted to the self-service system. In these large stores which offer complete "one stop" shopping for the customer, frozen foods is a must. In a survey made by the National Association of Food Chains, the present median of sales for large volume stores with cabinets was 2-1/4 percent of total sales in frozen foods.[2]

In most locations, competition will force the super market to add frozen foods to the line of items sold even if customer demand is not strong enough to justify the expense. As stated by one operator, "I put in a line of frozen foods, not to sell, but for some of my customers who would shop somewhere else if frozen foods were not available in my store."

Large stores with an annual volume of business of over one million dollars often require thirty-two linear feet and more of display cases for frozen foods. Besides this, many stores have additional cases for frozen fish, concentrates and ice cream.

In smaller stores an eight-foot display case is the minimum size display if frozen foods are to be merchandised properly. In the survey made by the National Association of Food Chains, nineteen linear feet

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2 National Association of Food Chains. 726 Jackson Place. Washington, D.C. Survey was conducted in February, 1950. Reported in a Bulletin to member companies. March, 1950.

was given as the median length of display cases used in stores with less than one million dollars in annual sales.

In constructing or remodeling stores, some consideration should be given to the future need for frozen food display cabinets. Many of the stores constructed in 1946, 1947 and 1948 were equipped with only one or two eight-feet sections of display cabinets. As more people started buying frozen foods and as more items were added to the frozen food line, additional display cases were needed. The installation of these new cases often required some major changes in the store. To avoid such changes in the future, some space at the end of the frozen food cabinets could be planned to be used for special displays or for some other purpose which could be eliminated or moved to another part of the store without changing the store layout.

The super market is ideal for the retailing of frozen foods. Besides offering a complete "one stop" shopping service, super markets operate on a cash and carry basis and are in a better position to offer frozen foods at a lower price than the other retailers.

II. THE SMALL NEIGHBORHOOD STORE

This type of store has long been a part of every American community. While some of their business is "on the spur of the moment", purchases such as bread and milk, many shoppers use them for making all or the larger part of their grocery purchases. These stores are about the only remaining retail food establishments where consumers can establish charge accounts and have foods delivered to their homes.

The type and size of frozen food case best suited for the neighborhood market will depend on the method of selling used in the store. If the store is the self-service type, an open display case of adequate length to display all the items, which the retailer wishes to carry, will be best suited for this store. In the semi-self-service store, the open display, closed display or "blind" storage cabinet can be used depending on whether the retailer wishes to make his frozen foods available on a service or self-service basis. With service type stores and telephone orders, the closed or blind storage cabinet is the most economical to operate and, since the customer is "waited on" by the clerk, the display ability of the frozen food cabinet is not as important as with the self-service system.

The number of neighborhood grocery stores far out-number the super markets but the indications are that the proportion of neighborhood stores who retail frozen foods, is less than the proportion of super markets retailing them. However, the existence of the neighborhood grocery stores in large numbers, their large aggregate volume of business together with their nearness to the consumer, set them up as strong potential outlets for frozen foods.[3]

Frozen foods offer the small retailer an opportunity to carry a complete line of meats, fish and poultry without having a meat department. In a relatively small frozen food case, this type of retailer can offer meats, fruits and vegetables, ice cream, concentrates and specialty frozen

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3 Larson, <u>Op. Cit.</u> p. 122.

items. In effect, he can offer a complete line of food in a minimum of space. Frozen foods can give the small retailer one more advantage in the battle for his share of the consumer dollar.

III. THE FROZEN FOOD SPECIALTY STORE

Frozen food specialty stores exist as independent retail establishments and as sections in department stores. The history of the independent specialty store is an interesting story in the field of food distribution. During and shortly after World War II, these specialty stores came into existence almost overnight. Their growth was widespread but they became more abundant in the metropolitan areas. Their existence was possible because of the short supply of foods in relation to the tremendous demand. Frozen foods were obtainable by merchants when other foods were not and consumers were buying almost all kinds of food on the market. When the nation's food supply began to adjust itself after the war, these stores found themselves in an unfavorable economic position. The consequence was widespread business failure within this group.[4] In a survey, reported by the United States Department of Agriculture of fifty cities, it was revealed that there were only a very few frozen food specialty stores still in operation in 1949.

> In all successful cases observed, the frozen food specialty store was dependent on some other products to round out the business. In some instances, appliances, particularly home freezers, were used as the supporting factor. In other cases, home delivery service was conducted in conjunction with the operation of the store. Most of the stores, however, carried multiple food products, and in a strict

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4 Larson, Op. Cit., p. 123.

> sense were actually independent grocery stores that were featuring frozen foods. Two or three of these multiple food establishments were outstanding in their technique of operation. Actually these establishments were retail self-service food stores that had all of the perishable and staple commodities built around the frozen food section. Perishable and staple commodities were presented in such a way as to supplement or serve as a complement to a full line of frozen foods. Cabinets used were, for the most part, of the open type and were so placed as to attract attention when customers first came into the store. Managers of these stores indicated that business was good and it was their belief that theirs was the store of the future. Plans were being laid by these operators to expand their facilities.5

In a publication, Retailing Frozen Foods, issued by the New York Department of Commerce in 1946, several suggestions were made on operating a retail frozen food business. The initial capital investment for fixtures and freezers was estimated at $4,000 to $6,000, stock, $1,000 and suggested working capital of at least $2,000 as the store would probably operate at a loss for the first three to six months.

A small retail store dealing exclusively in frozen foods was not considered practical in 1946. It was suggested that other merchandise be included in the inventory as unit sales of frozen foods were small, due to lack of storage space in the home, and the more serious handicap of not being able to provide an adequate variety of frozen foods.

Other handicaps listed against the retail frozen food store included lack of customer education to the benefits of frozen foods; competition from other types of retailers such as department stores, grocery stores and home delivery routes; delivery of fresh produce by air; and difficulty in finding a suitable location with high volume of traffic not too far from the consumer's home.

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5 Larson, Op. Cit., p. 123.

With such handicaps as these to overcome, it is not surprising that many of the retailers, who sold frozen foods exclusively, failed. Even today, with many of the early handicaps removed, there is some doubt if the 100 percent frozen food store would be profitable.

In the last eight or nine years, a number of the nation's leading department stores have added frozen food retailing to their selling activities. These frozen food sections usually combine the retail section in the store with a home-delivery service and at the same time associate both with the sale of home freezers. In this respect they combine the functions of a retail specialty, a home-delivery agent and an appliance dealer. The joining of these various sales and services has certain advantages. Perhaps the biggest advantage lies in the application of some of the established principles of department store selling to the retailing of frozen foods. For example, they can easily extend their charge account system to cover frozen food sales. Through the sale of frozen foods they can enhance the sale of home freezers and vice versa. Their organization is well adapted to educating the consumer on the use of frozen products and, with their large financial support, they can afford to make long range plans for expansion of their frozen food business.

The actual retail section of the department store operates just about the same as any specialty store except that nonfrozen foods usually are not carried as a supplement. Similarly, the home delivery operation is conducted about as any other agency would perform it.

As stated before, the department store has some definite advantages in the retailing of frozen foods. These advantages are heavy traffic, delivery service, home freezer sales, charge accounts and facilities for consumer education. However, the markup in department stores is traditionally 25 to 40 percent. When compared with the markup of super markets of 15 to 20 percent, the comparison is not too favorable for the department store.

IV. HOME DELIVERY ROUTES

The development of home delivery routes for frozen foods was at its peak at the end of World War II in 1946. This system depended on people living out of their home freezers and there were only a handful of American homes that had the required freezer space. It was a case of too many companies entering the field with too few customers to support them. The idea of home delivery has merit but because of the shortage of home freezers and the high cost of this service in relation to the small sales volume the system has not worked too successful for many operators.

In the field of house-to-house selling only Real Silk Hosiery, Fuller Brush and a few others have been very successful. They were selling a high markup item which did not require an expensive refrigerated truck for the distribution of the product or special storage space in the home.

Bread, milk, coffee, tea, spices and other staples have been successfully sold from house-to-house but these items benefit by quick turnover when a large percent of the customers are in one block.[6] Most of the routes of Jewel Tea and Grand Union route sales divisions are in the urban area as customers are too far apart out in the country to be serviced at a profit.

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6 Past, Present and Future of House-to-House Sales. Quick Frozen Foods. November 1945, p. 51.

In the survey, reported by Larsen and others,[7] of fifty cities, there were only eighteen house delivery services of any consequence in existence. These eighteen do not include the few retail grocery and frozen food specialty stores whose house delivery service is merely incidental to their main operations. Of the eighteen establishments participating in house delivery, nine were department stores, three were ice delivery companies, one was a wholesale distributor, and the other five were specializing in home delivery with a retail frozen food specialty store as a supporting function. In most of the cases, the home delivery services are operated in conjunction with home freezer sales. The aim is to get cabinets into the home and then service them with frozen foods. Some operators rent the cabinets hoping to convert the rental to a sale. Other concerns sell the cabinet outright. Home rental of cabinets involves a large outlay of capital and the responsibility of giving technical service to the cabinet. Rental fees are $2.50 to $3.00 per month which will usually apply toward purchase price if the freezer is bought later.

Some companies in the delivery service have been taking orders by telephone. These companies compile a list of homes with zero storage space and solicit the owners by telephone for their orders. Orders are delivered on regular routes and the prices charged are about the same as at the local retail food store. When home delivery companies become stable and large enough to buy in carload lots and when a large percent of all homes have zero storage space for frozen foods, the home delivery routes may be able to undersell the retail store.

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7 Larson, <u>Op. Cit.</u>, p. 125

The primary function of the home delivery agency is service. Most of these agencies are in a good position to broaden these services to include consumer education in ways to use and prepare frozen foods. Those firms that have been successful in home delivery have, for the most part, concentrated on serving the people in the upper income brackets. This would indicate that many people who own deep freeze units are in the higher income brackets and, to a degree, that frozen foods are still considered to be more expensive than other forms of food.

The requirements for the successful operation of a home delivery service as listed by members of the trade include these factors:

1. Study the area to be served as to home storage facilities, income, eating habits and general attitudes on frozen foods.

2. Avoid door-to-door selling and set up a delivery route system whereby customers are contacted and their orders taken in advance of delivery.

3. Have a minimum number of pounds per customer that will at least cover the approximate cost of delivery.

4. Either sell home freezer units directly or have a working relationship with a local appliance dealer.

5. Allow price discounts for quantity buying, thus giving the consumer an advantage over the usual retail price for the same product.

Home delivery of frozen foods offers a challenge to present methods of distribution. If the system is properly applied, it may aid the development of the frozen food industry. The home delivery companies are due considerable credit from the industry as a whole for their missionary work in acquainting many customers with the advantages of frozen foods.

V. THE LOCKER PLANTS

The first locker plant was started in Chico, California about 1903.[8] The local ice plant rented space to merchants to store eggs, apples and other produce. By 1908 this storage service was extended to farmers who stored meat and other products in wooden boxes. In 1913 locked boxes were used. The business had grown until a number of people were storing foods in the plant and some method was needed to protect the property of each patron. By 1917 the demand for storage space was so great that special storage rooms were built with lock boxes.

About this same time (1917), an ice plant manager in Centralia, Washington rented space to some of his friends for freezing and storage of wild game. The service was so successful that space was rented to farmers where meat, poultry and other food items could be stored.

A number of other locker plants were started in the following years but it was 1936 before the freezer-locker was extended to all parts of the country and especially to the great meat producing areas of Iowa, Nebraska, Illinois and other mid-western states. Probably each of these "first" frozen-locker operations were original in that they started spontaneously in response to a demand.

The trade divides freezer-locker plants into two general classes - "limited service" and "complete service" - but there is no distinct dividing line. Generally, the limited service plant was operated as an adjunct to some other business, such as a butcher shop, creamery or cold

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8 J. Raymond Adams. Lockers as Related to the Frozen Food Industry. Refrigerating Engineering. 41:24. January, 1941.

storage plant. It was the general opinion in the Northwest that less than five hundred lockers could not be operated economically as an independent business. In some parts of the East, small plants were installed and operated by grocery stores.

The modern complete service plant is a well organized and well equipped food processing and storage plant with sufficient income from various sources to constitute a profitable independent business. The services which are offered range from picking up the live animals on the farm, butchering, chilling, ageing, cutting up, wrapping, freezing in a modern quick freezer or smoking and curing and placing in the locker - to delivering the frozen products back to the farm as required. Some locker plants have installed equipment and prepare fruits and vegetables for freezing for their patrons on a free basis.

The addition of facilities for retailing commercially frozen foods was just a natural development for many locker plant operators. For other plant operators, especially those offering only limited service, the addition of retailing facilities was an economic necessity.

The locker plant patron is an ideal prospect as a customer for commercial frozen foods. The locker plant patron is already sold on the advantages and benefits of frozen foods since he has zero storage space in his home or at the plant. When stopping at the locker plant, his attention is on frozen foods so he should be receptive to displays and other sales aids within the plant.

The locker plant is also an ideal place to retail frozen foods from a physical viewpoint. The locker plant is usually located where it is convenient to a majority of its patrons; zero storage is available for

the wholesale storage of commercially frozen foods; the lobby of the plant is an ideal spot for display cabinets as all patrons pass through the lobby; parking space is usually available which is very important to most any retailer.

As more and more locker patrons purchase home freezers, the locker plant operator must secure other means of bringing in revenue.[9] This may be accomplished by increasing the services offered customers in freezing their own products or by selling commercial frozen foods. The farmer who produces most of his own food is a good prospect for concentrates, ice cream, fish and other products which he does not raise or process himself. The urban locker patron may be a prospect for all or most all of his frozen food products.

In a survey which was conducted by the Curtis Publishing Company, released in January, 1951, the grocery store held a four-to-one edge on the frozen food locker plant as the place of purchase for frozen foods.[10]

The locker plant is well suited and partly equipped to retail frozen foods. Perhaps in the future when the locker plant operator becomes more aware of the possibilities of retailing frozen foods, he will install more display cabinets, offer discounts on quantity purchases, stock larger sized packs for sale to home freezer owners and, in general, offer the consumer more for his frozen food dollar. There is plenty of room in the retailing of frozen foods for the 11,442 locker plants in the United

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9 The purchase of home freezers by large numbers of locker patrons may leave the locker plant operator without enough rented lockers to break even.

10 Frozen Foods Survey. The Curtis Publishing Company. January 1951. (Survey was conducted among the members of fifty-seven farm and rural women's clubs.)

States. American business is built upon competition. If the locker plants can retail frozen foods more efficiently than other retailers, it is possible that they will be much more important in the distribution of frozen foods in the future.

CHAPTER IV

THE COMPETITIVE POSITION OF FROZEN FOODS

From modest beginnings a little over twenty years ago, frozen foods have developed into an industry which in a single year processes billions of pounds of fruits, vegetables, meat, poultry and other specialities. The position of frozen foods has changed, from an unwanted item by the grocer, to one, whereby the question is often asked, "Can a food retailer afford not to handle frozen foods?" The answer is often no, especially when the complete line of frozen foods is considered. The food retailer of today who does not handle ice cream, frozen fish and frozen fruits and vegetables is offering a limited food service to his customers and is probably losing business to his competitors.

I. PERCENT OF STORES HANDLING FROZEN FOODS

The percent of retail food stores who handle frozen foods has been estimated by Larson and others[1] at from 35 percent to 65 percent. The variation resulted from differences of opinion as to what is a food store and amount of frozen foods handled.

In a survey reported in the Frozen Food Yearbook for 1950[2] as to the number of stores with facilities for handling frozen foods, the results as shown in Table I were observed.

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1 J. Stanford Larson, James A. Mixon and E. Clinton Stokes. Marketing Frozen Foods. (Washington, United States Department of Agriculture. 1949) p. 128.

2 National Wholesale Frozen Food Distributors, Inc. Frozen Food Yearbook. New York 17, New York. 1950, p. 76.

TABLE I

STORES WITH FACILITIES FOR HANDLING FROZEN FOODS

MAY 1949

	Chain Store Self-Service Percent	Chain Store Service Percent	Independent Percent
United States	95	67	71
New England	100	91	61
Middle Atlantic	95	49	71
East North Central	100	66	75
West North Central	94	99	72
South Atlantic	93	86	63
East South Central	95	98	59
West South Central	97	78	74
Mountain	100	100	65
Pacific	86	94	89

This survey was taken from the stores who report food prices for the Consumers' Price Index to the United States Department of Labor's Bureau of Labor Statistics.

The stores which handle certain concentrates as reported by the United States Department of Agriculture[3] are shown in Table II.

3 United States Department of Agriculture. Availability of Fresh, Frozen and Canned Fruits and Juices. September 1950. United States Department of Agriculture Publication, p. 16.

TABLE II

STORES HANDLING CERTAIN FROZEN JUICES

AUGUST 1950

Classification	Orange Juice	Orange Grapefruit Blend	Grape-fruit	Grape	Lemonade Base
United States total	38.2	11.8	15.8	24.3	19.9
By Volume of Business					
Under $50,000	25.7	6.8	9.2	14.3	11.3
$50,000 - 100,000	62.8	19.4	23.3	40.8	35.1
$100,000 - 500,000	82.8	30.7	43.6	61.5	51.8
Over 500,000	89.5	46.3	63.2	82.7	55.3
By Type of Management					
National Chain	72.2	43.8	41.7	58.3	54.5
Regional and Local Chain	64.9	31.5	32.2	57.3	33.2
Independent	36.2	10.0	14.3	22.0	18.4

Table I points out that the self-service chain store has the largest percent of stores with facilities for handling frozen foods. The percentage is highest in the northwest part of the United States, reaching 100 percent in some areas.

The largest percent of stores which handle concentrates, as pointed out in Table II are the stores with an overall volume of $100,000 or more in annual sales. In this table the national chains have the largest percentage followed by the regional and local chains with the independents having the smallest percent of outlets.

II. VOLUME OF SALES

In a survey by the National Association of Food Chains through the cooperation of 51 members who operate over 10,000 food stores, the average volume of frozen food sales was reported at 2-1/4 percent of total sales.[4] The latest survey reported by Chain Store Age indicated that approximately $0.14 out of each $10 spent in the grocery department (excluding produce and meat) goes for frozen foods.[5]

Sales of frozen foods in independent stores[6] were reported as:

$1,000 per store in 1947	
2,000 per store in 1948	
2,500 per store in 1949	
3,000 per store in 1950	(estimated)

To project these sales figures to all stores would mean a sales volume of nearly two billion dollars. Actual sales in 1950 were about one billion dollars.

An American Magazine survey conducted among its subscribers, in 1948, showed that 82.7 percent of its respondents used frozen foods. The survey was broken down by income and city size groups and the results were as follows:

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4 National Association of Food Chains. Frozen Foods Survey. February 4, 1950. Washington, D. C. Bulletin, March 1950.

5 Letter from Lawrence Drake, Editor, Grocery Edition, Chain Store Age.

6 Gerald Klemp, The Independent Retailers Views Frozen Foods. American Grocer. March 21, 1951. p. 3.

TABLE III

FROSTED FOODS ON THE FAMILY TABLE -

BY FAMILY INCOME GROUP

	Under $2,000 %	$2,000 to 3,000 %	$3,000 to 4,000 %	$4,000 to 5,000 %	$5,000 to 7,500 %	$7,500 or More %
Serve	67.6	77.2	84.0	86.6	86.4	91.7
Do Not Serve	22.4	22.8	16.0	13.4	13.6	8.3

TABLE IV

FROSTED FOODS ON THE FAMILY TABLE -

BY POPULATION OF CITY

	500,000 or More %	100,000 to 500,000 %	25,000 to 100,000 %	2,500 to 25,000 %	Under 2,500 %
Serve	81.8	81.5	83.6	83.7	82.0
Do Not Serve	18.2	18.5	16.4	16.3	18.0

The proportion of families purchasing frozen foods rose from 51 percent of those with incomes under $2,000 to 90 percent of those with incomes of $7,500 or more. In the lower income groups, frozen foods were served from five to seven times per week by 3 percent and in the higher groups by 16 percent. Thirty percent thought that frozen foods were too expensive, 19 percent never tried them, 17 percent prefer fresh foods, 9 percent disliked frozen foods, and 6 percent used home canned varieties.

Of those who bought frozen foods, 40 percent bought them because they liked the flavor, 36 percent because they were convenient, 22 percent because they were time saving, 10 percent because there was no waste and 9 percent because there was no cleaning.

It is interesting to note that in Table IV the use of frozen foods varies little with the size of the city. It is probable, however, that in the larger cities more commercial frozen foods were used, while in the smaller cities a larger proportion of home frozen foods were used.

III. PER CAPITA CONSUMPTION

Except for a single year setback at the height of the war in 1943, the per capita consumption of frozen fruits and vegetables has increased each year since 1936. During the three-year period ending in 1948, average disappearance in the United States was five and six-tenths pounds per person. This compares with an annual average of only two-thirds of a pound during 1937-39 when the industry began to broaden the base of its distribution in consumer sizes.[7]

Before making any comparisons of the sales or consumption of frozen foods with other forms of food, it should be worth while to examine the total consumption of food, as shown in Table V.

Using the average 1935-39 as 100, the total consumption of food was the same in 1949 as it was in 1909. Consumption of dairy products was up 10 percent in 1949 over 1909, but was down 9 percent from 1946. Meat

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7 Robert E. Heffernan, Competitive Position of the Frozen Fruit and Vegetables Industry, Business Information Service. United States Department of Commerce, 1949. Washington, D. C. p. 11.

TABLE V

APPROXIMATE CONSUMPTION OF FOOD PER CAPITA

RETAIL WEIGHT EQUIVALENT

Total in Pounds and in Comparison with 1935-39 = 100

Year	Dairy	Eggs	Meat	Potatoes	Citrus	Leafy Veget.	Other Veg.	Total Weight	Index
1909	388	35	161	204	44	76	209	1,576	104
1920	389	36	145	162	52	88	224	1,532	101
1930	385	40	139	144	60	88	216	1,522	100
1940	391	38	149	138	94	104	234	1,556	103
1946	470	45	168	138	114	129	253	1,704	112
1947	444	46	168	132	113	113	239	1,636	108
1948	432	47	158	118	106	117	239	1,591	105
1949	429	46	159	116	98	111	235	1,573	104

consumption has remained almost level. Potato consumption was down 11-1/2 percent from 1946 to 1949. Consumption of grain products was down but sugar consumption was increasing. The total weight of food consumed was down thirty-one pounds from 1946 to 1949.

From this study of the consumption of food products, it can be assumed people are eating as much as ever but their diet is changing. People are eating less of the starchy foods, such as potatoes and grain products, and eating more vegetables, citrus products, eggs and sugar.

In Table VI the consumption of frozen vegetables has been compared with the consumption of the canned and fresh product for the years 1946

TABLE VI

COMPARISON OF THE CONSUMPTION OF CANNED, FRESH AND FROZEN VEGETABLES*

IN POUNDS

COMMODITY	1946 Can	1946 Fresh	1946 Frozen	1947 Can	1947 Fresh	1947 Frozen	1948 Can	1948 Fresh	1948 Frozen	1949 Can	1949 Fresh	1949 Frozen
Asparagus	1.0	1.6	.13	.6	1.5	.12	.7	1.4	.15	.7	1.4	.13
Snap Beans	3.2	10.8	.20	2.7	10.1	.26	2.8	9.9	.30	2.9	9.6	.28
Lima Beans[1]	.3	1.2[1]	.27	.3	1.2[1]	.37	.4	1.2[1]	.39	.4	1.0[1]	.49
Carrots	.6	12.9	.04	.4	11.9	.05	.4	13.6	.03	.3	11.8	.10
Corn	6.2	14.7	.15	5.8	13.8	.27	4.9	15.1	.27	4.9	13.5	.27
Peas	7.6	4.4[1]	.60	5.8	4.1	.81	5.8	4.2	.96	5.3	3.5	.74
Spinach	1.6	3.4	.20	1.2	3.5	.22	.8	3.1	.31	1.1	3.3	.29

1 Weight of fresh product is unshelled.

*Source.

Consumption of Food in the United States, 1909-1948. Supplement for 1949. United States Department of Agriculture. Bureau of Agriculture Economics. Washington, D. C. September 1950. Pp 71-130.

TABLE VII

COMPARISON OF THE CONSUMPTION OF CANNED, FRESH AND FROZEN FRUITS*

IN POUNDS

COMMODITY	1946 Can	1946 Fresh	1946 Frozen	1947 Can	1947 Fresh	1947 Frozen	1948 Can	1948 Fresh	1948 Frozen	1949 Can	1949 Fresh	1949 Frozen
Strawberries	.2	1.7	.38	.3	2.2	.74	.5	2.3	.79	.6	2.1	.9
Peaches	5.3	15.8	.54	4.3	16.6	.32	4.5	12.7	.26	4.7	13.6	.2
Cherries	1.9	1.0	.35	1.0	.9	.57	1.2	.9	.61	1.3	1.2	.5

*Source.

<u>Consumption of Food in the United States, 1909-1948. Supplement for 1949.</u> United States Department of Agriculture. Bureau of Agriculture Economics. Washington, D.C. September 1950. Pp. 71-130.

TABLE VIII

COMPARISON OF THE CONSUMPTION OF CANNED, FRESH AND FROZEN CITRUS JUICES*

IN POUNDS

COMMODITY	1946 Can	1946 Fresh	1946 Frozen	1947 Can	1947 Fresh	1947 Frozen	1948 Can	1948 Fresh	1948 Frozen	1949 Can	1949 Fresh	1949 Frozen
Orange[1]	4.13	37.5	.02	4.09	41.2	.07	4.99	35.4	.14	3.9	30.4	.8
Grapefruit	4.90	13.9		3.35	13.8		3.80	12.2		2.8	10.7	
Blended Orange and Grapefruit	2.34			2.17			2.28			1.8		
Lemon	.10	4.7		.07	4.8		.08	4.4		.1	4.0	
Tangarine	.11	2.5		.21	1.9		.14	1.7		.2	2.1	

1 Includes all citrus juices in frozen product

*Source.

Consumption of Food in the United States, 1909-1948, Supplement for 1949. United States Department of Agriculture. Bureau of Agriculture Economics. Washington, D.C. September 1950. Pp 71-130.

through 1949. Peas have been the outstanding leader among frozen vegetable packs from the beginning of this branch of the industry. In 1947, peas accounted for 38.2 percent of the total pack of frozen foods. The consumption of frozen peas has increased while the consumption of the fresh and canned product has declined.[8]

Lima beans, second in importance, accounted for 19.6 percent of the total 1947 pack of frozen foods and now leads the canned product in total amounts consumed.

Other frozen food items which are competitive with the fresh and canned products are snap beans, spinach, corn, asparagus and broccoli. Frozen french fried potatoes have been increasing in sales volume but no figures were found on total consumption.

The frozen pack of strawberries, as shown in Table VII is much greater than the canned pack but most of the strawberries are still consumed in their fresh form. There are far more peaches consumed in the fresh and canned form than frozen but the consumption of frozen cherries is significant when compared with the consumption of the fresh and canned form.

Table VIII is a comparison of the consumption of citrus concentrates to the consumption of the fresh and canned product. Since all concentrates are shown in one number, this table does not present the competitive picture of orange concentrate as clearly as Figure 1.

In Figure 1 where purchases of orange products by consumers are shown on the basis of fresh orange equivalents, the sales of fresh oranges in

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8 Consumption of Food in the United States 1909-48, Supplement for 1949. United States Department of Agriculture. Washington, D.C. September 1950. 41 pp.

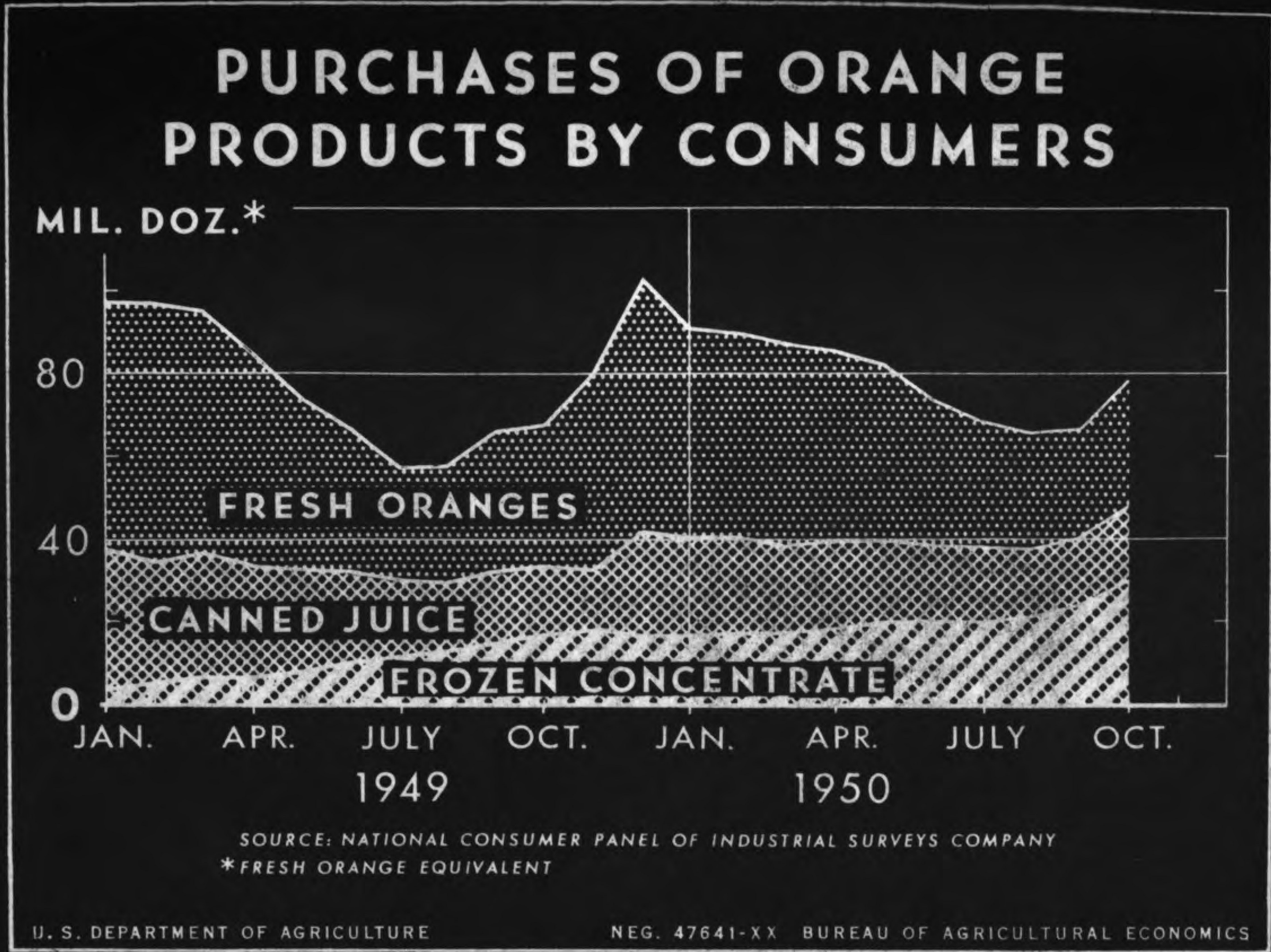

Fig. 1 --On the basis of fresh orange equivalent (9 oranges equal 24 ounces of canned single strength juice or one 6-ounce can of frozen concentrate), household purchases of oranges in fresh, canned, and frozen form totaled 78.7 million equivalent dozens in October 1950, an increase of 10.4 million dozens over October a year ago. Of this total, 30.6 million dozens were purchased in fresh form, 29.8 million dozens as frozen concentrate, and 18.3 million dozens as canned single strength orange juice. Compared to the same month a year ago, October 1950 purchases of frozen concentrated orange juice were up 12.6 million equivalent dozens; purchases of canned juice were up slightly, while purchases of fresh oranges were down by 3.5 million dozens.

October 1950 were 30.6 million dozens. Sales of frozen concentrates were 29.8 million dozens and sales of single strength canned juice were 18.3 million dozens.

In the aggregate, frozen fruit and vegetable production is still relatively small as compared to the canned output. In the peak year of 1946, the near-billion pounds of the combined packs represented only 13 percent of the equivalent weight of corresponding canned packs. Frozen fruits were 17 percent of the canned in that year; frozen vegetables were 10 percent.

During the last seven years, however, the comparative stature of the frozen fruit and vegetable industry has grown from 5 percent of canned production in 1942 to 14 percent in 1948. Frozen fruits were 24 percent of canned packs in 1945 but have dropped back within the range of 14 to 17 percent in the last three succeeding seasons. Frozen vegetables, which were only 3 percent in 1942, increased to almost 13 percent in 1948.

The more important frozen fruit items are produced in significant volumes in relation to their corresponding canned packs. Frozen berries as a group averaged about two and one-half times the canned pack for the four years 1945 through 1948. The big packs of strawberries, many times the equivalent volume of their opposite canned number, largely accounted for the comparative showing of this group. Frozen raspberries are also produced in considerably larger volume than are the canned. Blackberries have fallen back in the production race. Blueberry freezing, fairly stable in itself, also declined in relation to a canned output which tripled in four years.

Among the deciduous fruits, it will be noted in Table IX that red pitted cherries is the only group in which frozen production has consistently been in significant, comparative volume with canned production. Output of this fruit has ranged from 33 to 85 percent of the equivalent weight of canned R.S.P. cherries during 1942-48 and has averaged more than 75 percent in the last three years. Frozen peaches were 16 percent of those canned in 1945 but less than 2 percent in 1948. Apples and applesauce went up to 69 percent in each of the last two seasons. No other fruit is now significant in relation to its canned counterpart.

Lima beans are unique among frozen fruits and vegetables in that their production has grown to where it exceeded the canned pack in both 1947 and 1948. The pack of frozen strawberries has been larger for 30 years or more, but they are not included in this comparison due to the small canned pack. Spinach is the next relatively most important frozen vegetable. It increased from 6 percent of the canned pack in 1942 to 28 percent in 1948. Peas, asparagus, carrots, snap beans and pumpkin squash have recently been the next relatively most important items in the proportions shown in Table IX. Corn has been only 1 to 4 percent of the canned pack since 1942. The volume relationships existing between canned and frozen fruit and vegetable products packaged in consumer - and in institutional - sized containers are more significant to the retailer than the comparison of their total productions.

Table X shows that the packing for home consumption of five principal frozen products during each of the last three years has been almost negligible by comparison with the volume canned for the same market. Lima beans, however, the only product (other than strawberries) ever

TABLE IX

FROZEN FRUIT AND VEGETABLE PACK IN PERCENT OF

CORRESPONDING CANNED PACKS, 1942-48*

PERCENTAGES

Product	1948	1947	1946	1945	1944	1943	1942
Fruits:							
Apples and sauce	11.4	9.6	18.9	68.9	19.1	14.7	4.5
Apricots	1.2	4.0	9.1	32.9	12.1	17.1	3.6
Cherries, R.P.	72.3	82.7	81.6	32.9	47.1	85.2	35.7
Peaches	1.7	3.2	7.2	15.6	7.5	3.3	1.9
Pineapple	.7	1.2	6.1	....	....	....	....
Prunes	5.8	3.8	7.5	16.4	22.3	20.5	3.8
Weighted Average	7.1	7.0	12.6	19.5	11.6	7.3	4.3
Vegetables:							
Asparagus	16.9	9.3	20.6	15.8	9.9	8.3	4.6
Beans, string	10.9	7.9	7.5	6.0	4.4	3.6	1.9
Beans, lima	101.5	103.2	95.6	60.1	59.9	37.1	38.8
Carrots	16.5	9.9	8.1	5.0	1.0	3.2	1.5
Corn 1	2.6	3.7	4.7	3.0	2.8	2.5	1.0
Peas	17.0	13.3	11.4	8.7	8.4	6.7	5.6
Pumpkin-squash	10.6	5.1	7.3	13.3	11.2	13.8	4.0
Spinach	27.7	19.9	15.1	14.2	10.7	11.2	5.7
Weighted Average	13.6	11.6	10.6	8.2	7.2	5.8	4.1

1 Including equivalent cut weight of corn on the cob.

*Source.

Competitive Position of the Frozen Fruit and Vegetable Industry. United States Department of Commerce. Washington 25, D.C. November 1949. p. 5.

TABLE X

COMPARISON OF FROZEN PACKS WITH CANNED PACKS BY TYPE OF DISTRIBUTION ON SELECTED FRUITS AND VEGETABLE PRODUCTS 1946-48*

Million Pounds

PRODUCT AND YEAR		Consumer Sizes[1] Pounds Canned	Pounds Frozen	Percent Frozen is of Canned	Institutional and Indus.[2] Pounds Canned	Pounds Frozen	Percent Frozen is of Canned
Red Cherries, tart.	1948	75.8	.8	1.1	45.8	87.0	190.0
	1947	55.7	.2	0.4	24.7	66.8	270.4
	1946	57.9	2.9	5.0	50.3	85.1	169.2
Peaches	1948	741.2	5.0	0.7	7.9	8.6	108.9
	1947	819.4	8.3	1.0	5.7	18.7	328.1
	1946	875.7	24.8	2.8	4.6	40.3	876.1
Beans, string	1948	325.8	30.1	9.2	107.0	19.5	18.2
	1947	278.6	16.7	6.0	92.9	14.2	15.0
	1946	419.3	22.8	5.4	104.0	18.1	17.4
Lima beans	1948	67.6	46.1	68.2	5.7	29.3	514.0
	1947	60.4	39.0	64.6	5.6	29.2	521.4
	1946	48.9	23.6	48.3	3.4	26.5	779.4
Corn[3]	1948	843.2	7.9	0.9	72.5	13.0	17.9
	1947	706.6	8.6	1.2	56.1	17.9	31.9
	1946	867.4	21.5	2.5	36.9	20.9	56.6
Peas	1948	595.1	71.7	12.1	97.8	47.2	48.3
	1947	886.8	75.2	8.5	104.5	56.6	54.2
	1946	1101.5	72.0	6.5	126.6	68.6	54.2

1 One pound and less for frozen; all except No. 10's for canned

2 All sizes except one pound or less for frozen; No. 10's only for canned

3 Cut corn only

*Source.

Competitive Position of The Frozen Fruit and Vegetable Industry. United States Department of Commerce. Washington, 25, D.C. November 1949. p. 12.

frozen in larger total volume than was canned in the same season, has been processed in consumer sizes during each of the last three seasons in volumes ranging from one-half to two-thirds of the equivalent weight of the canned production. The freezing of peas in consumer size packages was 12 percent of the canned pack for the home market in 1948 and 8.5 and 6.4 percent in the respective preceding years. The consumer pack of snap beans has been 5 to 9 percent of the canned during the last three seasons. Sweet corn and peaches were under 3 percent in all years. Red tart cherries were 5 percent in 1946 but no more than 1 percent since that year.

Volumes of these six products frozen for institutional or industrial use, however, compare favorably with the corresponding canned output. Lima beans lead with a production five or more times the canned pack each season during the 1946-48 period. Frozen peaches were almost nine times the volume canned in 1946 but dropped to about three times and then to even in the succeeding years. Frozen cherries have led by one and seven tenths to two and seven tenths times the canned pack. Freezing of snap beans, sweet corn and green peas in larger-sized containers ranged from 15 to 57 percent of their canned counterparts in the last three years.[9]

The foregoing figures emphasize the extent of which certain frozen fruit and vegetable products are dominating, or strongly competing with, their counterparts in the canned and fresh forms. Table X shows the breakdown of the frozen and canned packs in consumer size as contrasted with the institutional and industrial sizes. With the exception of lima

9 Heffernan. Op. Cit., pp. 11-12.

beans, strawberries and orange juice, frozen foods have not offered any serious competition to the canned or fresh products in the retail market.

IV. COMPARATIVE PRICES OF CANNED, FROZEN AND FRESH PRODUCTS

Retail prices of canned fruits and vegetables average generally between 60 and 80 percent of the prices on equivalent quantities of the corresponding frozen products.

Usually, the maximum price among the different brands of the canned items is lower than the minimum price in the range for the comparable frozen fruit or vegetable. In some cases, canned prices are below the cost to urban consumers of fresh products. These conclusions are based on a survey and analysis made in the Washington, D. C. area in June 1949 and reported by Heffernan.[10] The results are set forth in Table XI.

The outstanding price disparities that will be noted in the tabulation are on green peas, sweet corn and peaches. Premium packs of canned peas sold in early June, 1949 at prices representing 72 to 87 percent of frozen packs and 81 to 93 percent of an equivalent quantity of fresh peas. Highest priced packs of canned corn were about 85 percent of the comparable price of frozen cut corn and the price of canned cob corn was about 67 percent of the price for frozen corn on the cob. Fresh corn in season was, of course, much lower than either the canned or frozen. Fresh peaches in season were also much less expensive than either of the processed products. Canned freestone peaches were available at 67 to 84 percent of the price of frozen peaches.

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10 Ibid. p. 13.

TABLE XI

COMPARATIVE PRICES OF SELECTED FRESH AND PROCESSED PRODUCTS*

(Cents Per Net Edible Pound)

PRODUCT	Canned	Frozen	Fresh
Green Peas	16-26	30-36	28-32
Lima Beans	32-44	45-52	28-34
Snap Beans	21-40	36-40	14-17
Sweet Corn			
Kernel	18-31	35-37	.....
On-cob	49-55	75-84	13-15
Spinach	16-19	28-35	24-30
Peaches	14-26	31-39	9-11
Orange Juice			
Sweetened	9-11	.....	.....
Unsweetened	8-10	16-18	12-15

*Source

<u>Competitive Position of the Frozen Fruit and Vegetable Industry</u>. United States Department of Commerce. Washington 25, D.C. November 1949. p. 5.

This one survey is presented to show the comparative prices of the three forms of food as of June, 1949 in Washington, D.C. and is not intended to represent the comparative prices in general.

The relationship between prices and sales is illustrated very clearly in Figure 2. In this figure, which shows the consumer purchases and prices paid for frozen concentrated orange juice, it will be noted that in October, 1950 there was an increase of 27 percent in purchases with a 13 percent decline in price.

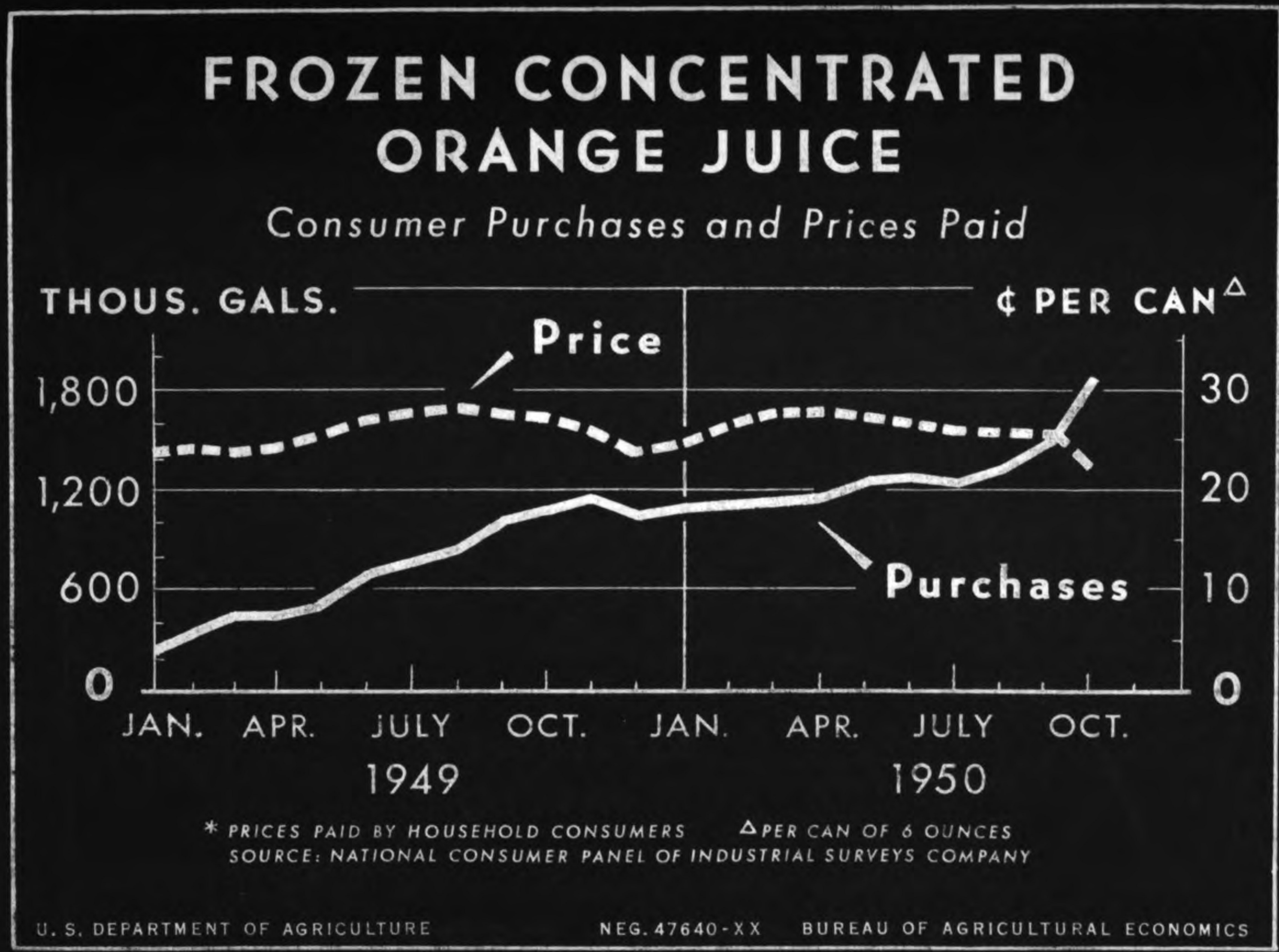

Fig. 2 --The average price paid by household consumers for frozen concentrated orange juice declined each month from April through October 1950. The sharpest drop--3.4 cents per 6-ounce can--occurred in October, when the average price reached 22.1 cents. In response to this 13 percent decline in price during October there was a 27 percent increase in the volume of purchases.

CHAPTER V

MERCHANDISING METHODS

Frozen foods are very easy for a grocer to handle, requiring only refrigeration, generally at zero degrees or below. Except for the refrigeration requirement, no special handling or trimming is needed and there is no loss from spoilage as long as the food temperatures are properly controlled. Frozen foods are easy to handle but, as many retailers have discovered, frozen foods must be sold. They must be merchandised if they are to be sold in large enough volume to make them a profitable department in the retail store.

Among the many suggestions given by producers, distributors and others in the industry to the retailer on frozen foods, there are two points on which there is almost universal agreement. Those points are:

1. "First in - First out." When new shipments of frozen foods are received... put them on the bottom. In terms of the groceryman, rotate your merchandise.

2. Frozen foods once thawed should not be refrozen. In the past, many retailers have allowed frozen foods to partially thaw before placing them in storage or while defrosting the display cabinets. Refreezing thawed frozen foods partly destroys the fresh flavor and much of their vitamin content.

I. BRANDS AND VARIETIES

Consumer acceptance of particular brands at the retail store is rather controversial. Everything else being equal, the retailer will stock the brand or brands that have the highest consumer acceptance. But the question arises as to the importance of brand names when compared with other factors of selling. After the facilities and the price have been made conducive to good sales of a product, how important is its brand? The retailer is interested in knowing what key factors induce a customer to buy and the importance that he should attach to each. A few retailers have listed the following points as important in selling frozen foods:[1] (1) Popular prices; (2) advertising; (3) attractive packages and display cabinets; (4) good quality; (5) instructions on the package for storing and preparing; (6) brands.

Most of the retailers, surveyed by Larson and others,[2] were hesitant to say that consumers were brand conscious. One retailer summed up the views of many when he said, "Many of my customers do not know one brand from the other. For the most part they judge all frozen foods alike. If a customer buys a bad package, then she assumes that it is all bad." Some retailers stated that customers were more brand conscious than they were two years ago. Most retailers placed greater emphasis on popular pricing and attractive packages than on all the rest of the factors combined.

In the survey previously mentioned, which was made by the National Association of Food Chains,[3] the fact was brought out that at least five

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1 J. Stanford Larson, James A. Mixon and E. Clinton Stokes. Marketing Frozen Foods, (Washington: United States Department of Agriculture. 1949) p. 136.

2 Ibid

3 John A. Logan, Volume Distributors Appraise Frozen Foods. From a speech delivered in Chicago. February 2, 1950.

operating costs of the modern food store converge to focus the attention of many operators on the number of brands carried. These are:

High cost of floor space - (item should justify space by sales and profit.)

High cost of cabinets - (obsolescense factor - open type preferred.)

High cost of labor - (multiple handling, servicing.)

High investment in inventory.

High distribution cost - (turnover, volume inducement.)

The food chains were almost unanimous in their views that nor more than two brand lines should be carried. Many of the operators preferred only one brand line on most items, with two brands on the fast movers.

The high cost of equipment, floor space, as well as product inventory, compels many retailers to examine sales and turnover carefully and probably to limit items in many locations to fast moving, profit producing products. Large volume stores usually carry fairly complete lines of vegetables, fruits, juices, seafoods, poultry, ice cream - with somewhat lower stocking of meat, pet foods and specialities (baked goods, precooked foods, et cetera). The median number of items stocked, by the 51 chain companies, in different lines were:

Vegetables	16 items
Fruits	5 items
Juices	3 items
Fish and Seafood . . .	6 items
Meats	5 items
Specialities	4 items

Frozen concentrated orange juice was mentioned more frequently than any other frozen food in the survey. In some companies, orange juice sales were reported larger than all other frozen fruits and vegetables combined.

The Hearn Brothers' three markets in Wilmington, Elsmere and Holly Oak, Delaware, concentrate on only one quality brand whenever possible. If this is not practical, then one or two other brands are added in the particular line. This type of merchandising has resulted in weekly sales of around $3,450 in the three stores in the frozen food departments at a margin of 20 percent.[4]

II. CABINETS

The open type display cabinet is preferred by most of the retailers who have a large volume of sales in frozen foods. There are other types of cabinets which are less expensive to buy and less expensive to operate but one principle of super market merchandising is, "Get the merchandise out in front of the customer, where they can see it, pick it up, read the label and buy it". This principle applies as well to frozen food merchandising.

When new stores are being built or old stores are being remodeled, the frozen food cases are often selected which are of the same style as the other refrigerated cases to be used in the store. A frozen fish case would be identical with the meat cases except in temperature. Such a selection of equipment adds to the streamlining affect of the store and makes shopping more convenient for the customer.

In selecting a cabinet for the merchandising of frozen foods in the store which is already in operation, the choice of a cabinet will often

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[4] Ted Barosh, "Here's How We Built A Big Business in Frozen Foods." <u>The Progressive Grocer</u>, December 1949, p. 38.

depend on the space available for the installation of the cabinet. Some of the chain grocery companies, as well as some independent grocers, have been seriously handicapped in their efforts to merchandise a complete line of frozen foods in their stores by the lack of space in which to install the display cabinets. A single cabinet may be used to display a small amount of all the lines of frozen foods when it is desirable to have a separate cabinet for each of the lines.

The type of service offered in the store should also be considered in the selection of a retail cabinet. The closed storage cabinet is usually considered to be more practical for the service type store. The customer is served by a clerk who has an opportunity to "sell" the customer through personal selling. In the self-service store, the open display allows the customer to see the merchandise, pick it up and buy with less effort than with a closed cabinet.

Some retailers use only one cabinet for all lines of frozen foods while other retailers use one or more cabinets for each line. To display a complete line of frozen foods in their larger stores, the Kroger Company uses a minimum of five display cases. This includes an eight-foot cabinet[5] for frozen fish and meats, a three or six-foot cabinet for concentrates, two eight-foot cabinets for fruits and vegetables and a cabinet for ice cream. Stores with this amount of display area average about 4 percent of total store sales in frozen foods.

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5 Measurements are in linear feet.

Along with adequate display room, ease of shopping is important in retailing frozen foods. Some retailers display each line in alphabetical order while others mix up the line by placing a slow seller next to a fast selling item. No figures were found which indicate one arrangement as being better than the other but it is obvious that any neat orderly arrangement is preferred to jumbled displays.

III. LOCATION OF CABINETS

The location of the frozen food cabinet in the retail store varies from one store to another. In many stores, the cabinet has been shoved into a spot that was vacant without regard to the best location for sales. Some operators prefer the cabinet up close to the checkout counter as they believe this location helps promote impulse sales.

The Kroger Company prefers the frozen fish case to be in the meat market or as close to the meat cases as space will permit. The preferred location for the frozen fruits, vegetables and specialties cases is in or near the produce department. This location gives the impression that frozen foods are fresh (like fresh produce) and the frozen items also help complete the line of fresh produce. If an item in fresh produce is not available, the customer will often buy the fresh frozen product. Easy price comparisons between the frozen and fresh product is another advantage of locating the frozen foods in or near the produce department. One store manager stated it this way, "Customers often buy the frozen product instead of the fresh item, especially when the fresh item is unusually high or where there is a special low price on the frozen product."

Frozen concentrates are usually displayed in one section of the specialties case with a larger display of orange juice in a special cabinet located in a "hot spot" in the store. When concentrated orange juice was first introducted, it was used to draw customers to the frozen food cabinet. Now the trend has changed. Frozen food cabinets, including the special orange concentrate cabinet, are located where each line will sell on its own qualities.

The ice cream cabinet is usually located in the front of the store as close to the check-out counters, as possible. Ice cream, like other frozen foods, is a high impulse item. Besides this, ice cream melts very fast so it should be one of the last items purchased in the store.

According to Larson,[6] those retailers who have given the location of their frozen food cabinet serious study have followed one of three pactices:

1. They have placed the cabinets in the fresh fruit and vegetable section so that the fresh and frozen products can complement each other - this is because until now (1949) frozen foods have been predominantly fruits and vegetables.

2. A few retailers have a practice of breaking the frozen foods down by commodities and displaying each commodity in its corresponding fresh section; that is, they have a cabinet for fruits and vegetables in the fresh produce section and a cabinet for meats and poultry in the meat section.

3. Some retailers place frozen foods in a section by themselves, conveniently located for the store traffic.

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6 Larson. Op. Cit., p. 132.

It is difficult to say which of those systems is best. Kroger has obtained good results by placing the commodities in their corresponding fresh section while other retailers have obtained equally good results by placing all frozen foods together in a department by themselves.

IV. PROMOTIONS

Retailers did not place much emphasis on the promotion of frozen foods before 1947-48. Since frozen foods have amounted to less than 3 percent of the retailer's food business, they have received only about 3 percent of the retailer's effort in sales promotion. Although some operators are giving the frozen food section considerable attention because of the possibilities of long range benefits, nevertheless, most of the burden of sales promotion has rested upon the processors, distributors and wholesalers.

At the present time, many retailers are joining in with the distributors in their advertising to educate the public to the convenience, low cost, uniform quality, vitamin content and other qualities of frozen foods. Most of the chain grocery companies include a section on frozen foods in their weekly newspaper advertisements. Frozen food departments are also given prominence in newspaper advertisements, handbills, and window signs when announcing new and remodeled store openings.

Leading packers are sampling their products in demonstrations on the heavy buying days in retail stores to introduce more consumers to frozen foods. In these store demonstrations, a display is usually set up showing all items in the line being demonstrated. This is easily accomplished by "pouring" the contents of a package of each item out on a meat tray. The empty packages and the contents are then displayed on a shelf placed above the frozen food cases. The product to be sampled, usually orange juice, is prepared in thermos jugs or special containers and served to customers in individual paper cups. A display of the frozen concentrates can be made by stocking the cans on dry ice or by putting the cans in a common washtub with dry ice.

The item being sampled is usually reduced in price by a few cents as an added inducement for the customer to buy. At a recent store opening,[7] coupons were presented to customers which were worth five cents on the purchase of any frozen food item in the line. This promotion was considered very successful. A large volume of frozen food was sold and it was assumed that some of the customers would not have bought except for the five cent reduction in price.

Proper pricing and price marking is one promotion that should be used in every store that handles frozen foods. Frozen foods are still considered expensive by many customers. If the price is posted above frozen foods for each line and each package is stamped the correct price, there can be no doubt in the customer's mind about how much any item in the frozen food cabinet will cost.

Another promotional aid used by many retailers is product knowledge. Many housewives do not know how to cook frozen foods. They do not know how long to cook them, how much water to use, how many ounces in a serving and how much frozen food to buy instead of the fresh product. If the retailer can help the housewife answer these and other questions, he is going a long way in promoting the sale of frozen foods in his store.

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7 Kroger store on East Michigan Avenue in Lansing, Michigan.

To help their store managers promote frozen foods, the Kroger Company sends each manager a frozen foods' letter each week. These letters stress selling points, product information, advertising which will be used and other information which they think will be valuable to the store manager in selling his customers frozen foods.

Here, as an example, is the information which was used in one of those letters:

For your convenience, we are listing below information on Frozen Foods that will be helpful in your discussions with the many Mrs. Smiths using these popular items.

Product information is listed as follows:

(1) Weight of each item.

(2) Amount of fresh product equal to a package of Frozen Food.

(3) A brief description of each item.

Package Weight	Item	Equal to Fresh Product	Description
<u>Concentrated Juices</u>			
6 oz.	Orange	9 to 12 oranges	Concentrated 3 to 1 Makes 1½ pints juice
6 oz.	Blended	4 to 5 oranges 2 to 3 grapefruit	Concentrated 3 to 1 Makes 1½ pints juice
6 oz.	Grapefruit	4 to 5 grapefruit	Concentrated 3 to 1 Makes 1½ pints juice
6 oz.	Grape		Concentrated 3 to 1 Makes 1½ pints juice
<u>Frozen Vegetables</u>			
12 oz.	Asparagus cuts	1 lb. 8 oz.	Spears cut in 1" lengths
12 oz.	Asparagus Spears	1 lb. 8 oz.	Choice spears; 5" lengths
10 oz.	Broccoli cuts	1 lb. 7 oz.	Tender spears; 1" lengths

10 oz. Broccoli cuts	1 lb. 7 oz.	Trimmed spears; 4-7/8" lengths
10 oz. Brussel Sprouts	1 lb. 7 oz.	Select small sprouts
10 oz. Cauliflower	Medium Size Head	Cut into individual flowerets
2 ears Corn on Cob	2 large ears	Sweet and tender ears well trimmed
10 oz. French Fried Potatoes	14 oz.	Pre-cooked; heat and serve.
10 oz. Green Beans, cut	12 oz.	Tender beans cut in 1" lengths
10 oz. Green Beans, French Style	13 oz.	Whole beans sliced
12 oz. Lima Beans, Baby	2 lbs.	Uniform small green beans.
12 oz. Lima Beans, Fordhook	2 lbs.	Large size green limas.
12 oz. Mixed Vegetables	1 lb. 4 oz.	Corn, peas, lima beans, carrots and green beans.
12 oz. Peas	2 lbs.	Uniform size and color.
12 oz. Peas and carrots	2 lbs.	Equal amounts of peas and carrots.
14 oz. Spinach	2 lbs.	No sand or grit. Available in leaf and chopped.
16 oz. Squash	3 lbs.	Fully cooked and pureed; ready to heat and serve.
12 oz. Succotash	3 lbs.	Mixture 2/3 yellow corn and 1/3 baby green limas.
10 oz. Wax Beans	14 oz.	Golden Color; 1" lengths.

Frozen Fruits

11 oz. Blueberries		Choice berries; sweetened
16 oz. Boysenberries		Cross between raspberry, blackberry and loganberry; sweetened.

16 oz. Mixed Fruits		Mixture of apricots, grapes, red raspberries and boysenberries; sweetened.
16 oz. Peaches, sliced		Freestones; sweetened.
12 oz. Red Raspberries		Choice whole berries; sweetened.
16 oz. Rhubarb		Small, tender, well colored cuts; sweetened
16 oz. Strawberries, sliced	1 quart	Sugar added to retain rich red color and flavor.
12 oz. Strawberries, sliced	1½ pints	Sugar added to retain rich red color and flavor.

Frozen Poultry

2 lb. Frying Chicken	2½ lbs.	Cut into 8 pieces - no waste Scientifically grown; choice of grade A quality
2½ lb. Fowl for Fricassee	3 lbs.	Mature chicken - used for stewing, braising, fricasseeing.
11 oz. Chicken a la king		A blend of chicken, peas, mushrooms, red peppers, chicken broth and white sauce.

Retain this valuable information for future reference.

CHAPTER VI

SUMMARY CONCLUSIONS AND SUGGESTIONS FOR FURTHER STUDY

I. SUMMARY AND CONCLUSIONS

The food retailer of today has four principal methods of distributing perishable foods. Distribution of canned and fresh foods are almost universally accepted by all grocers. Dehydrated foods have gained little popularity except during war years. The fourth method, frozen foods, has grown so fast in popularity during the past twenty years that many retailers consider frozen foods as another department in their store.

The grocery store is the largest retail distributor of frozen foods. Estimates of the number of grocery stores which handle frozen foods vary from 35 to 65 percent. However, practically 100 percent of some types of stores, such as super markets, handle frozen foods.

Frozen food specialty stores opened during and immediately after World War II in larger numbers. Most of the few that are still in operation today have added other lines or are operated as a department in large department stores.

In the past three or four years, locker plants have been adding frozen food retailing to their list of services. Some of the locker plants are giving a discount on large purchases. If this practice is continued and expanded, the locker plant will be more important in the distribution of frozen foods.

Home delivery routes for frozen foods were at their peak in 1946. Many of them are out of business today. Most of those who still exist have added other enterprises to their list of activities.

Frozen food sales are averaging less than 3 percent of the total food sales. Some stores which feature frozen foods report sales of this product at more than 10 percent of the total. The Kroger Company considers their 4 percent of sales in frozen foods to be very encouraging for further expansion in retail facilities.

Frozen concentrated orange juice is the leader in frozen food sales. This item is selling almost as many oranges as are sold in the fresh form. Peas are the leader in the sale of frozen vegetables. Lima beans are second in sales. Frozen strawberries lead in frozen fruit sales with cherries in second place.

With the exception of frozen orange juice, the sale of frozen food does not appear to affect the sale of the fresh product to a very great extent. Frozen strawberries affect the sale of fresh strawberries in some cases, especially when the fresh product is expensive as compared with frozen strawberries.

Frozen strawberries outsell canned strawberries many times. More lima beans are frozen than canned. Broken down to retail size, frozen limas were 68.2 percent of the canned product in 1948. At the institutional and industrial level, the frozen pack is much larger than the canned pack but at the retail level frozen foods have not captured much of the market.

In the one survey reported on price in this investigation, the price of frozen food was shown to be 20 to 40 percent higher than the canned counterpart. The fresh product was much lower in price than the frozen in most cases.

Most of the frozen food retailers agree that not more than two brands should be carried. Many retailers prefer only one brand in most items with two brands of fast movers.

The open type display cabinet is preferred by the self-service store operator. The closed storage cabinet is considered to be more practical for the service store.

The three main locations for the frozen food cabinets are: In the fresh fruit and vegetable section; (2) in the section with the fresh commodity and; (3) in a department by themselves.

Promotions used for frozen foods include: demonstrations of the product in the retail store; space in the newspaper and handbill advertisements; multiple pricing; and product knowledge by the retailer.

Frozen foods are important to the retailer for several reasons. Sales of the product were over one billion dollars in 1950. Frozen foods complete the line of food products. Small grocers can carry a complete line of foods in a minimum of space. More and more customers are using and demanding frozen foods each year. Frozen foods are often plus sales; that is, customers buy orange juice as well as fresh oranges; frozen strawberry sales in December; sales of frozen product when fresh item is too expensive. Some retailers think they must handle frozen foods to keep customers from going to other stores.

Frozen foods are an important step forward in the distribution of food. When all frozen food items, ice cream, fruits, vegetables, meats and concentrates, are considered, it is difficult to understand how a grocer can afford not to handle frozen foods.

II. SUGGESTIONS FOR FURTHER STUDY

In this investigation, very little emphasis was placed on the profit in retailing frozen foods. The cost of operating the frozen food department, the break-even point in sales out of a cabinet and case studies on how frozen food sales affect the sale of canned and fresh products are all subjects which should be studied to show the profit in retailing frozen foods.

Electronic sterilization is a new method of preserving food which should be investigated by the food industry.

Concentrated milk offers the dairy industry a challenge in low cost distribution of milk. In view of the success made of orange concentrate, the subject of concentrated milk is especially interesting for study.

Studies of the best location for the frozen food cabinets, the number and kind of brands to carry in the retail store, and the effect on sales and profit by giving discounts on large purchases are needed by the frozen food industry.

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