

THE PRESENT STATUS OF CONVENIENCE  
FOODS IN THE FOOD SERVICE INDUSTRY

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## INTRODUCTION

The food service industry has been changing rapidly in the past few years and the development and use of convenience foods have made an impact on this industry. Convenience foods are new market forms that have evolved as the result of advanced technological developments in food processing.

Several trends in food service have prompted the use of convenience foods. Labor and overhead costs are rising much faster than raw food costs because of increases in the minimum wage in the United States. Neither of these cost increases have been offset by an increase in worker productivity. There is also a scarcity of trained labor in the industry.

Use of convenience foods offers several advantages to a food service, but many managers are not convinced that they are enough to offset their disadvantages. Within the industry there are many differing opinions about convenience foods such as their cost, quality, packaging, sanitary safety, reconstitution and storage. Controversy also exists whether to adopt the convenience concept completely within a food service or whether convenience foods can be combined with conventionally prepared foods to create an effective system.

Food service managers should be informed of the latest developments in convenience foods and be aware of the new products available. Testing programs to evaluate the feasibility of the use of convenience foods could be conducted.



The purpose of this report is to compile a review of literature on this topic and to develop a check list for use by management to consider before initiating the use of convenience foods.

## REVIEW OF LITERATURE

### Definitions

A variety of terms are used to identify the so-called "convenience foods" being used in food service institutions today. Some of these are convenience foods, convenient food, efficiency foods, ready foods, productivity foods and prefab foods. The term "convenience foods" is used most frequently and this term has been defined in several different ways. In one definition (Anon. 1967a) a convenience food is considered "anything that's convenient to prepare in comparison to conventional preparation methods." Another expands this by stating that a convenience food is "a food product that is a copy of an original that maintains the same quality in taste, color and texture as when the original is served" (Anon. 1964). A third definition emphasizes the preparation by stating that "a convenience food is any food wherein all or part of the labor of preparation is done by the manufacturer or processor prior to the arrival in the kitchen" (Anon. 1966a). Willett (1967) distinguishes between convenience and convenient food by proposing that a convenience food is frozen and a convenient food is easy to prepare.

The term "ready foods" was first used at Cornell University by Sayles (1965) who defined ready foods as "the application of mass production to a la carte food service using 'prepared to order' food." Sayles further explained that ready foods are a special type of convenience food that have been processed to the point where they are ready to serve with a minimum amount of preparation.

Weissman (1965) used the phrase "efficiency foods" to describe this new variety of foods being used in food service. He explained that efficiency foods are those that are processed and packaged to require a minimum of preparation time after the product is removed from storage.

The definition of convenience foods will continue to change in the future with the development of new products and new processing techniques. This new kind of food is most commonly referred to as convenience food; therefore this term will be used in this report unless reference is made to a specific type such as the ready foods developed by Cornell University.

Types of Convenience Foods. Convenience foods, Kotschevar (1967) commented, are not new and they are nothing more than new market forms that have emerged from advanced technology and processing methods. Today's convenience foods are available in a variety of forms to reduce the amount of time needed for preparation and service. These convenience foods are frozen, dehydrated, vacuum-packed, freeze-dried, irradiated, canned, preportioned, ready-cooked or ready to cook as noted by Weissman (1965).

According to Bond (1968) "a convenience food is a preserved food that is placed in a state where it can be held for varying periods of time, reconstituted with little effort, and served." There have always been items that could be classified as convenience foods. Dehydration was one of the earliest methods of food preservation and it is still being used. However, as pointed out by Bond (1968), today there are the more sophisticated methods of vacuum drying, spray drying,

and drum drying. Canning is another method of preserving convenience foods. This process was developed in the early nineteenth century and several beneficial improvements have been made recently.

Bond (1968) remarked that freezing is one of the most widely used methods of food preservation and that there are three general methods of freezing for convenience foods. The first is the slow method of freezing which is still satisfactory and has a place in the manufacture of convenience foods. Another method is "quick freezing" or "blast freezing" where foods are frozen very rapidly at temperatures down to  $-50^{\circ}\text{F}$ . The third method uses nitrogen which permits temperatures of  $-300^{\circ}\text{F}$ . with rapid exchange of heat and minimum changes in the product as it is frozen.

Two recently developed methods, freeze-drying and dehydro-freezing, combine the principles of both freezing and dehydrating into two new methods with definite advantages. In freeze-drying the product is frozen and its moisture is removed under a vacuum. Dehydro-freezing, as stated by Bond (1968), is the opposite of freeze-drying. The product is first dehydrated and then frozen. Both of these methods of food preservation still are in the developmental state and improvements will continue to be made.

Another method of preserving convenience foods is radiation sterilization and the product is commonly known as irradiated food. According to Bond (1968) the objective of this process was to permit the food service industry to store large quantities of perishable products without freezing and with limited refrigeration. A number of foods have been successfully irradiated, but only a few have entered

the commercial market. More development and research are needed with this method of preserving convenience foods.

#### Reasons for Use of Convenience Foods

The food service industry has experienced numerous changes in the past ten years which have led many food service managers to consider the use of convenience foods. Two major influences toward the use of these foods are the increased volume of business and intense competition. Willett (1968) stated that the demand for food prepared outside the home is rising faster than our population growth. Along with the increasing volume of food services, there also is considerable competition among food services with a resulting attempt at personalizing their service. With the use of convenience foods part of management's supervisory time and the cook's preparation time can be freed to concentrate on personalizing the food through garnishing, table setting and general atmosphere of the food service.

Christian (1965) emphasized the present problems of food service when he said that labor cost and overhead are rising much faster than raw food cost and that cooks have fewer skills than ever before. It is this "profit squeeze" that Rich (1966) feels is forcing food service managers to consider the use of convenience foods. Memorial Hospital of Glendale, California, converted to the use of convenience foods because they were faced with the problem of maintaining a high quality food service for twice the number of patients without doubling the food service costs and without increasing the size of the kitchen (Anon. 1967b).

According to Willett (1968) the improvements made in processing techniques, packaging, refrigeration, freezing and cooking due to advanced technology have made possible a new type of food service that is designed for the use of convenience foods.

Other problems that may lead food service operators to the use of convenience foods are the lack of skilled chefs, low productivity periods during the day, kitchens that are too small, overproduction of food for a given meal and poor portion and cost controls.

All of these factors have prompted many operators to begin using convenience foods in an attempt to solve some of their problems. Convenience foods can be an answer to some problems of food service, but they offer no quick and easy answers and there are disadvantages as well as advantages to their use.

Advantages. Blosser (1965) listed several advantages of convenience foods. He considers them to add variety to the menu and to be of consistently high quality. Because of their ease of preparation they release management's time for more constructive purposes such as improved merchandising techniques and service. In the total convenience systems of the Kaiser Foundation Hospitals, the dietitians are free for patient contact and doctor conferences without being harrassed by kitchen problems (Anon. 1966b). Convenience foods also offer strict controls over such areas as purchasing, portioning, waste, and food and labor costs. A food service using convenience foods will be able to handle more volume with fewer workers. With their simplicity the preparation space and equipment required are minimized. As stated by Jerry Sebastian

of John R. Thompson Company in an article by Garvey (1968) "kitchens under a convenience system will be one-half the size of a traditional one."

The use of convenience foods can eliminate the high cost of overproduction. The increased cost of converting to convenience foods may be offset by the decrease in previous overproduction. Convenience foods provide better portion control and there is no waste.

Considerable controversy exists among food service managers about the quality of convenience foods. One writer stated that today the public is more demanding of quality food, (Anon. 1966b) but Bond (1968) said that Americans are accepting a lower level of quality in some foods. This is due primarily to the "eat and run" habits of the American diner. Blosser (1965) and others list consistently high quality as one of the advantages of convenience foods. Lack of quality used to be an objection to their use, but Harold Elder, institutional sales manager of Stouffer Frozen Prepared Foods Division of Litton Industries maintained that this reason is not as valid today (Anon. 1968a). Raleigh (1965) stated that frozen entrees are of top quality because of the careful selection of the best raw food and the skillful preparation and cooking by expert chefs. Another source (Anon. 1967c) agreed with Raleigh that quality is no longer an objection because the major food processors are in the business of producing convenience foods and they are staking their reputations on them. Sister M. Leander, chief dietitian of St. Joseph's Hospital, in Milwaukee, Wisconsin, said of the use of convenience foods in their operation:

"There are no complaints and many compliments on convenience foods. I wouldn't want to operate without them" (Anon. 1967d).

Some writers, such as Dana, (Anon. 1968a) a food service consultant, are not convinced of the high quality of convenience foods. He stated that there is an excessive proportion of sauce to meat and that there has been a drop in portion size in the last few years. He also commented that there has been no improvement and even some decline in quality and that there is room for a great deal of improvement. He cautioned food service managers to take nothing for granted when using convenience foods. There may be satisfactory and unsatisfactory products within a given brand and each item must be evaluated separately against other brands. Pope (1967) suggested that convenience foods be used first in those areas where they do not increase cost or decrease quality. Peter Bent Brigham Hospital in Boston is still making many of their own products because they have not found satisfactory products on the market to replace them (Anon. 1968b). To be effective, practical and profitable Bond (1964) recommended that convenience foods must closely resemble items which now constitute quality food to the American. Although prepared entrees may not be equal to the product cooked to order by a skilled chef, they probably represent an improvement in quality in many operations.

Litman (1968) emphasized that convenience foods have lowered the standards of kitchen performance even when the food product continues to be of good quality because the inexperienced workers in most food services today will not take as much care in heating and presenting food they did not prepare as will a chef who prepared or supervised a



meal made from raw ingredients. Use of convenience foods tends to limit a menu because of the number of convenience items available. Once an operator has begun to use these items, the normal response is to decrease the use of non-convenience foods.

With the availability of more convenience foods on the market, competition is growing among convenience food manufacturers and this competition should eventually produce convenience foods of higher quality. As stated by Harry Vlismas of Loew's Hotels in an article by Garvey (1968), "If more restaurants committed themselves to a convenience program, manufacturers would be forced to expand their lines and improve their quality. It's a simple case of supply and demand." Maddox (1967) revealed that the first hurdle for the Kaiser Hospitals to overcome was finding a selection of prepared foods and persuading the food processors to develop products for hospital needs. Food service managers need to work with food processors and manufacturers and inform them of their needs. Improved communication may result in better quality.

Disadvantages. Increased food costs resulting from the use of convenience foods can be considered a disadvantage. To realize the savings that convenience foods can offer, labor costs must be cut by reducing the number of workers on the payroll. Garvey (1968) pointed out that there is a two to four per cent rise in food costs when a convenience system is installed and a 50 per cent decrease in labor. It is this decrease in labor that allows for the overall savings when food and labor costs are combined. Hughes (1968) reported that in the

Lankenau Study the food cost without convenience foods was 48.3¢ per meal and with convenience foods it was 51¢ per meal.

Another disadvantage of convenience foods is the amount of freezer space required. Sandler and Kahn (1968) recommended one cubic foot of freezer space for every 30 pounds of frozen food. Convenience foods require more freezer space, but they permit the use of smaller refrigeration units. These smaller refrigerators can be installed close to the preparation areas. The most frequently expressed problem in any food service is lack of freezer space and convenience foods only magnify this problem.

Sanitation is an area of great concern with the use of convenience foods. Little is known about the microbiology of these foods according to Longree (1967), but bacteriological guidelines are being developed for some of the items. Good sanitary practices are essential in the production and handling of precooked frozen foods both in the commercial processing plant and in the food service establishment. There often is a lack of satisfactory control and maintenance of temperature in distribution from the processor to the consumer. Several conditions such as lack of adequate refrigeration and improper handling in warehouses, order assembly rooms and delivery trucks can produce circumstances that favor the growth of microorganisms. Willett (1968) warned against some potential hazards with convenience foods such as those defrosted on the way to the food service, a delay in the service of prepared foods and large batches of food that have been left to cool. All frozen products should be stored at 0°F. or lower. If the product is allowed to defrost, bacteria will start to multiply and decomposition of the food

begins which ultimately affects the quality. A food service manager should give due consideration to the quality and sanitary safety of the food being served the customer.

### Impact on Food and Labor Costs

The most significant impact of convenience foods is on food and labor costs. Christian (1965) reported that labor and overhead costs have been rising much faster than food costs, and therefore many food service operators have turned to the use of convenience foods to offset these high costs. Garvey (1968) suggested that when convenience foods are used a totally new method of cost accounting is needed. When estimating the cost savings to be realized from convenience foods, Maurice Chartrand of Norton Company Cafeterias in the article by Garvey suggested that the costs of purchasing, receiving and storing, sales and service, maintenance, research, accounting, supervision and management should be considered.

When convenience foods are initiated into a food service, an increase in food costs is noted, but this increase begins to stabilize after a period of time. There is also an accompanying decrease in the labor cost which accounts for the lower operating cost of a convenience food operation. Eleven dietary positions were eliminated, as reported by Hughes (1968), in Philadelphia's Lankenau Hospital through the use of convenience foods. The kitchen staff at Ypsilanti State Hospital in Michigan was reduced from 104 to 90 with an annual labor savings of \$74,200 (Anon. 1968c). Mrs. Charlotte Moehn, chief dietitian at Memorial Hospital of Glendale, California, using her "One-Step Method" cut her payroll an equivalent of 2.6 full time employees or 104 man-hours per week (Anon. 1967b).

Besides the reduction in number of workers required, Garvey (1968) pointed out that the use of convenience foods can provide cost cuts in other areas. Labor and productivity always have been closely related and they represent a kind of supply and demand relationship. As the supply of labor dwindles, labor costs rise, but the productivity of the labor does not necessarily rise along with the cost. The real problem is that productivity has gone down in most food services today and it must be increased with the use of convenience foods if any savings are to be realized. James E. Collins of Du-Pars Restaurants (1968) maintained in Garvey's article that one way to increase worker productivity is to instill pride in the worker. Spence (1967a) director of food service at the University of Maryland, agreed with Collins about food service workers having pride in their work.

How many food service people do you know that are proud of their profession? Let's be realistic for a change and give these people a chance to live with dignity and to demand of their fellow man their justifiable place in society.

Another way to increase worker productivity is through the use of the multi-purpose employee. Orval Haines of Mannings explained that a multi-purpose employee is one who performs a variety of kitchen jobs. He further stated in the article by Garvey that once employees get used to the idea of performing more than one certain task they don't feel they are being worked as hard. According to Garvey (1968) an employee who has worked in a convenience food system as a multi-purpose employee finds the work to be less drudgery, his jobs are more varied and the time seems to move more quickly.

Savings can also result from reduction in storage, preparation, serving, and clean up costs through the use of convenience foods.

Garvey (1968) and Spritzler (1968) commented that convenience foods reduce storage costs because small refrigeration units located near the preparation area can be installed instead of using large walk-in freezers.

Another advantage is that many convenience food items come directly from the factory in disposable aluminum steam table sized pans, thus providing definite savings in clean up costs. At St. John's Hospital in St. Paul, Minnesota, disposable dinnerware is used because every tray of dishes that goes through the dish machine costs 13-18¢ considering the cost of labor, equipment, and depreciation (Anon. 1967e). An annual savings of \$30,000 at Charles Wesley Memorial Hospital was reported by Isaccman (1968). The hospital uses disposable service for two of its four meals each day. Savings were made in china, utensils, silver, soap, cleaning compounds and dishwashing personnel because only one shift of dishwashers was needed instead of two.

The Price Waterhouse study conducted at Philadelphia's Lankenau Hospital was the first of its kind to show the direct effect of a convenience food system on productivity and labor (Anon. 1966b). This study was conducted in two phases of three weeks each. Phase I involved the existing conventional feeding methods and Phase II a total convenience system for a direct comparison. Between the two phases there was a net decline of 14 personnel on the dietary staff which resulted in an estimated annual labor savings of \$54,145. In Phase I the labor cost was 51.3¢ and the food cost 48.3¢. In the convenience phase the food cost was increased to 51.8¢ but this was more than offset by the decreased labor cost of 43.4¢ with an overall savings of 4.4¢. The cost per meal

in Phase I was 99.6¢ as compared to 95.2¢ in Phase II. With the introduction of convenience foods in Phase II total man-hours for food production personnel were cut by 34 per cent.

A comparative study of ready-prepared versus conventionally prepared foods was reported by Quam (1966). The purpose of the study was to develop a system of evaluating consumer acceptance and determining direct food and labor costs of ready-prepared foods as compared to conventionally prepared foods. Five menu items, frozen beef stew, fried chicken, macaroni and cheese, cherry pie, and fresh tossed vegetable salad were used. Similar ready-prepared items that required the least amount of preparation were selected for the comparison.

Staff panels in Quam's study showed preference for the conventionally prepared foods, whereas the student panel preferred the ready-prepared items. The ready-prepared foods were more expensive than the conventionally prepared items when considering food cost alone. When the food and labor costs were both considered the conventionally prepared items were less expensive than the ready-prepared foods with the exception of the tossed vegetable salad. Savings in labor cost for the ready-prepared foods did not offset the food costs between the conventionally and ready-prepared items. A time study using process charts revealed that the number of man-minutes involved in the preparation of these foods were reduced when the ready-prepared menu items were used.

### The Systems Approach to Convenience Foods

The full value of convenience foods is not realized unless the foods, their packages, equipment, layout, and personnel are combined into a food service system. A food service system was defined by Livingston (1966) in this way.

A food service system is essentially an integrated program in which the procurement, storage, preparation, and service of foods and beverages, and the equipment and methods required to accomplish these objectives, are fully coordinated for minimum labor and optimum customer satisfaction, quality, and cost control.

Blosser (1965) contended that the advantages with convenience foods will not be realized unless the efficiency concept is used in its entirety. Successful operations as stated by Willett (1967) combine convenience foods with convenient foods. They have integrated systems and very few have special equipment. Another writer (Anon. 1966c) disagreed with Willett when he stated that most of the present systems are trying to use efficiency foods with the old methods of buying, storing, serving and heating. Elder (1968) indicated that equipment presently in the kitchen can be used quite satisfactorily with convenience foods (Anon. 1968a). In developing an effective convenience food system Sandler and Kahn (1968) maintained that the entire operation must be re-thought, re-planned and re-designed and Maddox (1967) even recommended that anyone contemplating a convenience system work with a consultant who is familiar with prepared foods and microwave ovens. Pope (1967) pointed out that the food service operator must be prepared for the problem of what to do with existing help, space and equipment and he must believe strongly enough in his system to stand behind it in the transition stage.

Layout and Equipment. A layout was defined by Garvey (1968) as "an equipment arrangement designed to facilitate the presentation of quality food to a customer with a minimum of backtracking." To be practical Orval Haines of Mannings, Inc. in Garvey's article suggested that a food service operator must plan for a feasible layout as opposed to one that is immediately practical. In other words, in planning a new food service management should anticipate some of the construction details that might be needed in the future, such as cables in the walls. The layout for convenience foods should be flexible and efficient. A food service operator whose kitchen requires 50 per cent of his floor space cannot beat a competitor using the same foods whose kitchen requires only 20 per cent of his floor space according to Litman (1968). When introducing their line of convenience foods, Armour and Company offers a special food service operation analysis which includes a study of the kitchen layout, traffic patterns and equipment plus complete menu planning and food cost analysis.

Willett (1967) stated that the successful food service operations using convenience foods have integrated systems and very few are using special equipment. This new viewpoint about equipment involves work station thinking. This concept includes a holding refrigerator or freezer that is present where the reheating is done and utensils that are available within the work area. Module equipment involves the standardization of as many utensils, containers, shelves, racks and slides as possible that can be used interchangeably to make work easier. Food transfers are avoided and worker efficiency is improved by eliminating unnecessary steps and motions.



A questionnaire prepared by Volume Feeding Management (Anon. 1967f) revealed that 76 per cent of the institutions involved preferred to use existing equipment, 11 per cent used new standard equipment, and only 4 per cent used special equipment.

When deciding what type of equipment to use with convenience foods, Avery (1965) suggested that the equipment should be designed to handle a specific size and type of food. The choice of equipment depends on the type of institution, the foods, the number of meals, and the particular situation (Anon. 1966b). In selecting equipment Willett (1967) recommended considering what is needed in terms of the volume of food that must be prepared for service at one time.

A variety of equipment is being used for reconstituting convenience foods. The list includes such conventional equipment as steam-jacketed kettles, steam cookers, jet steamers, high pressure steam cabinets, trunion kettles, convection and standard ovens, deep fat fryers, bain maries, and hot water baths. Special equipment includes microwave, quartz or infrared and pulsing ovens, and the Foster Recon. An important point to remember is that almost any kind of equipment can be used provided the directions are followed (Anon. 1966b).

Adequate freezer space for convenience foods is a problem in almost every food service. Sandler and Kahn (1968) recommended that upright freezers installed close to final preparation of the food item are more convenient and efficient than walk-in freezers. According to Sayles (1965) the freezer capacity of a unit should be sufficiently large so that the introduction of warm air will not affect the overall temperature of the unit.

In some institutions frozen and refrigerated foods are being prepared for future use. MacLennan (1968) reported ready foods prepared at Cornell University are frozen in a blast freezer. Although a blast freezer will produce a quicker heat exchange and the product will be of better quality in Bond's (1968) opinion, one is not actually needed for "on site" preparation of frozen entrees.

Packaging. The food itself is an important part of the systems approach to convenience foods. As suggested by Avery (1965) foods should be tailored for the system into which they are going to fit. The kind of packaging used also depends on the food service. Convenience foods are available in both bulk and single portions. Some restaurant managers prefer individual portions because they can be reheated as they are ordered. Hospitals and university food services prefer multiple servings in either the frozen slabs or disposable steam table pans. The Cornell University Ready Foods Program packages their frozen entrees in single portions. Some food services use a combination of bulk pack and individual portions.

Personnel. Regardless of how many savings convenience foods bring to a food service, the ultimate success of the system will depend upon the understanding and cooperation of the employees. When considering the adoption of convenience foods, management at St. Joseph's Hospital in Milwaukee, Wisconsin, conducted meetings with their employees to explain how the frozen entrees would fit into their system (Anon. 1967d). Employees also were assured that there would be no layoffs and that convenience foods would remove some of the drudgery from their work. The management of a New England hotel early realized the importance of

employee attitude towards a pre-prepared entree program as stated by Christian (1965). They assured the employees that the food standards of the hotel were being upgraded by the use of convenience foods.

Some food service managers believe that to be the most effective and beneficial a total convenience system including the use of disposables, must be adopted. The Kaiser Foundation Hospitals are using completely disposable service with the exception of trays which they hope will soon be disposable. Other hospitals have adopted disposable service to different degrees. Isaccman (1968) reported that Charles Wesley Memorial Hospital is using disposables for two of its four meals. Some food service managers feel that the cost of disposables is justified because of the reduction or complete elimination of expensive dish-washing personnel. Other writers such as Pope (1967) do not believe that it is necessary to adopt the convenience food concept in total. There is no such thing as one single, best, complete system that can be used in any situation. Each food service manager must keep informed of the latest developments concerning convenience foods, must evaluate them objectively and then adopt those that will best fit into his operation.

#### Conversion to Convenience Foods

Lack of Acceptance. Although various people in the food service industry began over ten years ago to discuss convenience foods, this concept has developed slowly. Three reasons have been given for this (Anon. 1966b). Food manufacturers were reluctant to commit themselves to the production of convenience foods because studies revealed a high degree of resistance to their use. They were also holding back to see

what kind of new equipment was being developed. The equipment manufacturer was not willing to invest a large sum of money in equipment that might prove unworkable with the new convenience food products. Finally, the operator did a poor job of communicating his needs to either the food or equipment manufacturers. Another writer (Anon. 1966a) answered the question, "Why haven't convenience foods been accepted?" by listing several reasons. One reason was failures of products that were not properly kitchen-tested or test-marketed. Convenience foods were of a lower quality in the beginning and some operators are not convinced that the quality has improved. Few training tools have been developed for orienting employees on the handling and merchandising of convenience foods and the directions for their use have not been explicit enough. Little has been written about scheduling of employees for this new type of food and few facts and figures are available to compare the cost of convenience and conventionally prepared food. Basically, though, people fear change and they are not willing to experiment with new developments. J. Harrison Holman, vice president and manager of the Cooling Equipment Division of the Market Forge Company said of this situation:

We need more light and less heat on this subject. It appears that each and every segment of this industry is being motivated by fear rather than by true knowledge of just what is taking place (Anon. 1968a).

Other reasons for nonacceptance of convenience foods were cited by Raleigh (1965). He stated that managers believe that customers are not ready to accept this type of food, portion sizes are too small, there is not sufficient variety and the cost is prohibitive.

General Considerations. According to Willett (1968) several trends in food service have made a new approach necessary. The concept of convenience food systems has been promoted by today's high wages and scarcity of skilled labor, advanced technological developments and the demand for food prepared outside the home. There are a variety of reasons why food service institutions have converted to either the partial or total use of convenience foods. Hotter foods, better retention of nutrients, less food waste, elimination of fire hazards in the cooking area and improved food service for the patients were listed by Hartman (1968b) as reasons for the conversion to convenience foods in Uniontown Hospital in Pennsylvania. Standardization of food quality was the reason given by Mrs. Charlotte Moehn, chief dietitian of Memorial Hospital of Glendale, California, for their conversion to convenience foods (Anon. 1967b).

Many food service managers are discovering that they can no longer ignore the impact of convenience foods on the industry. They are beginning to seriously consider the use of convenience foods in their operation and they are initiating "phasing in programs" of testing, evaluating and eventually incorporating convenience foods into their food service. Quam (1967) proposed three questions that a manager should ask himself when considering the use of convenience foods.

Is the quality consistent with those standards set by the manager?

Will these foods be acceptable to the patients (or customers)?

Will labor time and costs be sufficiently reduced to warrant the higher costs of ready foods?

Willett (1967) listed several areas to consider when handling the convenience food problem.

1. Menu planning for a competitive market.
2. An acceptable and consistent quality of food.
3. A new kind of internal organization.
4. Trained people with coordinated equipment and service systems.
5. A top management to define goals.
6. Executive time and confidence to work out problems.

Additional factors to consider when planning a convenience program as suggested by Christian (1965) included total staff orientation, equipment evaluation and selection, employee work analysis and a food control and accounting system.

Food service managers who are interested in the use of convenience foods are conducting testing and evaluation programs as they become available. Arthur Dana advised managers to consider carefully the cost per portion and decide whether they can prepare the same product for less cost (Anon. 1968a). Avery (1965) recommended that when evaluating each new food, the manager should determine the total preparation cost including the cost of equipment, the product and the labor cost. Testing and evaluating of several brands of a new product should be done because certain brands may have higher quality products than others. Only through a comparison of several brands will a product of high quality be found.

Another important consideration when embarking on a convenience food program is deciding where to use them. It was suggested by Pope (1967) that convenience foods should be used first where they do not increase cost or decrease quality. Some operations have not adopted a total convenience food system because they have not found any pre-prepared entrees that equal or exceed the quality of their conventionally prepared entree. Still other organizations are using convenience foods to improve the quality of the food served.

Personalizing the Food. Jerry Berns of the "21" Club commented in the article by Garvey (1968) of the moderate and slightly higher priced establishments are struggling to maintain a personal and individual touch and at the same time struggling to remain solvent. The use of convenience foods offers a great challenge to food services and this challenge involves the use of creativity and individuality. Food services according to Pope (1967) need to achieve individuality through production, garnish, presentation and atmosphere. Depending on these factors efficiency or convenience foods can be the same as those offered by a competitor or similar institution or they can give the food service a definite personality of its own. Convenience foods allow more time for both management and employees to be creative and to achieve individuality in the menu and in each food item that the public is demanding.

Food services using convenience foods have been able to maintain a high degree of creativity and individuality. For example, the management company Automatic Retailers of America, Inc. is moving toward complete convenience as fast as possible, but always keeping in mind that their accounts have individual needs. When a convenience system is used the personalizing elements of menu merchandising complete with special dinners and the design and decor of the dining areas are important considerations.

#### Equipment for Reconstitution

Reconstitution of convenience foods is a problem that must be considered when converting to the use of convenience foods. Several methods can be used for reconstituting these new foods, but the



important part is that the instructions for the various pieces of equipment be followed carefully. As stated by Pierre Franey, vice president and executive chef of Howard Johnson's in Garvey's article:

People seem to think that simply because it's a convenient product, you don't have to worry too much about the reconstituting procedures. If anything, the procedures are more critical.

Some operations such as the food service of Wisconsin State University in Oshkosh (Anon. 1967g) have been forced to use existing equipment to reconstitute their convenience foods. Five pound pouches of frozen prepared foods are heated in either a steam-jacketed kettle or a low pressure steamer. Foods are less likely to be overcooked when using steam under pressure as stated by Sandler and Kahn (1968). Livingston (1968) remarked that steam is desirable for vegetables and sauce type entrees. Steam-jacketed kettles have been used for reconstituting the "boil in the bag" type of convenience food. A special piece of equipment has been developed at Cornell University according to MacLennan (1968) for reconstituting this type of convenience food. A wire holder within a metal tank contains the bag so that the frozen food is immersed in the water. This unit instantaneously recovers boiling temperature when frozen food is added. There is a hot water faucet over the tank and a two inch drain to the sewer. Further improvements are planned in the future.

Another piece of existing equipment in use is the conventional or deck oven. Individual portions placed side by side are reheated at 400-425°F. for 35 minutes. Sandler and Kahn (1968) reported that two disadvantages of this method are that it takes too long for reheating the foods and it dries out the sauces. Because of the length



of time required for reconstitution in a conventional oven, Garvey (1968) pointed out too early a prediction of the amount of food to be used is required, thus losing the convenience advantage.

The deep fat fryer has almost become a piece of standard equipment in a food service. Lorant (1964) remarked that the frying of frozen foods just before service produces a product with flavor, color, and texture about as good as fresh.

Convection ovens in which the air is circulated by a motor-driven fan are somewhat slower than other methods for reconstituting convenience foods, but Livingston (1968) indicated they offer the widest range of applications. Sandler and Kahn (1968) reported that about 15 minutes is required to reconstitute individual portions placed side by side in pans. Half steam table pans of food take about 45 minutes to reheat from frozen. One writer (Anon. 1966b) pointed out that a convection oven can heat 88 frozen platters from 0°F. to 170°F. in 20 minutes or less.

The microwave oven, although quite practical in some operations, is not the complete answer to the problem of reconstitution. As stated by Sandler and Kahn (1968) it is feasible for heating individual portions in small operations. In the Walnut Creek Hospital, a Kaiser Foundation Hospital near San Francisco, the frozen prepared entrees for 132 patients are heated in ten microwave ovens throughout the hospital (Anon. 1966b). These are small 110 volt units and no rewiring was needed. At St. Vincent's Hospital in Toledo, Ohio, a microwave oven accompanies the food cart from the kitchen to the patient floors (Anon. 1966b). The food is reconstituted in front of the patient and

served to him while it is the hottest. Livingston (1968) warned that microwave ovens should not be used for breaded products because the water in the food absorbs the energy converting it to steam and resulting in a soggy breading.

Another reconstitution device as reported by Sandler and Kahn (1968) is radiant heat. This type of unit contains quartz plate heaters which transmit high intensity infra-red heat that uniformly penetrates all food. These units which include quartz and infra-red ovens require a 30 minute preheating period. The recommended temperature for this piece of equipment is 750°F. The time required to heat a one inch frozen slab is 8 to 12 minutes, but only 3 to 5 minutes when the food is 40°F. With this type of unit all pans must be covered with aluminum foil and a timer must be used. Livingston (1968) stated that this type of heat is excellent for heating breaded foods.

The Foster Recon or Recon Plus is a special type of equipment developed especially for use in reconstituting convenience foods. This unit was developed by the Foster Refrigerator Company at the request of Armour and Company for the reconstitution of their frozen prepared entrees. Thome (1967) told this company that Armour wanted a reconstitution device that was simple to operate, not expensive, would do all types of cooking and one that could be repaired by an electrician or refrigerator man available in any city. The Foster Recon is available as either a counter top unit or an upright model (Anon. 1965). The source of heat is quartz tubes which give off 1,000 degrees of heat. A flow of refrigerated air continually passes over the stainless steel belt dispelling the convected heat and

allowing the radiant heat to pass through the product being reconstituted. This cycle of radiant heat hitting the product is repeated every three or four seconds. The upright model of the Foster Recon holds 20 disposable steam table pans and the contents of the unit can be reconstituted in 40 minutes according to Spence (1967a). A simple push of a button converts this unit from a freezer into a reconstitution oven that takes the product from 0° to 170°F. Certain disadvantages of this unit have been noted by Hartman (1968a) who stated that the Foster Recon as yet does not have the approval of the National Sanitation Foundation and that the aluminum surface which gives off heat makes cleaning difficult.

Some operations use more than one piece of equipment when reconstituting convenience foods. For example, Garvey (1968) indicated that at Schrafft's, a medium priced restaurant chain, most of the reconstitution of frozen foods is done with a convection oven. The product is then transferred to a warming device and brought to serving temperature in a microwave unit when an order is received for that menu item.

In a questionnaire prepared by Volume Feeding Management (Anon. 1967f), 2,000 food service operators were asked what types of equipment they used to reheat the new frozen prepared foods and the results follow:

conventional ovens	65%
steamers	40
steam-jacketed kettles	22
convection ovens	17
pressure cookers	14
bain maries	13
hot water baths	11
microwave ovens	10

trunion kettles	7%
jet steamers	4
deep fat fryers	4
quartz ovens	1

Arthur Dana, a food service consultant, commented that confusion exists as to whether it is better to reconstitute convenience foods from the frozen or refrigerated state (Anon. 1968a). In the questionnaire prepared by Volume Feeding Management (Anon. 1967f) two thirds of the operators reheated their frozen entrees from the frozen state and one third reheated them from the refrigerated state. When frozen entrees are reheated from the refrigerated state a variety of techniques are used for tempering or partially defrosting them. St. Joseph's Hospital in Milwaukee, Wisconsin, removes their entrees from the freezer at noon to thaw at room temperature for one hour. They are placed in pans and refrigerated until 3:00 P.M. when they are placed in a rotary oven (Anon. 1967d). In a complex of ten state institutions in Rhode Island the centrally prepared frozen entrees are taken from the freezers, held overnight in coolers, and then heated to serving temperature in convection ovens (Anon. 1968c). Rahway's food service removes their frozen foods from the freezer to a 40°F. holding refrigerator 18 to 24 hours before serving (Anon. 1968d).

The use of half or third sized steam table pans was recommended by Sandler and Kahn (1968) for quick turnover and to avoid "steam table fatigue" of the food. They also advised that temperatures and pre-prepared frozen entrees should be 175°F. at the edge and 125°F. in the center when they come out of the oven. In a steam-jacketed kettle with automatic controls, cream base products cook at a safe 180°F. (Anon. 1966b).

### Convenience Food Operations

The Kaiser Foundation Hospitals developed the first total convenience foods systems. Cooking on the premises has been eliminated in most of these hospitals, of which there are 18 in the western states and Honolulu. The kitchen Maddox (1967) reported is no more than an area for storage of bulk foods, assembly of individual trays, a cleaning station and the dietary administration center. This system has eliminated the frantic confusion in the kitchen just before mealtimes. According to Maddox (1967) service in these kitchens is merely a matter of assembly. The food is transferred to a 40°F. refrigerator the day before serving. Before the meal bulk foods are portioned on patient trays which are slid into 45°F. refrigerated carts. The foods are heated by the nurses in microwave ovens that are located on each floor of the hospital. The food is served at the convenience of both the patient and the nurse. This system allows for great flexibility and for patient and staff satisfaction.

Although food costs at the Kaiser Foundation Hospitals for their convenience foods are higher than for conventionally prepared foods, they are dropping as volume increases. The dietitian at Bellflower Hospital in California believes that they are using about half the labor required by a conventional system as commented by Maddox (1967). Another advantage of their system is that kitchen space has been cut by 20% as revealed by Garvey (1968).

When Kaiser initiated their convenience food system, the administrators finally persuaded food processors to develop products to suit their needs, including special diets. According to Marie

Marinkovich, Kaiser's food service consultant, every processed food they use has been developed to meet their specifications for high quality food (Anon. 1966b).

Howard Johnson's restaurants have operated with a convenience foods commissary for over 17 years as reported by Parks (1968). About 70 per cent of their food is produced in their commissary and 30 per cent is convenient foods such as chopped salad greens, cole slaw, and dairy products. From this system they have begun a retail grocery business which distributes over 500 items. Garvey (1968) revealed that Howard Johnson's is interested in the possibility of offering their convenience foods to the institutional industry, but they are not quite ready.

Stouffers is another food service chain that produces its own convenience foods. Stouffers grew from a small lunch counter in Cleveland, Ohio, in 1924 to the large chain it is today including restaurants and inns, the production of frozen prepared foods, and the management of other types of food services. The frozen prepared food business began about ten years ago and today Stouffers offer a full line of products for both retail grocery stores and institutional use (Stouffer Corp.). Each restaurant has a unique theme with authentic decor and atmosphere plus an exceptional quality of food and service. Stouffers produces 130 menu items for use in their restaurants. Six new items are added each quarter and the menus are changed every four months (Anon. 1966b). The Management Food Service Division of Stouffers offers their knowledge of the food service business to hospitals and university and business cafeterias. Stouffers provides professionally

trained management personnel to operate these food services economically and efficiently, providing the same quality food served in their restaurants and inns (Stouffer Corp).

Other food service chains that are committed to the production of their own convenience foods are Mannings, Marriott-Hot Shoppes, Schrafft's, Fred Harvey, John R. Thompson, and Dutch Pantry. Garvey (1968) reported only Schrafft's and Dutch Pantry have announced intentions of offering their convenience foods to the institutional market.

Perloff (1967) remarked that Robert Spence, director of food service at the University of Maryland, has implemented a total convenience food system into a dining hall that serves 580 students. According to his plan, within two or three years all the food services at the University will be merged into a total system which includes the use of disposables, convenience foods, outside catering, and no kitchens (Anon. 1967h). He started thinking about convenience foods five years ago as a means for eliminating the long lines of students in his food service and for cutting labor costs. The kitchen in the new dining hall cost \$180,000, but it has never been used. Spence (1967a) declared because the equipment was obsolete when it was installed. The Foster Recon is the only piece of equipment used for reconstituting the frozen foods.

A convenience food system at the University of Maryland has resulted in savings in several areas. According to Spence (1967b) food costs decreased 6 per cent during the first month of operation with the staff reduced to nine employees. Comparative figures in a

conventional dining hall serving the same number of students revealed a 35 per cent higher food cost and a staff of 22 employees. The kitchen space required was reduced by 80 per cent.

Integrity is needed in implementing a convenience food program Spence (1967a) advised. He recommended buying foods from processors that produce high quality food. He also emphasized "selling" the product to both managers and customers not on the basis of trying to put something over on them, but of convincing them of the worth of the product. He believes that students do not want a traditional dining experience. They want quality food that is served to them in a pleasant environment.

Before the convenience food dining hall opened, Spence conducted meetings with the students in which he explained how much of their money was spent for labor. Students were asked if they wanted the money used for labor or food. He said that through the use of convenience foods and disposables, they could have higher quality food and unlimited servings. The students like being part of the new experiment, Spence reported, and they are anxious to see the entire university on this system. Spence (1967a) said of his operation: "It's a long, hard battle, but we've got a system and it works."

The Principia in Elmhurst, Illinois, was one of the first colleges to convert to convenience foods. Lee L. Wade, Jr., food service director reported a 44 per cent reduction in labor since 1964. They can offer the students better quality, greater variety and larger servings with convenience foods and still save money (Anon. 1966b).

Wisconsin State University in Oshkosh managed by Crown Food Service serves students in eight cafeterias. Mrs. Ignat, part owner of



the food services, declared that the challenge of serving good food at the lowest possible price has caused them to turn to the use of convenience foods (Anon. 1967g). In this system a combination of frozen entrees, frozen desserts, mixes, and some whole or sliced potatoes are used. The average food cost per student meal is less than 50¢.

The New York City Public Schools are operating on a total convenience food system including the use of disposable tableware and trays (Anon. 1966b). Willett (1968) reported that the bulk-packed frozen foods are reheated on the premises in convection ovens. Pans of food are then placed on tables and as the tray moves along the assembly line belt each worker adds the food for which he is responsible. Eugene R. Hult, head of the New York City Office of School Buildings claimed in an article by Garvey (1968) that a frozen food kitchen takes up one third of the space and costs half that of a conventional kitchen.

A number of hospitals also have adopted convenience foods. Garvey (1968) listed three of them: Memorial Hospital of Glendale, California, Samuel Merritt Hospital of Oakland, California, and Ypsilanti State Hospital of Michigan. Two other hospitals that have recently converted to the use of convenience foods are Uniontown Hospital in Pennsylvania and Providence Hospital of Washington, D. C. as reported by Hartman (1968a and 1968b).

#### Distribution

Convenience foods are distributed according to the needs of institutional food services. Raleigh (1965) stated that portion sizing has become a function of management since most distributors offer their frozen foods in individual servings as well as bulk.

In the survey conducted by Volume Feeding Management (Anon. 1967f) three fourths of those operators questioned preferred multiple servings and one half preferred single. Armour and Company offers their line of frozen entrees in both individual and bulk packages. Thome (1967) stated that both "Continental Cuisine" and "American Fare," two of Armour's line of frozen entrees, were developed to capture the flavor and quality of internationally famous recipes. The only difference between them is that "Continental Cuisine" is individually portioned and "American Fare" is packaged in five pound pouches. The "Volume Fare" line, rapidly gaining wide acceptance by all types of food services, is available in 12" X 20" disposable steam table pans. Armour and Company also distributes some low calorie and low sodium frozen entrees under the tradename of "Hospital Fare." According to Garvey (1968) some frozen entrees are available in a 40 ounce slab or half pan with six to nine portions. One multi-unit operator, as revealed by Garvey (1968), feels that "boil in the bag is dead" because one portion in 20 is lost. Packaging is part of the systems approach to convenience foods and every food service manager who plans to use them should select the type of package that best fits his operation.

Several problems can develop in the handling of frozen convenience foods from the time they leave the processor until they are delivered to the food service. One problem is defrosting of the product en route, Willett (1968) remarked. Another problem is that of delivery. Frozen food is not always clearly marked and it may be left on unloading docks and not transported to the freezers until it has defrosted. Defrosting of the product lowers its quality and threatens the sanitary safety.

Cooke (1967) declared that a food service manager should educate his distributor salesman as to his product requirements and he should be assured of the consistent distribution of products of high quality.

### "Selling" Convenience Foods

Most persons connected with food service including management, personnel, and the clientele of that food service are not too receptive to the use of convenience foods. A carefully planned system with high quality frozen entrees and equipment for reconstituting them is of little value if the people associated with it do not have faith in its worth. They must be convinced of the value of a convenience foods system in order for it to succeed.

Kitchen personnel, Livingston (1968) pointed out, frequently resist change and fear that the goal of a convenience foods system is to eliminate their jobs. If workers are not in favor of the new system, mishandling of the food may occur in storage, heating or serving with a resultant loss of quality blamed on the food itself. Brother Herman Zaccarelli, C.S.C., Director of the Food Research Center for Catholic Institutions at Stonehill College, North Easton, Massachusetts, made this comment about food service personnel:

When you're working with people who are set in their ways, you have a difficult time teaching the convenience foods system. To them, it's strictly an academic exercise. They still see food service as the challenge of preparing meals from raw materials in sufficient quantity and quality and on time (Anon. 1967i).

Flynn (1964) reported that the managers chose kitchen help with no previous institutional food service experience when incorporating convenience foods into a hospital. Even though management realized

the importance of employees' attitudes toward a pre-prepared entree program, Christian (1965) reported that within one year the food preparation staff had to be replaced because they felt little pride in the products being served and they showed no inclination to garnish.

Retraining of employees is important and Christian (1965) believed that management should emphasize upgrading of food service standards by use of convenience foods. Employees also should be convinced that they will have more time to organize their work and create new ideas for food presentation. Garvey (1968) mentioned that the National Association of College and University Food Services prepared the following training outline for institutions using convenience foods:

1. Prepare an organization chart defining individual areas of responsibility.
2. Furnish each employee with a detailed job description.
3. Review the importance of temperature control and its relation to bacterial growth.
4. Prepare and post a list of definitions of terms applicable to your operation.
5. Make sure employees are familiar with the operation and maintenance of new equipment.
6. Prepare a list of all convenience foods to be served and the specific portion sizes to be used.

Finally, the clientele of a food service must be convinced of the new system. Garvey (1968) stated that presently the general public does not react favorably to the idea of convenience foods. Some controversy exists as to whether the food service manager should inform his public that convenience foods are being served. Spence (1967a) believed that the students at the University of Maryland should be kept informed so he conducted meetings in which he explained the convenience foods system to them. He felt that if the students were allowed to ask questions about the new system, they would be less critical.

Vance Christian of Cornell University commented in the article by Garvey (1968) that it isn't any business of the customer how a food service chooses to prepare an item. H. A. MacGlennon also of Cornell University believed that if the customers aren't told that frozen entrees are being used, they are likely to find out from a competitor.

If the system has been carefully planned and effectively executed, there should be an improvement in quality and management should stress this point to its employees and clientele. Regardless of the savings realized in labor, food costs and other areas, the success of a new convenience foods system will depend upon the cooperation and understanding of the staff and the acceptance by the clientele of that food service.

#### On-Premise Preparation

Some food service operators have turned to the preparation of their own convenience foods. There is some controversy about the advantages of on-premise preparation or preparation in a central commissary. Ann Break of the Maison Michele restaurant in Chicago stated that by preparing, packaging and freezing large quantities of the restaurant's popular entrees during slack periods their employees can be better scheduled (Anon. 1966d). Dorothy Bailey and Eleanor Kovach remarked that a complex of ten state institutions in Rhode Island have established a centralized food facility for the production of frozen foods. James Collins of Du Par's spoke against central commissaries in an article by Garvey (1968) when he made this comment:

There are two things wrong with a commissary: they cost as much to put up as a restaurant; and health department regulations here are so tough it's almost prohibitive.

Benker (1967) disagreed with a food service freezing its own entrees. The objective today is to reduce operating expenses, not to increase them through the building of expensive production centers.

Cornell University was one of the first to experiment with on-premise production of convenience foods. The term ready foods was used by Sayles (1965) in his report. He defined them as

food that has been processed to the point where it can be kept for a convenient period in storage and which, when ordered by a dining room patron can be finished and served within an acceptable time.

Sayles (1965) stated several reasons why such a program was developed. Recent knowledge of food materials, preparation, storage and reconstitution as well as developments in equipment have provided an opportunity for successful development and use of ready foods. Their use should provide food that will remain "fresh" in storage until ordered by a patron and they should eliminate waste. Mass production of this type of food will save money because some of the highly paid skilled chefs can be replaced with lower priced labor. Only one or two highly skilled chefs will be needed to supervise the production of the ready foods. Hotels and restaurants will be able to provide more personalized service and they can increase the number of menu selections offered.

This system, as indicated by MacLennan (1968), was developed specifically for hotels, motels and restaurants whose patrons demand a high degree of quality in food and service. The banquet facilities of a hotel or restaurant, as pointed out by Sayles (1965) can be used for the preparation of the ready foods by adjusting the employees' work schedules.

Ready foods are produced in large quantities by the banquet staff who are trained in quantity cookery. The development of recipes, however, must be done by a person skilled in the techniques of food preparation Bond (1968) cautioned. When reconstituted the product should have the same quality it had before freezing. Sauces must not break when reheated and flavors must not degrade or spices intensify.

MacLennan (1968) stated that ready foods are packaged in individual portions. The soups, vegetables and entrees are portioned into 12" X 8" plastic bags. Welch (1964) pointed out that the package for ready foods should be water tight, have low moisture and gas permeability, impart no offensive odors or flavors to the product and have the approval of the Food and Drug Administration. As much air as possible should be eliminated from the bags before they are heat sealed. Bags of food are laid flat on a wire shelf and placed on a truck which is rolled into a blast freezer. The truck may hold from 250 to 300 portions. The blast freezer at Cornell University will freeze this amount in 20 minutes. After they are frozen the packages are labeled and stored in suitable cardboard boxes of from 10 to 50 portions in a freezer that maintains a temperature of 0°F. to -10°F.

Sayles (1965) emphasized that the first consideration of a ready foods program is sanitary safety. Management must be better informed in sanitary regulations and precautions than when no such program exists. They should conduct educational training programs in sanitation for all employees that will be involved. MacLennan (1968) stressed that ready foods provide a high degree of sanitation. The food is cooked at a temperature that eliminates bacterial action. They are packaged

while still at cooking temperature with most of the air removed and frozen in a matter of minutes. When they are ordered they are heated to serving temperature and eaten within a few minutes. Sayles (1965) cautioned that a ready food item should be dropped from the program if sanitary safety and the quality of freshly cooked foods cannot be maintained.

In the formulation of convenience foods different ingredients are used because of the effect of freezing upon the consistency and stability of frozen entree sauces. Bond (1968) stated that the use of a converted starch is preferred to the use of conventional flour in ready foods. Purity 69 is used in place of tapioca starch in ready foods as reported by MacLennan (1968).

The satisfactory performance of hydrocolloids in food preparation indicates that they have the potential for wide spread use by food service operators according to Zabik, Miller and Aldrich (1962). Farkas and Glicksman (1967) stated that hydrocolloids or gums in convenience foods are used to impart desirable textural and functional properties to the food.

#### The Future

The food service industry is constantly exploring the future and making improvements. J. Harrison Holman forecasted that there must be more communication between food processors, food and equipment manufacturers, food service operators, package manufacturers and consultants if the use of convenience foods is to increase (Anon. 1968a). It is the responsibility of food service managers to communicate their needs



to the various segments of the industry and only with improved communication and cooperation will the quality and number of convenience foods available increase.

Garvey (1968) believes that the labor situation and the improved quality of convenience foods will force many operators to seriously consider their use. The management of food services should begin to take an unbiased look at the use of convenience foods in their operations. They should keep informed of the latest developments in this area and begin testing and evaluating programs on the new convenience foods as they become available.

## SUMMARY

An increase in minimum wage paid to food service workers, lack of skilled workers and increased food costs have forced many food services to use convenience foods. This term refers to any food that involves less preparation than conventionally prepared food.

Convenience foods offer the advantages of simplified preparation, better portion control, decreased labor cost, greater menu variety, better inventory control, less food waste and consistent quality. Use of convenience foods may present some disadvantages such as increased food cost, storage space, reconstitution and poor sanitary control. However, many food service managers believe that the few disadvantages can be compensated for by their many advantages.

With the introduction of convenience foods into an operation, there is generally an increase in food cost, but this increase is frequently offset by a decreased labor cost because fewer workers are required. The combined food and labor costs of a food service are generally less with the use of convenience foods.

Food service managers disagree about the conversion of a food service to a partial or total convenience system. Some believe that full benefits of this new type of food will be realized only if every part of the food service is re-designed for convenience foods. Others believe that they can be gradually incorporated into an operation and benefits realized. Controversy also exists concerning the quality of convenience foods, distribution and storage and sanitary safety.

An effort is being made to resolve these problems by better communication among food processors, equipment manufacturers, package fabricators and food service managers.

If convenience foods are adopted, the management of a food service must convince their employees and clientele of the benefits of this new system if it is to succeed.

With ever rising food and labor costs, improved quality of convenience foods and better communication within the food service industry, more managers will begin to look objectively towards the use of convenience foods.

## MANAGEMENT CHECK LIST

The purpose of this check list is to provide a food service manager with some factors to consider when contemplating use of convenience foods.

### General

1. Are you prepared to take an unbiased look at the use of convenience foods and evaluate them critically, but objectively?
2. Why are you considering the use of convenience foods?
3. What advantages could they offer your particular operation? Do the advantages of using convenience foods outweigh their disadvantages?
4. Do you plan to develop a total convenience system or are you planning to convert your operation gradually?
5. Have you considered the advice of a consultant in converting to use of convenience foods?
6. Have you compared convenience products from various distributors to find the product of the highest quality?
7. Will the initial quality of the convenience food be maintained by the producer?
8. Are you familiar with some convenience food operations and some problems encountered?

### Menu

1. Are your most popular menu items available in convenience form?
2. Is there a convenience food available with comparable or higher quality than the conventionally prepared product?
3. Will convenience foods provide an improvement in the quality of food served in your food service?
4. Will convenience foods increase the number of menu selections you can offer?

5. Have you considered what techniques of garnishing you might use to personalize convenience foods?
6. Will convenience foods reduce the amount of waste?
7. Will your portion control be improved by their use?

#### Food and Labor Costs

1. How does the cost of the convenience food item compare with a conventionally prepared item?
2. Will the use of convenience foods increase your present food cost?
3. Is any reduction of labor planned if convenience foods are adopted?
4. What will be the overall effect on the combined food and labor costs for your operation?
5. Will the use of convenience foods affect clean up costs?
6. Is any on-premise preparation of convenience foods planned?
7. How will on-premise preparation affect your food cost if it is used?

#### Storage

1. Is there adequate refrigerator and freezer storage within your food service?
2. Is space available for installation of additional refrigerators and freezers if needed?
3. Are freezers and refrigerators available for efficient use by food service workers?
4. Is the capacity of the freezer large enough that its temperature will not be markedly affected by the introduction of unfrozen food?
5. Will the temperatures of both freezers and refrigerators adequately maintain the sanitary safety of convenience foods?
6. Are you aware of the necessity of prompt storage of frozen foods when they are delivered and will you stress this to your employees?
7. Will the convenience foods be reconstituted from the frozen or refrigerated state?
8. If there are plans for any on-premise preparation, will a blast freezer be available?

### Equipment for Reconstituting

1. Will your equipment be suitable and versatile for reconstituting convenience foods as well as the conventional items on your menu?
2. Is your equipment efficiently arranged?
3. Do you plan to use existing equipment for reconstituting convenience foods?
4. Is the purchase of any new equipment planned if convenience foods are used?
5. Are you familiar with the advantages and disadvantages of the various types of equipment for reconstituting convenience foods?

### Packaging and Distribution

1. Do you plan to use bulk or single portioned convenience foods, or a combination?
2. What are the advantages of each type of package?
3. Can you be assured that the convenience foods have been prepared under rigid sanitary conditions?
4. Will you purchase a company's convenience food item or will you have them prepare it according to your specifications?
5. Is there a reliable distributor that will provide your food service with consistent distribution?
6. Will the convenience foods be delivered to your food service in the frozen state?

### Staff Orientation

1. Have you given thought to the need for a training program for your employees?
2. Do you plan to clearly define all new areas of responsibility for each employee?
3. Will you stress the advantages of the system emphasizing that there will be less drudgery under the new system?
4. How will you introduce use of convenience foods to assure your employees that they are not in danger of losing their jobs?
5. Can you convince your employees that standards of the food service are being upgraded by use of convenience foods?

6. Have you considered the importance of instructing employees in the various methods of reconstitution?
7. Do you expect an increase in worker productivity?

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#### LITERATURE CITED

- Anon. 1964. This is convenience. Hospitality (Food and Lodging) 3 (2), 152.
- Anon. 1965. Enriching a menu conveniently. American Restaurant Hospitality 49(5), 33.
- Anon. 1966a. An Institutions proposal: Finally the coming of age of convenience foods. Institutions 58(2), 95.
- Anon. 1966b. The new era. Institutions 59(2), 77.
- Anon. 1966c. What this business needs is efficient systems for efficiency foods. Fast Food 65(8), 83.
- Anon. 1966d. Operation freeze it yourself. Institutions 59(3), 99.
- Anon. 1967a. The quest for convenience. Drive-In Mgt. 26(8), 45.
- Anon. 1967b. The one-step method. Hospital and Nursing Home Food Mgt. 3(10), 36.
- Anon. 1967c. Tomorrow's gradual arrival. Drive-In Mgt. 26(8), 46.
- Anon. 1967d. The matchmaker. Hospital and Nursing Home Food Mgt. 3(12), 24.
- Anon. 1967e. A 'go ahead' dietitian. Hospital and Nursing Home Food Mgt. 3(9), 20.
- Anon. 1967f. Convenience foods: The operator speaks. Volume Feeding Mgt. 29(6), 35.
- Anon. 1967g. The 'easy way' at Oshkosh. School and College Food Mgt. 3(2), 28.
- Anon. 1967h. The total approach to convenience. Institutions 60(1), 146.
- Anon. 1967i. Montessori method to convenience foods. Institutions 61(2), 120.
- Anon. 1968a. Myth vs. method: Converting to convenience foods. Hospital and Nursing Home Food Mgt. 4(1), 29.
- Anon. 1968b. The case against inconvenience. Hospital and Nursing Home Food Mgt. 4(1), 24.

- Anon. 1968c. A convenience case study. *Institutions* 62(4), 167.
- Anon. 1968d. Reconstituted foods and disposables characterize Rahway's food service. *Modern Hospital* 110(6), 112.
- Avery, A. C. 1965. Inefficiency signals trouble ahead. *Food Service* 27(10), 21.
- Benker, B. 1967. Killing some efficiency food myths. *Fast Food* 66(3), 167.
- Blosser, J. M. 1965. Efficiency foods for the food service industry. *The Cornell and Hotel Rest. Quar.* 6(1), 98.
- Bond, L. E. 1964. Convenience foods in the food service operation. *The Cornell Hotel and Rest. Quar.* 5(1), 4.
- Bond, L. E. 1968. Factors to consider in using convenience foods. *The Cornell Hotel and Rest. Quar.* 9(2), 9.
- Christian, V. A. 1965. Commercially pre-prepared frozen entrees. *The Cornell and Hotel Rest. Quar.* 6(3), 89.
- Cooke, P. S. 1967. The mechanics of conversion. *Fast Food* 66(6), 86.
- Farkas, E., and Glicksman, M. 1967. Hydrocolloid rheology in the formulation of convenience foods. *Food Technol.* 21, 535.
- Flynn, H. W. 1964. Convenience foods in the hospital. *The Cornell and Hotel Rest. Quar.* 5(1), 22.
- Garvey, A. 1968. Working with convenience foods to build a cost effective food service program. *Institutions* 62(2), 85.
- Hartman, J. 1968a. This new device may make convenience foods more convenient. *Modern Hospital* 110(3), 130.
- Hartman, J. 1968b. New kitchen abandoned for new system. *Modern Hospital* 110(6), 110.
- Hughes, B. J. 1968. The country club approach. *Hospital and Nursing Home Food Mgt.* 4(2), 24.
- Isaccman, T. 1968. Wesley saves money by "throwing away meals." *Modern Hospital* 110(6), 106.
- Kotschevar, L. H. 1967. Will convenience foods take over? *Drive-In Mgt.* 26(8), 64.
- Litman, C. K. 1968. Convenience foods --- their effect on your image and your profit. *The Cornell Hotel and Rest. Quar.* 9(2), 14.

- Livingston, G. E. 1966. Food service systems: Food technology in action. Food Technol. 20, 76.
- Livingston, G. E. 1968. Design of a food service system. Food Technol. 22, 35.
- Longree, K. 1967. "Quantity Food Sanitation". New York, John Wiley and Sons, Inc. 197-198.
- Lorant, G. J. 1964. Frozen foods in the institutional market. The Cornell Hotel and Rest. Quar. 5(1), 35.
- MacLennan, H. A. 1968. Ready Foods. The Cornell Hotel and Rest. Quar. 9(1), 56.
- Maddox, D. 1967. Kaiser kitchens eliminate most cooking. Modern Hospital 108(6), 116.
- Parks, R. 1968. Professionalism, pride, and profits. The Cornell Hotel and Rest. Quar. 9(1), 2.
- Perloff, E. 1967. Freezer-cooker holds foods frozen then heats without removal. Quick Frozen Foods 29(11), 39.
- Pope, H. S. 1967. Convenience or nothing. Fast Food 66(9), 60.
- Quam, M. E. 1966. Development of a comparison system for use of ready-prepared and conventionally prepared foods in quantity production in food services. Ph.D. thesis, Purdue University, Lafayette, Indiana.
- Quam, M. E. 1967. Study compares labor costs of ready foods and conventionally prepared foods. Hospitals 41(20), 104.
- Raleigh, W. A. 1965. Frozen prepared entrees. Resort Mgt. (reprint).
- Rich, H. M. 1966. Success factors in convenience foods. The Cornell Hotel and Rest. Quar. 7(1), 53.
- Sandler, B. and Kahn, L. 1968. Convenience profit systems. Fast Food 67(5), 163.
- Sayles, C. I. 1965. Ready Foods. The Cornell Hotel and Rest. Quar. 6(2), 21.
- Spence, R. 1967a. Integrity in the convenience food program. School and College Food Mgt. 3(1), 27.
- Spence, R. 1967b. Convenience food service. University of Maryland, College Park, Maryland (Correspondence).
- Spritzler, M. 1968. More light and less heat. Hospital and Nursing Home Food Mgt. 4(1), 23.

- Stouffer Corp. Undated Brochure. Let's get acquainted.
- Thome, W. J. 1967. Convenience foods: Selling the whole package. Meat (February).
- Weissman, M. E. 1965. New efficiency foods for 1966. Food Service 27 (10), 42.
- Welch, J. L. 1964. Boil-in-bag development. The Cornell Hotel and Rest. Quar. 5(1), 36.
- Willett, R. 1967. State of the art: Convenience foods system. Fast Food 66(4), 74.
- Willett, R. 1968. Food protection for today's new foods. The Cornell Hotel and Rest. Quar. 9(1), 69.
- Zabik, M. E., Miller, G. A., and Aldrich, P. J. 1962. The effect of sucrose and cyclamate upon the gel strength of gelatin, carrageenan, and algin in the preparation of jellied custard. Food Technol. 16, 87.

THE PRESENT STATUS OF CONVENIENCE  
FOODS IN THE FOOD SERVICE INDUSTRY

by

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AN ABSTRACT OF A MASTER'S REPORT

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The trend toward use of convenience foods in food service has been created by increased wages paid to employees, the shortage of skilled labor, and increased food costs. The primary advantage of this type of food is the reduction in labor cost of an operation because fewer employees are required to complete their preparation. Convenience foods are partially prepared by a food processor and they are reconstituted for use within a food service. There are several types of equipment for reconstituting these foods and the equipment used depends upon the particular operation and the equipment available.

Controversy exists within the industry concerning the quality of convenience foods, storage and distribution, sanitary safety, and whether a food service needs to convert to a partial or total convenience food system to realize any benefits. However, an effort is being made to resolve these problems by better communication among food processors, equipment manufacturers, package fabricators, and food service managers. With the improved quality of convenience foods and improved communication within the industry, the management of food services will begin to objectively evaluate the possibility of use of convenience foods.

The purpose of this report was to review the literature on the current status of convenience foods in the food service industry and to develop a check list for management to use when considering convenience foods in a food service.