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THE LEFT-OVER FOOD PROBLEM IN
INSTITUTION KITCHENS

THESIS FOR THE DEGREE OF M. S.

Vera Frances Howard

1932

THESIS

Restaurants, lunch rooms
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INSTITUTION KITCHENS.

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THE LEFT-OVER FOOD PROBLEM IN INSTITUTION KITCHENS

I. Introduction

A. Object of Study

The left-over food problem is one which managers of all food units must face. A problem that is found in the home as well as in the institution. It is a seemingly necessary evil which is difficult to escape; nevertheless, it is one that can be remedied in many ways. The reason left-overs cannot be erased from our food vocabulary is apparent when it is realized that there are a great number of factors which are variants and cannot always be standardized and controlled. Some of the factors that must be considered are: the type of institution; the number of people to be served; the kind of people; the number of servings; the size of servings; the kind of food; the season of the year; the method of preparation; the recipe used; the attractiveness and palatability of the dish, and the price.

By careful study of each individual problem many of the factors may be controlled and often the control is such that the ideal, which is of course to have no left-overs, is nearly reached. In order to reach the desired goal one must always be alert and be working on new plans and new ideas, since it is evident that with the best of

supervision and the most careful study, the left-over problem will still exist.

There are many definitions for left-overs although very few are found in writing. Each person has in his or her mind a definition of what left-overs are to him. What one person might term a left-over, another would not class as a left-over at all. In a broad sense left-overs are those foods which have been prepared and have not been consumed at the time when the serving period has been concluded. This definition also takes into consideration the so-called "come-backs" which are foods that have been served and returned to the kitchen; in other words, plate waste. "Come-backs" are not to be included in the definition for food that has once been served to an individual for obvious sanitary reasons must never be served again, but must be discarded. Such food is a problem entirely removed from left-over foods. The above definition also takes into consideration those foods, which although they have been prepared, were prepared with the intention of saving to use later. These foods, of course, must be of the type that will hold just as well on standing for the length of time planned, as they would if they were freshly prepared.

The definition formulated to use in this study is as follows: Left-over foods are those foods which have been prepared for service and are left after serving is completed. They may be foods that cannot be used again

because of their poor keeping qualities, they may be foods which may be served in the same manner without any noticeable change in appearance and palatability, or they may be foods that are perfectly good, but which will be improved if made into a new dish.

A careful survey was made of the campus food units at Michigan State College and of a commercial food unit in the vicinity. The object of the investigation was:

- A. To ascertain the extent of the left-over food problem.
- B. To study the ways in which the problem differs in dormitories and cafeterias.
- C. To compare the two dormitories and to compare the two cafeterias.
- D. To discover the method in which the problem is handled in each of the units studied, and its approximate success.
- E. To compile a chart to be of service in using left-over food to the best advantage.

B. Review of literature.

Although the left-over food problem is ever present and exceedingly difficult to solve in many situations, it is one about which a very limited amount of written material is available. Books written on restaurant management and articles appearing in restaurant periodicals involve left-overs when they discuss food control and standard recipes and portions, for it is evident that if these factors are considered the left-over problem will be diminished.

Articles on the use of left-over foods have been written for the housewife and have been published at different intervals by the Good Housekeeping Institute, Delineator, Better Homes and Gardens and other magazines. A letter received from Katharine A Fisher, Director of the Good Housekeeping Institute states that, "Another point is, in the keeping of left-overs in good condition until they are used. In our thrifty moments we sometimes tuck away in the refrigerator "dabs" of left-over food and promptly forget about them until we come upon them later dried up or covered with mold. This of course means a waste of food and naturally it is not good for the refrigerator. We recommend, therefore, that left-overs when put away in the refrigerator, should be covered closely to prevent their drying out. If they are not put in a covered dish, we will advise such coverings as waxed paper, parchment paper, transparent paper such as cellophane, and aluminum foil, which is not also used for this purpose. It comes in

convenient rolls'. Of course, these left-overs should be used as quickly as possible." This quotation although applying to the housewife can well be applied to the institution director for a careful "putting away" of food stuffs in a condition so that they will remain as fresh as possible and a check of the left-overs in the refrigerator at least once daily will save much food which otherwise would find its way in the garbage can.

Richards and Treat (1) say, "Though menus must be made out in advance of the day when they are to be used they should be sufficiently elastic to allow for proper utilization of left-overs. Using left-overs may mean very little change and substitution, or may require complete revision of the day's meal. Left-overs must be used, for it is only by constant care that the food cost can be kept down to a minimum. That this is true of all institutions whether great or small is shown by the extreme care exercised in the largest hotels to the end that no food shall be wasted.

"Where there is family service, rather than plate service from the kitchen, there will probably be a large amount of left-over food. It requires a good deal of ingenuity to use these left-overs in some other form so as to maintain variety and that element of surprise which is so essential. In the cafeteria or other institutions using the a la carte service, the left-over problem is not so

serious. It is very nicely taken care of in tea rooms and the hotels which serve a club luncheon, the menu for which may be chiefly made up from left-overs."

Throughout the book of recipes, stars have been placed in front of certain dishes to indicate those in which left-overs may be used to advantage.

J.O.Dahl, in Restaurant Management has written a chapter, "On What to do With Left-Over."(2) This chapter contains discussion on the importance of control and suggests things to be on ones guard against. It also contains a table listing ways of using left-over foods. The chapter on standardized portions suggests a reduction of waste by giving people the proper amount of food. The chapter on food cost accounting also is closely related to the problem.

A thesis, "The Use of Left-Over Foods in Institutions" written by Elma Ruth Stewart at Kansas State College, gives a short discussion of the problem and contains about one hundred tested recipes on different ways in which left-over foods may be utilized.

Charts for the use of left-overs have been published by Petter Homes and Gardens(4), Iowa State College(5), and J.O.Dahl(3). These charts may be very helpful and may serve as a guide in the different methods of preparing left-overs.

C. Method Used in Making the Study.

The two dormitories for girls, and the two cafeterias were surveyed in making the study. A two weeks study was made at each food unit checking lunches and dinners. Breakfasts were omitted since the problem of left-overs for breakfast is of much less importance and more easily handled.

Menus were obtained daily and were checked as to the approximate amounts of food prepared for each item; the amounts of food left over; the manner in which the food was served again, i.e. whether the food was merely reheated and served in the same way or whether it was made up into a new dish; the time when the food was served again. Such foods as left-over lettuce scraps, fruits, fruit juices, etc., were not included as they are not on the menu as dishes and therefore could not be checked. These foods are not wasted but are used in making new dishes. The chart for the use of left-overs indicates how such foods may be used.

For each unit surveyed tables were made showing the foods served that involved left-overs. These foods were grouped in six classes: soups, meats and meat substitutes, vegetables, salads, desserts and hot breads. From these tables conclusions were drawn as to the extent of the problem and the method in which the problem was handled.

Tables were made so as to compare the data from the two dormitories and the two cafeterias. A chart for the use of left-over foods was compiled as a result of the study and from other sources (3) (5) and (6).

II. The Important Role Left-Overs Play in Institutions

The cost of food is the largest item of operating expense in any institution serving meals. For every dollar taken in, from forty to fifty cents goes for the cost of raw materials. Studies by Horwath and Horwath, hotel accountants, J.O.Dahl and Lucius Leaven, reveal that in order to expect a reasonable profit, the cost of food percentage will range from forty to fifty-five percent, depending upon the method of operation in the different institutions, (6) (7) (8). J.O.Dahl states, (10) "It is a quite generally recognized fact that the cost of food consumed must be less than fifty percent of the sales if the restaurant is to make a reasonable profit. There are exceptions, of course, and in some special cases it may be possible to prosper with a food cost in excess of fifty percent."

One factor that affects the food costs is the overproduction of food which makes for the left-over problem. Overproduction means quantities of food in excess of what can be sold. In certain types of service, such as table d'hotel the problem is more easily cared for since a set menu is served and the estimation of the amounts to prepare may be quite accurately determined, providing that the number of customers is known. The a la carte and the cafeteria type of service are more difficult. Customers may order any of

the items that appear on the a la carte menu. With the many to choose from it is not always possible to judge accurately just what dish will sell best, and just how much to prepare. Cafeterias are also likely to have overproduction, first because they, as the a la carte service dining rooms, must have varieties of food on the menu. Some days a certain dish will appeal to the customers, then again the same dish will not sell. Second, because a cafeteria must always have enough food on display to make an attractive counter. Even within a few minutes of closing time, the counter must be supplied with enough food so that the dishes will not look empty and picked over.

An overproduction of food if not properly taken care of will result in a financial loss to the institution. Each year many thousands of dollars are lost because managers do not know how to control left-overs.(3). Other factors such as: the incorrect pricing of food; the changes in the menus and the waste of foods from "comebacks" also will cause the food cost to become higher and consequently the profits will decrease.

The improper use of left-overs will also cause the profits to decrease. If an institution serves left-over foods so many times that it becomes noticeable to the customers, they will not be satisfied and will probably not return. Customers do not care to pay for food that looks old and tastes old.

In dormitories where the meals are paid for in advance and the students eat at the same table three times a day, very careful checks must be made of the food so as to have as few left-overs as possible. Students have good memories as well as good eyes and very readily detect it when they are being served left-over food. This will breed discontent among the students and much ill will and criticism is in store for the director who does not realize that left-overs are important and must be watched closely.

Thus it is seen that left-overs are important in so much as they will lower the profits of the institution through raising the food cost, and will decrease the sales which in turn will cause a decrease in the profits.

III. The Causes of Left-Overs

The factors mentioned in the introduction as reasons for left-overs should be discussed more in detail. Many of these factors can be controlled by the management if carefully studied. If the number of people to be served, and the size of the servings are watched a much more accurate estimation of food to be prepared can be made. The manager is responsible for some very direct problems of food control. Mistakes may be made in purchasing foods, buying more than can be used readily or buying foods that are not popular with the clientele. Different classes of people as to religion, nationality, sex and occupation, and the seasons of the year will effect the kind and the amount of food to purchase.

There are often errors made in the preparation of the food that will lead to having left-overs. The quantities that the cooks are told to prepare may be incorrect. A common fault is to allow the cooks to make their own decisions as to the amounts of food to be prepared. True, cooks do become accustomed to the demands and food habits of the clientele and in many cases they make accurate estimations, however, this is no reason for the manager to consider it unnecessary to check with the cooks. Cooks do not usually have a scientific background in institution management, so that it would seem evident that the manager is the logical person to make decisions on such a vital

matter as quantities to be prepared.

It is very difficult to find recipes for large quantity cookery that have been standardized. If the yield of the recipe is not stated, this fact may account for a larger quantity than necessary being prepared and thus not consumed. Institution operators would welcome a recipe book for large quantities that is standardized in all ways possible as to quantity of materials used, proportions used, adequate directions for combining and baking, and yield as to number and size of portions.

Left-overs may result from serving food that is not palatable. Customers after taking food a few times and finding it not palatable will probably not order that food again. The palatability of the food will depend upon preparation from the raw state to the finished product. After the raw food has been properly prepared and so combined as to produce satisfactory texture and flavor, it is also necessary that the type of fuel to be used in further preparation and proper control of the fuel should be understood so that food will be cooked for the proper length of time and in the best way, thus insuring a good finished product.

The importance of having food attractive as to color, texture and size of servings especially in cafeteria situations should not be overlooked. Since the food is selected after it has been seen, it must be such that it will appeal to the eye of the customer. If the eye appeal

is not present the food will not be sold.

The kind and quality of food to be served is also important. It is necessary to have food of good quality if you desire to have a good finished product. If the quality of the materials used are inferior this will soon be detected by the customers and they will not order that food again.

The food habits of the people to be served must be considered. Different sexes will desire different types of food, for example men prefer plain food and generous servings. Women care for the daintier foods and will not eat as much as men. Growing children need certain kinds of foods and large amounts. The nationality, occupation, and the section of the country will also effect the food habits of the people, and these factors should be carefully studied when planning the menu.

Certain kinds of foods are demanded in different sections of the country. Southern people like beaten biscuits, yams, grits and southern fried chicken, while people living in the New England States desire baked beans and brown bread. Sea foods are always to be expected on the menus in restaurants near the coast. Chili Con Carne is a favorite dish in the southwest. It is not always the variety of food that is important in different sections but also the method of preparation that makes foods popular. To avoid left-overs study the food habits of the customers

before planning the menu.

As a rule foods should be served in the season when they are abundant on the market. A food may be served ahead of the season and sell very well, but care should be taken in placing the orders so as to not over buy. Pre-season foods are not of the best flavor and are often expensive. Strawberries and southern outdoor grown tomatoes served in January are examples of this. These foods are poor in color and flavor and are expensive although they may tickle the palate of a few, they should be carefully controlled, for if they are not sold they will add to the food cost. A heavy food that is distinctly a winter food served in the summer shows poor menu planning. Mince pie served in July and sausage served in hot weather are examples. Few people will include these on their order, hence it involves a waste in food.

IV. Discussion of the Food Units

A. Dormitory A.

This dormitory at the time of the study housed slightly over two hundred girls. The number of people served per meal including help was 242. The food was served cafeteria style for noon lunches and dinners Friday and Saturday evenings. Table service is used for the evening meals and for Sunday noons, waitresses carrying in the plates which have been served in the kitchen. The servings are very generous and students desiring a second helping on meats and vegetables may have them as long as the food lasts. "Seconds" are not given for salads and desserts.

The food supervisor must plan the menu so that the amounts prepared will be adequate and yet with as little left-over as possible. Although enough food is prepared to serve 242 people for each meal, this does not always mean that all of the girls will eat at the dormitory. The girls may go down town and not return in time for meals, friends may invite them out for meals, and class work may keep them away. This makes a problem in preparing the right amounts. A choice of food is given on the menus when cafeteria service is used. Giving a choice will make it more difficult to estimate the exact quantities to prepare, and involves a left-over problem. At the

same time the cafeteria service affords an outlet for any left-over food. Another difficulty is encountered with the serving of "seconds". It is a problem to know how many "seconds" will be served and if food is prepared for "seconds" and not served, left-over result.

The following tables are a summary of the foods served that involved the left-over problem. A separate table was made for each of the following dishes, soups, meats and meat substitutes, vegetables, salads, breads and desserts. Each table gives the food prepared, amounts of food prepared, amounts of left-over food, percentage of left-over food, method of re-serving, number of times re-served before it was entirely served out or discarded, and the time elapsed before re-serving.

In the last column, "days elapsed before re-serving", the fraction or number used represents days. For example $\frac{1}{2}$ day, 1 day, or 3 days. From lunch to dinner constitutes $\frac{1}{2}$ day. If the food has been re-served more than one time before it has all been served or discarded the column will read $\frac{1}{2} - 1 - 2$, depending upon the number of times the food has been re-served. The $\frac{1}{2}$ means the food was re-served the next meal after it had been served for the first time. The 1 means that the food was re-served for the second time one day following the first time it was re-served, and 2 means that the food was re-served for the third time two days following the second time it was re-served. By adding the three numbers together the total number of days the food

was kept before it was all served or finally discarded, can be found.

The results in Table I show that only $33\frac{1}{3}$ percent of the soups served involved left-overs. The percentage of the soups left-over is not large. The soup left-over was thrown away.

TABLE I - Soups - Dormitory A.

FOOD PREPARED	Amounts prepared	Amounts Left-Over	Percentage Left-Over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Italian Minestrone	6 gal.	1 gal.	17	Not served		
Pea Soup	7 gal.	2 gal.	29	Not served		
Asparagus Soup	7 gal.	1 gal.	14	Not served		
Celery Soup	7 gal.	$\frac{1}{2}$ gal.	X 29 ²	Not served		

Note: 12 soups were prepared to be served during the period studied

4 soups or 23 1/3% of the number prepared involved left-overs.

The percentage of left-over meats and meat substitutes is not large as is shown in Table II. Most of the left-overs were made into new dishes before being re-served. The left-overs were served but once after being placed on the menu. This shows that the methods of re-serving the left-overs were well accepted by the students.

In Table III it will be noticed that a number of the vegetables were not checked so that percentages could not be determined. This occurred because of the difficulty in checking and measuring certain vegetables. This table shows that most of the left-over vegetables were re-served in the same manner in which they were served the first time that they appeared on the menu. Four vegetables were saved until they were too old to be served again.

TABLE II - Meats and meat substitutes - Dormitory A

FOOD PREPARED	Amounts Prepared	Amounts Left-Over	Percentage Left-Over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Mexican Steak	30 P	10 P	33	Meat & Biscuits	1	6
Roast Veal	58 #	12 $\frac{1}{2}$ #	22	Spanish Rice	1	$\frac{1}{2}$
Pork Cutlets	37 #	2 #	5	Meat Roll	1	$\frac{1}{2}$
#Meat Biscuit Roll	240 P	12 P	5	Not served		
Creamed veal & peas	150 P	30 P	20	Same	1	$\frac{1}{2}$
Chicken Fried Steak	53 #	7 $\frac{1}{2}$ #	14	Meat & Biscuits	1	3
Baked Ham	68 #	8 $\frac{1}{2}$ #	12	Ham & Eggs	1	3
Roast Beef	74 #	2 $\frac{1}{2}$ #	3	Meat & Biscuits	1	$\frac{1}{2}$
Baked Pork Chops	60 #	8 #	13	5# Same 3# with cheese fondue & tomato	1	3
Veal Cutlets	83 #	6 #	7 $\frac{1}{2}$	Not served		
Frankfurters	20 #	3 #	15	Hash	1	2
Roast Pork	60 #	2 #	3	Hash	1	2 $\frac{1}{2}$
Sardines on rye bread	102 P	12 P	12	Same	1	1
Link Sausage	10 #	5 #	50	Same	2	1 - 1
Pork Chops	277 P	25 P	9	Pork chops and cream gravy	2	1 - 1
Macaroni & cheese	110 P	20 P	18	Not served		
#Macaroni: ham and tomatoes	120 P	30 P	25	Not served		
Cheese Fondue	250 P	150 P	60	Cubed with tom- ato sauce	1	1

Note: 34 Meats and meat substitutes were prepared to be served
18 or 52.9% of the number prepared involved left-overs.

#. The food has been served before and made into a new dish
P. Abbreviation for "portion".



TABLE III - Vegetables - Dormitory A

FOOD PREPARED	Amounts Prepared	Amounts Left-over	Percentage Left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Mashed Potatoes	1½ bu A.P.	3 qt Mashed		not served		
Spinach	2½ bu	2 qt		same	1	1
Stewed Tomatoes	14 qt	8 qt	58	same	1	1
Buttered cabbage	16 qt	4 qt	25	not served		
Buttered parsnips	1 bu	1½ qt		not served		
Creamed potatoes	70 #	6 #	9	fried	1	2
Baked sweet potatoes	1½ bu	70 potatoes		Sweet P. croquettes	1	2
				1 qt same	1	1
Buttered carrots	14 qt	6 qt	43	5 qt vegetable soup	1	3
Escalloped Potatoes	288 P	48 P	17	Hash	1	3
Boiled Potatoes	1½ bu	1 pk	17	Hashed brown	1	2
Mashed potatoes	75 #	3 qt		not served		
Creamed carrots	¾ bu A.P.	2 qt		same	1	1
Spinach	½ bu A.P.	3 qt		same	1	2
Fresh Wax beans	1 hamper A.P.	2½ qt		same	1	1
Mashed Potatoes	70# A.P.	2 gal mashed		Pimento potato	1	1
Creamed peas	15 qts	2 qt	13	same	1	1
Creamed potatoes	1 bu A.P.	3 qt		Pimento & parsley	1	3
Stewed Tomatoes	15 qts	1 qt	7	same	1	1
Buttered peas	13 qts	1 qt	8	Veal stew		

Note: 35 vegetables were prepared to be served during the period studied
19 or 54% of the number prepared involved left-overs.

The data in Table IV shows that the left-over salad problem was small and easily handled. The salads left over were served as quickly as possible and only had to be re-served once. Most of the salads were served as prepared. Fresh Vegetable salads left over were saved and served in Hodge Podge.

TABLE IV - Salads - Dormitory A

FOODS PREPARED	Amounts Prepared	Amounts Left-Over	Percentage Left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Green Bean Salad	56 salads	6 salads	11	Same	1	2
Tomatoes & Cucumbers	204 "	2 "	01	Same	1	$\frac{1}{2}$
Mixed Fruit Gelatin	112 "	48 "	43	Same	1	2
Spring Salad	108 "	12 "	7	Hodge Podge	1	1
Mexican Bean Salad	42 "	6 "	14	Same	1	1
Apple Salad	132 "	42 "	32	Same	1	1
Cucumber & Lettuce	173 "	16 "	9	Hodge Podge	1	2
Pineapple-cottage cheese Gelatin	144 "	84 "	58	Same	1	1
Carrott & Raisin	80 "	26 "	32	Same	1	$\frac{1}{2}$
Cole Slaw	200 "	8 "	4	Same	1	$\frac{1}{2}$

Note: 31 Salads were prepared to be served during the period studied
 10 or 32% of the number prepared involved left-overs.

In studying Table V it is noticed that a large percentage of the number of desserts prepared involved left-overs. Nearly fifty percent of the left-overs showed twenty-five percent or more left-over. The desserts were easily cared for as they could be re-served on the lunch menu as a choice was always given. At least one fresh dessert was always on the menu so that no one was obliged to take the left-over.

The data in Table VI shows that the left-over bread problem is not large. If a few rolls are left from a meal they can be re-heated and served at the next meal to a very good advantage.

The left-over food of Dormitory A does not present a difficult problem. The small percentage of food that is left over is in most cases saved and re-served.

TABLE V - Desserts - Dormitory A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Rebecca pudding	96	12	13	same	1	1
Fresh strawberry whip	196	9	5	same	1	$\frac{1}{2}$
Sailors Duff	108	20	19	same	1	$\frac{1}{2}$
California cream	54	20	37	same	1	1
Blueberry tapioca	65	35	54	same	1	3
Divinity Pudding	159	40	25	same	1	$3\frac{1}{2}$
Pineapple Upside down cake	252	62	25	same	2	$\frac{1}{2} - \frac{1}{2}$
Prune souffle	96	29	30	same	2	$\frac{1}{2} - \frac{1}{2}$
Cream puffs	150	40	27	same	1	1
Mary's Choc. Pudding	115	15	13	same	1	1
Cherry Pie	200	6	3	same	1	$\frac{1}{2}$
Fruit jello	180	14	8	same	1	$\frac{1}{2} - 1$
Butterscotch pudding	110	30	27	same	1	$\frac{1}{2}$
Fig cake	175	28	16	same	1	$1\frac{1}{2}$
Pineapple Charlotte	202	50	25	same	1	1
Cream puffs (small)	425	208	49	same	1	1
Cup cakes	415	90	22	same	1	1
Brownies	280	90	32	same	1	1
Rebecca pudding	100	25	25	same	1	1
Cherry tarts	216	29	13	same	1	$\frac{1}{2}$
Fruit gelatin	170	82	48	fruit gelatin salad	1	1
Fruit bars	300	100	30	88 bars same 12 bars, cake delicious	1	3

Note: 36 desserts were prepared to be served during the period studied

22 desserts of 61% of the number prepared involved left-overs.

TABLE VI - Breads - Dormitory A

FOOD PREPARED	Portions Prepared	Portions Left-over	Percentage Left-Over	Method of re-serving left-overs	Number of times re-served	Days elapsed before re-serving
White rolls	332	70	21	Bread crumbs		
Biscuits	360	60	16	Same	1	1 1/2
Butterscotch rolls	210	24	11	Not served		
White rolls	240	24	10	Same	1	1
Muffins	425	120	28	Same	1	1 1/2
White rolls	275	24	8	Same	1	1 1/2
White rolls	275	24	8	Same	1	1 1/2
White rolls	210	24	11	Same	1	1 1/2
Cloverleaf rolls (very small)	400	50	12	Bread crumbs		
Butterscotch rolls	260	6	2	Not served		
Parker House rolls	275	26	9	Bread crumbs		

Note: 14 breads were prepared to be served during the period studied
 11 breads or 79% of the number prepared involved left-overs.

B. Dormitory B.

This dormitory at the time of the study housed one hundred girls. The number of people served per meal, including help, was one hundred^{and}/thirty. The food service was cafeteria style for noon lunches and dinners Friday and Saturday evenings, and table service for the evening meals and Sunday noons, exactly the same as Dormitory A. The same menus are used at both dormitories. Any changes in the menu were made to take care of the left-overs. With the above conditions, the same, the food director of Dormitory B will have the same problems as the food director of Dormitory A. The differences will be found in the extent of the problem and the manner in which it is handled.

The results in Table VII show that fifty percent of the soups prepared involved left-overs. The soups were saved for a few days and then re-served. In one instance when cream of potato soup was served, a large amount was left-over. The second cook made a mistake in the amount to prepare. Only in one case was any soup discarded, and this was because a very small amount was left.

A study of Table VIII, Meats and meat substitutes, shows that most of the meats left-over were made into new dishes. Generally several days elapsed before the left-overs were served again. In all cases the foods were re-served but once.

TABLE VII - Soups -Dormitory B

FOOD PREPARED	Amounts Prepared	Amounts Left-over	Percentage Left- over	Method of re-serving	Number of times re-served	Days elapsed before re- serving
Clam chowder	14 qt	1 qt	7	not served		
Corn chowder	12 qt	5 qt	41	same	1	4
Bean soup	18 qt	7 qt	38	same	1	7
Vegetable soup	17 qt	2 qt	11	same	1	2
Cream of Potato soup	12 qt	10 qt	83	same	1	3
Mulligatawny soup	16 qt	2 qt	12	same	1	1

Note: 12 soups were prepared to be served during the period studied

6 soups or 50% of the number prepared involved left-overs.

TABLE VIII - Meats and meat substitutes -Dormitory B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Hot Veal Sandwich	12# veal	5 $\frac{1}{2}$ # veal	45	3# hash 2 $\frac{1}{2}$ # sandwiches	1 1	5 6
#Escalloped Ham & potato	75	15	20	refreshened with new ham scraps and potatoes	1	7
Roast beef	40#	3 $\frac{1}{2}$ #	8	hash	1	4
Pork Cutlets	30#	18#	60	15 $\frac{1}{2}$ # same 2 $\frac{1}{2}$ # hash	1 1	1 2
Swiss steak	28#	3 $\frac{1}{4}$ #	12	Hash	1	3
#Baked Hash	75	8	10	same	1	2
Liver & Bacon	10# liver 5# bacon	22		same	1	3
Veal stew	60	25	42	same	1	3
Baked ham	52 $\frac{1}{2}$ #	26 $\frac{1}{2}$ #	50	was not yet re-served when check was completed		
Swiss steak	36	10	28	meat croquettes	1	4
Roast beef	45#	2 $\frac{1}{2}$ #	6	meat croquettes	1	4
Meat pie	80	12	15	meat croquettes	1	1
Roast Veal	38#	10#	26	Hot veal sandwich	1	1 $\frac{1}{2}$
Chicken shortcake	100	30	30	same	1	1
Macaroni & cheese	75	15	20	added fresh white sauce	1	4
Spanish beans	45	17	38	freshened with tomato	1	3
Egg cutlets	96	15	15	same	1	1
Baked beans	23	10	43	same	1	2

Note: 39 meats and meat substitutes were prepared to be served during the period studied
19 meats and meat substitutes or 48.7% of the number prepared involved left-overs

- left-overs made into a new dish.



The data in Table IX shows that of the fifty three percent of the number of vegetables that involved left-overs, over fifty percent of the left-overs were made into a new dish before re-serving. The percentage of the left-over vegetables was in most cases less than twenty five percent.

It is seen in Table X, Salads, that less than twenty-five percent of the salads prepared involved left-overs. These left-overs with one exception amounted to less than fifteen percent. The extra salads were always placed on the serving counter the following meal. There was always a freshly made salad in addition to the left-over, so no one was obliged to take the left-over.

TABLE IX - Vegetables - Dormitory B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elaps before re-serving
Stewed tomatoes	14 qt	1 qt	7	In lima beans	1	1
Fresh spinach	10 qt	2 qt	20	Same	1	1
Buttered carrots	16 qt	1 qt	6	Carrots & peas	1	3
Glazed parsnips	$\frac{1}{2}$ bu A.P.	1 qt		Same	1	2
Buttered green beans	16 qt	$\frac{1}{2}$ qt	3	Same	1	2
Buttered parsnips	$\frac{1}{2}$ bu A.P.	20 p		Same	1	1
Buttered cabbage	5 gal	3 gal	60	Cabbage au gratin	1	2
Fresh Spinach	12 qt	3 qt	25	Same	1	2
Buttered beets	14 qt	2 qt	14	Same	1	4
Glazed parsnips	22#	10#	35	Same	1	2
Washed potatoes	45#	9#	20	Potato cakes	1	2
Creamed new potatoes	30#	15#	50	10# hash 5# corn chowder	2 2	4 - 2 4 - 4
# Potato cakes	16#	2#	12	Irish	2	2 - 2
Escalloped potatoes	35#	13 qt		Es. Pot & potatoes	1	2
Mashed potatoes	35#	11#	22	Pimento & Bacon potatoes	1	2

Note: 22 vegetables were prepared to be served during the period studied
 17 vegetables or 55% of the number prepared involved left-overs.

TABLE X - Salads - Dormitory B

SALADS	Portions prepared	Portions Left-over	Percentage left-over	Method of re-servicing	Number of times re- served	Days elapse before re- serving
Apple-Marshmallow and celery	72 salads	5 salads	7	same	1	1
Savory potato	84 "	3 "	4	same	1	1
Apple salad	120 "	40 "	33	same	1	1
Cheese gelatin salad	40 "	4 "	10	same	1	2
Perfection salad	120 "	6 "	5	same	1	1
Apple, R.A.Cherry and celery	65 "	4 "	6	same	1	1
Bride Salad	105 "	15 "	14	same	1	1

Note: 29 salads were prepared to be served during the period studied

7 salads or 24% of the number prepared involved left-overs.

A study of Table XI shows that the amounts of desserts prepared were quite accurate. Left-over desserts served in the same way as first prepared were served not more than one day after they had been on the menu for the first time. Left-overs that were made into new dishes were generally saved several days.

On examining Table XII it is found that eighty eight percent of the breads prepared had left-overs. This, however, is not as serious as it may appear, for as before mentioned left-over breads are easily cared for.

The left-over food of Dormitory E does not present a difficult problem. Most of the left-overs are served out at noons when the cafeteria service is used. There is no waste with the left-overs for they are saved and served again. The left-overs are rarely re-served more than once in order to use them all. Students at Dormitory E get very little left-over food, and the small percentage that they do get is served them while the food is still palatable and looks as nice as when served for the first time.

TABLE XI - Desserts - Dormitory B

DESSERTS	Amounts Prepared	Amounts Left-over	Percentage Left-over	Method of re-serving	Number of times re- served	Days elapse before re- serving
Cottage Pudding	80 P	25 P	31	Cheese cake pudding	2	3 - 1
Raspberry Bavarian	153 P	19 P	12	same	1	2
Cherry Pie	150 P	23 P	15	same	1	$\frac{1}{2}$
Ginger bread	42 P	16 P	38	same	1	$\frac{1}{2}$
Fruit Delicious	150 P	20 P	13	same	1	$\frac{1}{2}$
Duchess Creme	75 P	49 P	65	same	2	$\frac{1}{2}$ - 2
Cup cakes	130 P	20 P	15	Cake delicious	1	$\frac{1}{2}$
Apple fritters	106 P	21 P	19	same	1	1
Gooseberry pie	150 P	13 P	9	same	1	1
Fruit cup	160 P	20 P	12	fresh mixed with/fruit	2	1 - 1
Cornstarch pudding	65 P	20 P	30	same	1	1
Orange charlotte	150 P	29 P	19	same	1	$\frac{1}{2}$
Pineapple Upside down cake	140 P	12 P	9	same	1	$\frac{1}{2}$

Note: 33 desserts were prepared to be served during the period studied
 13 desserts, or 39% of the desserts prepared involved left-overs.

P. Abbreviation for "portion".

TABLE XII - Breads - Dormitory B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Whole wheat rolls	214	35	16	same	1	1 $\frac{1}{2}$
Sweet milk biscuits	57	40	70	bread crumbs		
Sour milk biscuits	42	28	67	bread crumbs		
Cheese straws	120	70	58	bread crumbs		
Muffins	48	18	38	same	1	1 $\frac{1}{2}$
Corn bread	100	15	15	same	1	1 $\frac{1}{2}$
Butterscotch rolls	260	28	11	toss for crumbs		
White rolls	226	82	36	same	1	1 $\frac{1}{2}$
White rolls	210	62	29	same	1	1
Current rolls	288	91	32	same	1	1 $\frac{1}{2}$
Muffins	72	40	56	same	1	1 $\frac{1}{2}$
Muffins	72	2	3	crumbs		
Corn bread	200	52	26	same	1	1 $\frac{1}{2}$
Cinnamon rolls	189	39	21	same	1	1 $\frac{1}{2}$
Cloverleaf rolls	144	68	47	same	1	1

Note: 17 breads were prepared to be served during the period studied
15 of the breads, or 82% of the number prepared involved left-overs.

C. Cafeteria A.

The cafeteria served an average of three hundred and fifty people daily. The luncheon menu consists of two soups, three meats and a meat substitute, two kinds of potatoes, four vegetables, eight to ten salads, two kinds of cake, three kinds of pie, two kinds of puddings, and one hot bread. The dinner menu served the same two soups as at lunch. Enough soup is made in the morning to carry through both meals. The same number of meats, vegetables and salads are served at night as at noon. Desserts and hot breads are made in the morning to last the day.

There is such a large variety of foods on the menu in proportion to the number served that the number of servings sold of any one food is relatively small.

A number of the cooks have been with the cafeteria for several years and much of the planning as to the quantities to prepare is left to them.

In connection with the cafeteria many banquets are served. When food is left from banquets it is re-served on the cafeteria counter. Due to the difficulty in estimating numbers accurately there was nearly always banquet food to be utilized on the counter. Another problem to be considered is the fountain. The fountain buys food from the cafeteria. Many of the roast meats left-over are taken to the fountain to be used.

A large percentage of the soups prepared involved

left-overs as is shown in Table VIII.

These left-overs were really planned left-overs. The same kinds of soups were served for both meals and enough soup was prepared in the morning to carry through the day. On five occasions the left-over soups had to be served two or more times before they were gone.

TABLE XIII - Soups - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage Left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Cream of Mushroom soup	8 qt	4 qt	50	same		$\frac{1}{2}$
Tomato bouillon	16 qt	6 qt	38	same	2	$\frac{1}{2} - 2$
##Corn chowder	6 qt	4 qt	67	same	2	$3 - \frac{1}{2}$
# Cr. of vegetable soup	12 qt	1 qt	33	same	1	$\frac{1}{2}$
# Clear tomato soup	5 qt	$1\frac{1}{2}$ qt	30	same	1	$\frac{1}{2}$
Cream of tomato soup	16 qt	8 qt	50	same	1	$\frac{1}{2}$
Bean soup	16 qt	4 qt	25	same	4	$\frac{1}{2} - 2\frac{1}{2} - \frac{1}{2} - 2$
Clear vegetable soup	6 qt	3 qt	50	same	1	$\frac{1}{2}$
Clear tomato soup	6 qt	1 qt	16	same	1	$\frac{1}{2}$
# Cr. Vegetable soup	4 qt	$3\frac{1}{2}$ qt	88	same	1	$\frac{1}{2}$
Chicken & celery soup	6 qt	2 qt	33	same	2	$\frac{1}{2} - 1$
Cr. of tomato soup	8 qt	8 qt	100	same	3	$\frac{1}{2} - 1 - \frac{1}{2}$
Cr. of onion soup	8 qt	1 qt	12	same	1	$\frac{1}{2}$
Cr. of tomato soup	12 qt	8 qt	67	same	1	$2\frac{1}{2}$
# Corn chowder	12 qt	6 qt	50	same	1	$\frac{1}{2}$
Cr. of pea soup	16 qt	3 qt	19	same	1	$\frac{1}{2}$
Clear tomato soup	8 qt	2 qt	25	same	1	$\frac{1}{2}$
Oyster soup	10 qt	2 qt	20	same	1	$\frac{1}{2}$
Italian soup	10 qt	2 qt	20	same	1	$\frac{1}{2}$
Cr. of Tomato soup	8 qt	2 qt	25	same	1	$\frac{1}{2}$
Vegetable soup	6 qt	3 qt	50	same	1	$\frac{1}{2}$

Note: 27 soups were prepared to be served during the period studied

21 soups or 78% of the number prepared involved left-overs.

#. A new left-over dish

Already served once before study was started.

The results in Table XIV show that the percentage of left-over meats and meat substitutes is very high. Of the 51 meats that had left-overs, 31 meats show a left-over percentage of over fifty percent. Meats were kept indefinitely in the coolers. These coolers are kept at such low temperatures that meats may keep for days without deterioration. Because of that fact that the meats could be kept so long many of the left-over meats had not been used at the time when the study was completed. Most of the meats were saved and served in the same way.

Several times the meats were prepared long before necessary. Meats to be served for the evening meal were sometimes already breaded and baked by two o'clock, then just before serving time they were placed in the steamers and reheated. These foods can almost be considered in the same class as left-overs, as they must be re-heated before serving. When food is re-heated, flavor and texture are likely lost.

TABLE XIV - Meats and meat substitutes - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Roast Beef	62	37	60	To fountain		
Baked lamb	21	10	48	To fountain		
Meat loaf	44	22	50	same	2	1½ - 2
Roast beef	35	23	66	same	1	1½
# Chicken pie	32	21	66	same	1	½
Short ribs & noodles	30	14	47	same	1	½
Hormel Ham	8#	5#	62	To fountain		
Baked Ham	12#	8#	67	same	1	4
Chop suey	75	15	20	same	1	4
Breaded veal steak	20	10	50			
Roast beef	27	13	48			
Boiled dinner	20	5	25	same	1	1
Veal rosettes	26	20	77	same 20 rosettes 6 rosettes to use later		2
Fried rabbit	7½#	3#		chicken a la king		5
Roast veal	13#	9#	69			
Breaded Pork chops	20	10	50	same 5 servings - hash	1	2½
Roast beef	12#	4#	33			
#Hash	25	12	48	same	2	2 - 2
Roast lamb	30	15	50	same	1	½
Roast veal	14#	7#	50	same	1	1½
Meat balls	25	14	56			
Chicken giblets	15	7	50	chicken a la king	1	½
#Meat stew & vegetables	25	15	60	same	1	2
#Chicken a la King	40	30	75	rabbit pie	1	4
#Chili	30	24	67	Not used during checking		
Corn beef	7#	3#	43	Not used during checking		
Hormel Ham	8#	4#	50			
Roast beef	20#	5#	25	To fountain		
Fried Rabbit	9½#	3#	32	Rabbit pie	1	2½
#Meat Pie	30	15	50			
Roast beef	21#	15#	71	same	2	1½ - 1½
Breaded veal steak	30	10	33			
Fried Halibut	13	6	46	fish balls	1	½
#Hash	30	7	23	not served		
#Meat stew and vegetables	30	5	17			
#Escalloped potatoes and ham	40	25	62			
#Hot meat sandwich	20	10	50			
Roast beef	20#	10#	50	same	1	1
Lamb stew	10	5	50			
Fried fish	18	8	44	same	1	½
Roast fresh ham	16#	8#	50	same	1	½
Hamburger sandwich	7#	3#	43			
## Meat Croquettes	23	7	30	not served		
Spaghetti and tomatoes	30	15	50			
Scrambled eggs	5 doz.	1 qt				
Macaroni & cheese	20	13	65	4 orders same 9 orders had not been served	1	½
Cheese fondue	30	15	50	same	1	½
Macaroni and cheese	20	15	75	same	1	1
#Spanish rice	50	25	50	1½ qt same 4½ qt still in refrigerator when checking was finished	1	5
#Italian Spaghetti	45	15	33	same	1	2
Macaroni and cheese	55	15	27	same	2	2½ - 1½
Baked Lima beans	30	15	50	same	3	1-½-½

Note: 89 meats and meat substitutes were prepared to be served during the period studied
51 or 57% of the meats and meat substitutes prepared involved left-overs



A study of Table XV shows that the quantities of vegetables prepared in Cafeteria A were not large, but due to the small amounts of vegetables sold the percentage left over was fairly large. The vegetables starred (*) were those which had been returned from banquets. Potatoes show a large percentage left over. Sometimes vegetables such as onions, carrots, and beets were boiled several days before they were to be used. These vegetables were kept in the refrigerators. With so many vegetables left from the counter many times the vegetables for an entire counter menu were left-overs. The vegetables as a whole did not have a fresh, attractive appearance when on the counter.

TABLE XVI -Salads - Cafeteria A

Cabbage and carrot	4	3	75
Perfection salad	4	3	75
Tuna fish	4	2	50
Tomato and cucumbers	4	2	50
Tomatoes	1	1	100
Tuna fish	6	2	33
Pea,pickle and peanut	5	3	60
Tomatoes and asparagus	3	2	67
Pineapple salad	6	5	83
Sliced tomatoes	5	2	40
Pea,Pickle and Peanut	3	3	100
Head Lettuce salad	12	7	58
Jellied caggage	7	2	29
Chefs Special	6	4	67

Note: 24 salads were prepared during the period studied.
73% of the salads prepared involved left-overs.

TABLE XV - Vegetables - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Mashed potatoes	65	20	31	Potato patties	1	1
O'Brien potatoes	30	15	50	same	2	$\frac{1}{2}$ - 1
Whole tomatoes	30	12	40	same	1	$\frac{1}{2}$
Spinach	1 bu A.P.	$1\frac{1}{2}$ qt		1 qt same $\frac{1}{2}$ qt-Cr.Veg.soup	1 1	$\frac{1}{2}$ $\frac{1}{2}$
Fried corn	5 qt	1 qt	20	same	1	$\frac{1}{2}$
Creamed peas	3 qt	1 qt	33	same	1	$\frac{1}{2}$
Baked squash	5 squash	12 orders		same	1	$\frac{1}{2}$
#Creamed onions	1 qt	1 pt	50	Cr. vegetable soup	1	$\frac{1}{2}$
Asparagus	2 qt	1 pt	25	Cr. Veg. soup	1	$\frac{1}{2}$
Tomatoes	12 qt	1 pt	4	Spanish rice	2	$\frac{1}{2}$ -5
#Wax beans	3 qt	1 qt	33	Cr.Veg. soup	1	$\frac{1}{2}$
Buttered peas	3 qt	$1\frac{1}{2}$ qt	50	Carrots and peas		1
Cauliflower	15	4	27			
String beans	6 qt	$1\frac{1}{2}$ qt	25	same	1	2
Carrots	1 pk	2 qt				
Hot slaw	5# cabbage	$2\frac{1}{2}$ #	50			
Stewed tomatoes	3 qt	1 qt	33	same	1	2
Buttered peas	3 qt	$1\frac{1}{2}$ qt	33	1 qt same $\frac{1}{2}$ qt Veg.Soup	1 1	2 3
Succotash	3 qt	$1\frac{1}{2}$ qt	50	1 qt same $\frac{1}{2}$ qt Veg.Soup	1 1	$\frac{1}{2}$ 2
Mashed potatoes	$\frac{1}{2}$ bu A.P.	1 gal mashed				
French fried potatoes	30	8	27	hash	3	2-2-2
Mashed potatoes	$\frac{1}{2}$ bu A.P.	15		repluffed	1	$\frac{1}{2}$
Creamed potatoes	1 pk boiled	$\frac{1}{2}$ pk	50	browned	1	$\frac{1}{2}$
#Carrots	3 qt	2 qt	67	$6\frac{1}{2}$ pt same $1\frac{1}{2}$ pt with peas	5 1	1- $\frac{1}{2}$ - $\frac{1}{2}$ -2-1 1
#Beets	20	15	75	same	2	1 - 1
Stewed tomatoes	3 qt	2 qt	67	same	2	1 - 1
#Escalloped corn	6 qt	3 qt	50	same	2	$\frac{1}{2}$ - $\frac{1}{2}$
#Buttered peas	2 qt	1 pt	20	same	1	$\frac{1}{2}$
Buttered peas	3 qt	2 qt	67	same	2	1 - 1
Mashed potatoes	1 Pk A.P.	2 qt		potato patties	1	$\frac{1}{2}$
Mashed potatoes	2 gal	1 gal	50	repluffed	1	$\frac{1}{2}$
Mashed potatoes	$\frac{1}{2}$ bu	1 gal		2 qt repluffed 2 qt patties	1 1	$\frac{1}{2}$ $\frac{1}{2}$
O'Brien Potatoes	7 qt	6 qt	86	same	1	3
Glazed sweet potatoes	25	18	72	same	1	5
Stewed tomatoes	3 qt	$1\frac{1}{2}$ qt	50	same	2	$\frac{1}{2}$ - $\frac{1}{2}$
Buttered peas	3 qt	1 qt	33	same	2	$\frac{1}{2}$ - $\frac{1}{2}$
Spinach	$\frac{1}{2}$ bu A.P.	2 qt		same	3	$\frac{1}{2}$ - $\frac{1}{2}$ - $\frac{1}{2}$
#Potatoes hashed in cream	50	35	70	same	1	$1\frac{1}{2}$
Spinach	$\frac{1}{2}$ bu A.P.	1 qt		same	2	$\frac{1}{2}$ - $1\frac{1}{2}$
Corn	3 qt	$2\frac{1}{2}$ qt	83	corn chowder	2	$\frac{1}{2}$ - $\frac{1}{2}$
Mashed potatoes	$\frac{1}{2}$ pk	3 qt		potato patties	1	$1\frac{1}{2}$
Rutabagas	4 qt	2 qt	50	same	1	3
Buttered peas	3 qt	$2\frac{1}{2}$ qt	83	carrots and peas	2	$1\frac{1}{2}$ - $\frac{1}{2}$
Buttered beets	6 pt	1 pt	16	same	1	$\frac{1}{2}$
String beans	3 qt	$2\frac{1}{2}$ qt	83	same	2	$2\frac{1}{2}$ - $\frac{1}{2}$
Buttered cabbage	3 qt	$1\frac{1}{2}$ qt	50	hot slaw	1	1
#Beets	5 qt	2 qt	40	same	1	$\frac{1}{2}$
Spinach	1 gal	2 qts	50	same	1	$\frac{1}{2}$
Buttered corn	3 qt	$\frac{3}{4}$ qt	20	succotash	1	1
Stewed tomatoes	3 qt	1 qt	33	same	1	$\frac{1}{2}$
Mashed potatoes	1 pk	2 qt				
Lima beans	3 qt	2 qt	67	1 qt succotash 1 qt Italian soup	1 1	$\frac{1}{2}$ $\frac{1}{2}$
Buttered parsnips	3 qt	$1\frac{1}{2}$ qt	50			
Mashed potatoes	$\frac{1}{2}$ bu A.P.	30 portions		repluffed	1	$\frac{1}{2}$
Stewed tomatoes	3 qt	$1\frac{1}{2}$ qts	50	same	1	$\frac{1}{2}$
Carrots	2 qt	$1\frac{1}{2}$ qts	75	carrots and peas	2	$\frac{1}{2}$ - $\frac{1}{2}$
Buttered peas	3	$1\frac{1}{2}$ qts	50			
Mashed potatoes	2 pk	2 qt				
Stewed tomatoes	3 qt	$1\frac{1}{2}$ qt	50	same	1	$\frac{1}{2}$

Note: 99 vegetables were prepared to be served during the period studied

59 or 60% of the number prepared involved left-overs.

Table XVI, Salads, could not be made the same way as the others because at the time the check was made at the cafeteria, it was not convenient to check accurately how many times the left-over salads were served. Each meal the salads were checked as to the number of salads left-over. The table shows that a very large percentage of the salads were left over. Practically every salad made had several portions left over. Gelatin salads were made in quantities and served until they were all gone. The small number that were sold shows that these salads were extremely unpopular with the customers. A reason for the unpopularity was no doubt due to the fact that the salads were kept so long that they became "rubbery" before they were sold. Tomatoes, and tomatoes and cucumbers were served at every meal. The table shows that most of the salads made were left over. This check was made in February when tomatoes were expensive and as the chart shows, they were not wanted by the customers, yet they were served. Since sliced tomatoes cannot be re-served, the waste was large. Fruit salads show the smallest percentage of left-overs; yet many times only one fruit salad would be on the menu. With so many salads left over each meal, they were in most cases put on the counter the next meal. So many of the salads were old that it was impossible for any degree of crispness to be maintained. This is probably one reason why the salads did not sell.

Table XVII, Desserts, is interesting because of the number of times the left-overs had to be re-served before they were gone. Cakes were especially troublesome. Very little cake was sold, and the cake sold was sometimes offered on the counter three and four times.

The same desserts were served at both noon and evening meals.

Hot breads were made for noon lunch. Any bread that happened to be left was re-heated and served at night. It was not planned to serve hot breads at night, only as they might be left from lunch. Therefore, this problem was very small. (See Table XVIII, page 48)

Cafeteria A has a left-over problem that is large. The evening meals are practically composed of left-overs. The excess food from banquets add to the problem in the cafeteria. Many of the left-overs are planned left-overs. Soups are always made to last the two meals. All pastries are made for the entire day, and often roasts are prepared to serve two or three meals. Some vegetables were cooked a day or two before they were to be used. Most food deteriorate on standing. Salads wilt and become unattractive. Meats and vegetables loose flavor, color, texture and appearance with re-heating and age. Desserts become stale and unpalatable.

TABLE XVII - Desserts -Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Apple Pie	30	3	10	same	1	$\frac{1}{2}$
Cherry Pie	24	6	25	same	1	$\frac{1}{2}$
White cake	36	8	22	fresh icing	5	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Chocolate cake	30	12	40	same	4	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Angel Food cake	10	4	40	same	1	$\frac{1}{2}$
Date pudding	12	3	25	same	1	$\frac{1}{2}$
Chocolate Blanc Mange	12	3	25	same	1	$\frac{1}{2}$
Peach pie	12	6	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	24	6	25	same	1	$\frac{1}{2}$
Chocolate pie	24	6	25	same	1	$\frac{1}{2}$
#Cabinet pudding	18	6	33	same	2	$\frac{1}{2} - \frac{1}{2}$
Duchess Cream	32	16	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Open apple pie	18	4	22	same	1	$\frac{1}{2}$
Banana cream pie	18	4	22			
Checker Board cake	12	6	50	same	4	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Apple Pie	18	3	17	same	1	$\frac{1}{2}$
Gooseberry pie	18	12	67	same	2	$\frac{1}{2} - \frac{1}{2}$
Chocolate cake	18	8	44	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Jelly roll	12	6	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	24	3	12	same	1	$\frac{1}{2}$
Loganberry pie	12	9	75	same	2	$\frac{1}{2} - \frac{1}{2}$
Fig Tapioca	24	16	67	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	36	12	33	same	2	$\frac{1}{2} - \frac{1}{2}$
Cherry pie	24	12	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Lemon pie	18	9	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Upside down cake	12	3	25	same	1	$\frac{1}{2}$
Chocolate cake	24	12	50	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
White cake	24	18	75	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Fruit jello	20	15	75	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Orange float	25	13	52	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Apple pie	18	3	17	same	1	$\frac{1}{2}$
Apple pie	18	3	17	same	1	$\frac{1}{2}$
Chocolate pie	18	12	67	used filling for pudding	1	2
Gooseberry pie	6	3	50	same	1	$\frac{1}{2}$
Apricot ambrosia	16	8	50	same	2	$\frac{1}{2} - \frac{1}{2}$
#Date pudding	24	10	42	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Banana cake	6	6	100	same	2	$\frac{1}{2} - \frac{1}{2}$
Plum pie	18	9	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Spice cake	12	11	92	same	1	$\frac{1}{2}$
Banana pie	24	3	12	same	1	$\frac{1}{2}$
White cake	6	4	67	same	1	$\frac{1}{2}$
Chocolate cake	6	3	50	same	1	$\frac{1}{2}$
Pineapple delicious	12	4	33	same	1	$\frac{1}{2}$
Chocolate pudding	16	8	50	same	2	$\frac{1}{2} - \frac{1}{2}$

Note: 78 desserts were prepared to be served during the period studied
44 desserts or 56% of the number prepared involved left-overs.



TABLE XVIII - Hot breads - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Bran Muffins	36	8	22	same	1	1
Biscuits	48	8	17	chicken niblets and biscuits	1	1
Bran Muffins	36	13	36	same	1	1

Note: 14 Hot breads were prepared to be served during the period studied

3 Hot breads or 21% of the number prepared involved left-overs

D. Cafeteria E.

Cafeteria E serves an average of three hundred people daily. Breakfasts are not served, and the cafeteria is closed on Sundays. The luncheon and dinner menu consists of one or two soups, four meats and one meat substitute, two kinds of potatoes, five vegetables, ten salads, five or six kinds of pie, one kind of cake, four puddings, light rolls, hard rolls and at least two kinds of muffins or hot breads. Practically the same menu is served for both meals. The large variety of dishes offered in comparison to the number served is the result of competition. This increases the left-over problem.

The data in Table XIX shows that the cafeteria does not sell much soup. Soups that are left over are served again the next meal. The cafeteria does not plan to serve the same soup at night unless some happens to be left over from noon.

TABLE XIX - Soups - Cafeteria B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Vegetable soup	4 qt	1 qt	25	same	2	$\frac{1}{2} - \frac{1}{2}$
Cr. of Pea soup	2 qt	1 qt	50	same	1	$\frac{1}{2}$
Chicken noodle soup	3 qt	2 qt	67	same	1	$\frac{1}{2}$
Vegetable soup	3 qt	2 qt	67	same	1	$\frac{1}{2}$
Pea soup	4 qt	2 qt	50	same	1	$\frac{1}{2}$
Vegetable soup	5 qt	3 qt	60			
Vegetable soup	4 qt	1 $\frac{1}{2}$ qt	38	same	1	$\frac{1}{2}$
Vegetable soup	3 qt	2 qt	67	same	2	$\frac{1}{2} - \frac{1}{2}$
Vegetable soup	3 qt	1 qt	33	same	1	$\frac{1}{2}$
Vegetable soup	3 qt	1 qt	33	same	1	1
Split pea soup	4 qt	2 qt	50	same	1	$\frac{1}{2}$

Note: 21 soups were prepared to be served during the period studied

12 soups or 57% of the number prepared involved left-overs.

Meats and meat substitutes in Table XX show that slightly less than fifty percent of the dishes involve left-overs. Most of the left-over meat is served again the next meal. The meats are prepared with the intention of selling out the first time served. If roasts are left over, they are generally re-heated but once, but never more than twice.

The results in Table XXI show that 52.8 percent of the vegetables prepared had portions left-over. This percentage is high because both tomatoes and spinach are served every meal, and at practically every meal a small percentage of both was left over. Vegetables seldom were re-served more than once. Since the menu was practically the same for both meals any vegetables left-over were served for the evening meal.

TABLE XX - Meats and meat substitutes - Cafeteria B

FOOD PREPARED	Portions Prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Baked Ham	19 $\frac{1}{2}$	5 $\frac{1}{2}$	42	3 $\frac{1}{2}$ same 2 $\frac{1}{2}$ scraps	1	1
Veal pie	4 qt	2 qt	50	same	2	1 - 1
Spanish hamburger	24	14	58	8 same; 6 scraps	1	1
Macaroni & cheese	10 $\frac{1}{2}$ qt	3 $\frac{1}{2}$ qt	33	same	1	1
Baked beans	6 $\frac{1}{2}$ qt	3 $\frac{1}{2}$ qt	50	same	1	1
Scrambled eggs	60 eggs	6 eggs	10	same	1	1
Spaghetti	6 qt	3 qt	50	same	1	1
Baked Lima beans	4 qt	2 qt	50	same	1	3
Egg Fo Young	4 qt	1 qt	25	same	1	1
Macaroni & cheese	6 qt	3 qt	50	same	2	1 - 1
Baked beans	6 qt	3 qt	50	same	1	1
# Escalloped potatoes and ham	3 qt	1 $\frac{1}{2}$ qt	50	same	1	1

Note: 101 Meats and meat substitutes were prepared to be served during the period studied

48 or 47% of the number prepared involved left-overs.

TABLE XIV - Meats and meat substitutes - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Roast Beef	62	37	60	To fountain		
Baked lamb	21	10	48	To fountain		
Meat loaf	44	22	50	same	2	1½ - 2
Roast beef	35	23	66	same	1	1½
# Chicken pie	32	21	66	same	1	½
Short ribs & noodles	30	14	47	same	1	½
Hormel Ham	8#	5#	62	To fountain		
Baked Ham	12#	8#	67	same	1	4
Chop suey	75	15	20	same	1	4
Breaded veal steak	20	10	50			
Roast beef	27	13	48			
Boiled dinner	20	5	25	same	1	1
Veal rosettes	26	20	77	same 20 rosettes 6 rosettes to use later		2
Fried rabbit	7½#	3#		chicken a la king		5
Roast veal	13#	9#	69			
Breaded Pork chops	20	10	50	same 5 servings - hash	1	2½
Roast beef	12#	4#	33			
#Hash	25	12	48	same	2	2 - 2
Roast lamb	30	15	50	same	1	½
Roast veal	14#	7#	50	same	1	1½
Meat balls	25	14	56			
Chicken giblets	15	7	50	chicken a la king	1	½
#Meat stew & vegetables	25	15	60	same	1	2
#Chicken a la King	40	30	75	rabbit pie	1	4
#Chili	30	24	67	Not used during checking		
Corn beef	7#	3#	43	Not used during checking		
Hormel Ham	8#	4#	50			
Roast beef	20#	5#	25	To fountain		
Fried Rabbit	9½#	3#	32	Rabbit pie	1	2½
#Meat Pie	30	15	50			
Roast beef	21#	15#	71	same	2	1½ - 1½
Breaded veal steak	30	10	33			
Fried Halibut	13	6	46	fish balls	1	½
#Hash	30	7	23	not served		
#Meat stew and vegetables	30	5	17			
#Escalloped potatoes and ham	40	25	62			
#Hot meat sandwich	20	10	50			
Roast beef	20#	10#	50	same	1	1
Lamb stew	10	5	50			
Fried fish	18	8	44	same	1	½
Roast fresh ham	16#	8#	50	same	1	½
Hamburger sandwich	7#	3#	43			
## Meat Croquettes	23	7	30	not served		
Spaghetti and tomatoes	30	15	50			
Scrambled eggs	5 doz.	1 qt				
Macaroni & cheese	20	13	65	4 orders same 9 orders had not been served	1	½
Cheese fondue	30	15	50	same	1	½
Macaroni and cheese	20	15	75	same	1	1
#Spanish rice	50	25	50	1½ qt same 4½ qt still in refrigerator when checking was finished	1	5
#Italian Spaghetti	45	15	33	same	1	2
Macaroni and cheese	55	15	27	same	2	2½ - ½
Baked Lima beans	30	15	50	same	3	1-½-½

Note: 89 meats and meat substitutes were prepared to be served during the period studied
51 or 57% of the meats and meat substitutes prepared involved left-overs



Table XVI, Salads, could not be made the same way as the others because at the time the check was made at the cafeteria, it was not convenient to check accurately how many times the left-over salads were served. Each meal the salads were checked as to the number of salads left-over. The table shows that a very large percentage of the salads were left over. Practically every salad made had several portions left over. Gelatin salads were made in quantities and served until they were all gone. The small number that were sold shows that these salads were extremely unpopular with the customers. A reason for the unpopularity was no doubt due to the fact that the salads were kept so long that they became "rubbery" before they were sold. Tomatoes, and tomatoes and cucumbers were served at every meal. The table shows that most of the salads made were left over. This check was made in February when tomatoes were expensive and as the chart shows, they were not wanted by the customers, yet they were served. Since sliced tomatoes cannot be re-served, the waste was large. Fruit salads show the smallest percentage of left-overs; yet many times only one fruit salad would be on the menu. With so many salads left over each meal, they were in most cases put on the counter the next meal. So many of the salads were old that it was impossible for any degree of crispness to be maintained. This is probably one reason why the salads did not sell.

Table XVII, Desserts, is interesting because of the number of times the left-overs had to be re-served before they were gone. Cakes were especially troublesome. Very little cake was sold, and the cake sold was sometimes offered on the counter three and four times.

The same desserts were served at both noon and evening meals.

Hot breads were made for noon lunch. Any bread that happened to be left was re-heated and served at night. It was not planned to serve hot breads at night, only as they might be left from lunch. Therefore, this problem was very small. (See Table XVIII, page 48)

Cafeteria A has a left-over problem that is large. The evening meals are practically composed of left-overs. The excess food from banquets add to the problem in the cafeteria. Many of the left-overs are planned left-overs. Soups are always made to last the two meals. All pastries are made for the entire day, and often roasts are prepared to serve two or three meals. Some vegetables were cooked a day or two before they were to be used. Most food deteriorate on standing. Salads wilt and become unattractive. Meats and vegetables loose flavor, color, texture and appearance with re-heating and age. Desserts become stale and unpalatable.

TABLE XVII - Desserts -Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Apple Pie	30	3	10	same	1	$\frac{1}{2}$
Cherry Pie	24	6	25	same	1	$\frac{1}{2}$
White cake	36	8	22	fresh icing	5	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Chocolate cake	30	12	40	same	4	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Angel Food cake	10	4	40	same	1	$\frac{1}{2}$
Date pudding	12	3	25	same	1	$\frac{1}{2}$
Chocolate Blanc Mange	12	3	25	same	1	$\frac{1}{2}$
Peach pie	12	6	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	24	6	25	same	1	$\frac{1}{2}$
Chocolate pie	24	6	25	same	1	$\frac{1}{2}$
#Cabinet pudding	18	6	33	same	2	$\frac{1}{2} - \frac{1}{2}$
Duchess Cream	32	16	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Open apple pie	18	4	22	same	1	$\frac{1}{2}$
Banana cream pie	18	4	22			
Checker Board cake	12	6	50	same	4	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Apple Pie	18	3	17	same	1	$\frac{1}{2}$
Gooseberry pie	18	12	67	same	2	$\frac{1}{2} - \frac{1}{2}$
Chocolate cake	18	8	44	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Jelly roll	12	6	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	24	3	12	same	1	$\frac{1}{2}$
Loganberry pie	12	9	75	same	2	$\frac{1}{2} - \frac{1}{2}$
Fig Tapioca	24	16	67	same	2	$\frac{1}{2} - \frac{1}{2}$
Apple pie	36	12	33	same	2	$\frac{1}{2} - \frac{1}{2}$
Cherry pie	24	12	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Lemon pie	18	9	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Upside down cake	12	3	25	same	1	$\frac{1}{2}$
Chocolate cake	24	12	50	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
White cake	24	18	75	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Fruit jello	20	15	75	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Orange float	25	13	52	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Apple pie	18	3	17	same	1	$\frac{1}{2}$
Apple pie	18	3	17	same	1	$\frac{1}{2}$
Chocolate pie	18	12	67	used filling for pudding	1	2
Gooseberry pie	6	3	50	same	1	$\frac{1}{2}$
Apricot ambrosia	16	8	50	same	2	$\frac{1}{2} - \frac{1}{2}$
#Date pudding	24	10	42	same	3	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2}$
Banana cake	6	6	100	same	2	$\frac{1}{2} - \frac{1}{2}$
Plum pie	18	9	50	same	2	$\frac{1}{2} - \frac{1}{2}$
Spice cake	12	11	92	same	1	$\frac{1}{2}$
Banana pie	24	3	12	same	1	$\frac{1}{2}$
White cake	6	4	67	same	1	$\frac{1}{2}$
Chocolate cake	6	3	50	same	1	$\frac{1}{2}$
Pineapple delicious	12	4	33	same	1	$\frac{1}{2}$
Chocolate pudding	16	8	50	same	2	$\frac{1}{2} - \frac{1}{2}$

Note: 78 desserts were prepared to be served during the period studied
44 desserts or 56% of the number prepared involved left-overs.

TABLE XVIII - Hot breads - Cafeteria A

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Bran Muffins	36	8	22	same	1	1 1/2
Biscuits	40	8	17	chicken giblets and biscuits	1	1 1/2
Bran Muffins	36	13	36	same	1	1 1/2

Note: 14 Hot breads were prepared to be served during the period studied

3 Hot breads or 21% of the number prepared involved left-overs

D. Cafeteria E.

Cafeteria E serves an average of three hundred people daily. Breakfasts are not served, and the cafeteria is closed on Sundays. The luncheon and dinner menu consists of one or two soups, four meats and one meat substitute, two kinds of potatoes, five vegetables, ten salads, five or six kinds of pie, one kind of cake, four puddings, light rolls, hard rolls and at least two kinds of muffins or hot breads. Practically the same menu is served for both meals. The large variety of dishes offered in comparison to the number served is the result of competition. This increases the left-over problem.

The data in Table XIX shows that the cafeteria does not sell much soup. Soups that are left over are served again the next meal. The cafeteria does not plan to serve the same soup at night unless some happens to be left over from noon.

TABLE XIX - Soups - Cafeteria B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Vegetable soup	4 qt	1 qt	25	same	2	$\frac{1}{2}$ - $\frac{1}{2}$
Cr. of Pea soup	2 qt	1 qt	50	same	1	$\frac{1}{2}$
Chicken noodle soup	3 qt	2 qt	67	same	1	$\frac{1}{2}$
Vegetable soup	3 qt	2 qt	67	same	1	$\frac{1}{2}$
Bean soup	4 qt	2 qt	50	same	1	$\frac{1}{2}$
Vegetable soup	5 qt	3 qt	60			
Vegetable soup	4 qt	1 $\frac{1}{2}$ qt	38	serve	1	$\frac{1}{2}$
Vegetable soup	2 qt	2 qt	67	serve	2	$\frac{1}{2}$ - $\frac{1}{2}$
Vegetable soup	2 qt	1 qt	33	same	1	$\frac{1}{2}$
Vegetable soup	3 qt	1 qt	33	same	1	$\frac{1}{2}$
Split pea soup	4 qt	2 qt	50	same	1	$\frac{1}{2}$

Note: 21 soups were prepared to be served during the period studied

12 soups or 57% of the number prepared involved left-overs.

Meats and meat substitutes in Table XX show that slightly less than fifty percent of the dishes involve left-overs. Most of the left-over meat is served again the next meal. The meats are prepared with the intention of selling out the first time served. If roasts are left over, they are generally re-heated but once, but never more than twice.

The results in Table XXI show that 59.8 percent of the vegetables prepared had portions left-over. This percentage is high because both tomatoes and spinach are served every meal, and at practically every meal a small percentage of both was left over. Vegetables seldom were re-served more than once. Since the menu was practically the same for both meals any vegetables left-over were served for the evening meal.

TABLE XX - Meats and meat substitutes - Cafeteria B

FOOD PREPARED	Portions Prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Roast Pork	8 #	1 #	12	Chop suey	3	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
Frankfurters	5 #	1 #	20	Same	1	1 $\frac{1}{2}$
Fried Half Springer	8	6	75	5 halves same 1 halve-pie	1 1	1 $\frac{1}{2}$ 1 $\frac{1}{2}$
Boiled tongue	10#	3 #	30	same	1	1 $\frac{1}{2}$
Chicken Pie & vegetables	70	6	9	same	1	1 $\frac{1}{2}$
Baked Ham	10 #	33 #	30	Cr. Ham and peas	1	11
Stuffed heart	2 $\frac{1}{2}$ #	2 #	80	Same	2	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
Roast Beef	12#	6 #	50	same	1	1 $\frac{1}{2}$
Pork steak	6 #	2 #	33	same	1	1 $\frac{1}{2}$
Scallops	6	2 $\frac{1}{2}$	42	fish cakes	1	4
Chop suey	12 qt	3 qt	25	same	2	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
Veal hearts	2 $\frac{1}{2}$ #	2 #	80	goulash	1	1 $\frac{1}{2}$
Roast beef	12#	6 #	50	4# same 2# stuffed peppers	1 1	1 $\frac{1}{2}$ 4 $\frac{1}{2}$
Chicken Giblef & toast	4 qt	1 $\frac{1}{2}$ qt	12	same	1	1 $\frac{1}{2}$
Veal loaf	30	15	50	same	1	1 $\frac{1}{2}$
Roast beef	12#	6 #	50	same	1	1 $\frac{1}{2}$
Roast lamb	8 #	4 #	50	same	1	1 $\frac{1}{2}$
Swiss steak	7 #	3 #	43	same	1	1 $\frac{1}{2}$
Veal stew	6 qt	3 qt	50	same	1	1 $\frac{1}{2}$
Roast pork	10#	3 #	30	same	1	1 $\frac{1}{2}$
Veal birds	20	4	20	same	1	1 $\frac{1}{2}$
Roast beef	12#	5#	42	same	1	1 $\frac{1}{2}$
Veal steak	4 #	1 #	25	same	1	1 $\frac{1}{2}$
Quarter fried chicken	10	4	40	same	1	1 $\frac{1}{2}$
Hamburger & onion	5 #	2 #	40	Italian spaghetti	1	4
Roast veal	15#	10#	67	same	1	1 $\frac{1}{2}$
Pork steak	6 #	4 #	67	same	1	1 $\frac{1}{2}$
Chicken Pie	10	6	60	same	2	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
Meat loaf	30	15	50	cold plate	2	2-1 $\frac{1}{2}$
Pot Roast	10#	5#	50	same	1	1 $\frac{1}{2}$
Lamb stew	8 qt	4 qt	50	same	2	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
Roast beef	12#	6#	50	same	1	1 $\frac{1}{2}$
Pork Birdies	15	4	27	same	1	1 $\frac{1}{2}$
Meat pie	10 qt	3 qt	30	same	1	1 $\frac{1}{2}$
Roast beef	12#	5#	42	same	1	1 $\frac{1}{2}$
Liver	10#	2#	20	same	1	1 $\frac{1}{2}$
Baked Ham	12#	5#	42	3# same 2# scraps	1	1 $\frac{1}{2}$
Veal pie	4 qt	2qt	50	same	2	1 $\frac{1}{2}$ - 1 $\frac{1}{2}$
Spanish hamburger	24	14	58	8 same; 6 scraps	1	1 $\frac{1}{2}$
Macaroni & cheese	10 $\frac{1}{2}$ qt	3 $\frac{1}{2}$ qt	33	same	1	1 $\frac{1}{2}$
Baked beans	6 $\frac{1}{2}$ qt	3 $\frac{1}{2}$ qt	50	same	1	1 $\frac{1}{2}$
Scrambled eggs	60 eggs	6 eggs	10	same	1	1 $\frac{1}{2}$
Spaghetti	6 qt	3 qt	50	same	1	1 $\frac{1}{2}$
Baked Lima Beans	4 qt	2 qt	50	same	1	3
Egg Fo Young	4 qt	1 qt	25	same	1	1 $\frac{1}{2}$
Macaroni & cheese	6 qt	3 qt	50	same	2	1 $\frac{1}{2}$ - 1 $\frac{1}{2}$
Baked beans	6 qt	3 qt	50	same	1	1 $\frac{1}{2}$
#Escalloped potatoes and ham	3 qt	1 $\frac{1}{2}$ qt	50	same	1	1 $\frac{1}{2}$

Note: 101 Meats and meat substitutes were prepared to be served during the period studied
48 or 47% of the number prepared involved left-overs.

Escalloped potatoes	4 qt	1 qt	25	same	1	$\frac{1}{2}$
Fresh Spinach	5 qt	1 qt	20	same	1	$\frac{1}{2}$
Fresh asparagus	6 qt	$\frac{1}{2}$ qt	8	same	1	$\frac{1}{2}$
New asparagus	$2\frac{1}{2}$ qt	1 qt	40	same	1	$\frac{1}{2}$
New corn on cob	8	4	50	Cr. new corn	1	1
New spinach	4 qt	1 qt	25	same	1	$\frac{1}{2}$
New peas	4 qt	1 qt	25	same	1	$\frac{1}{2}$
Corn on cob	10	6	60	Cr. new corn	1	$\frac{1}{2}$
Mashed potatoes	6 qt	1 qt	17			
Stewed potatoes	3 qt	1 qt	33	same	1	$\frac{1}{2}$
Asparagus	4 qt	1 qt	25	same	1	$\frac{1}{2}$
Butter peas	4 qt	1 qt	25	same	1	$\frac{1}{2}$

Vegetables were served during the period studied
 compared involved left-overs.



Salads in Table XXII show a relatively low percentage of left-over both for the number prepared that involves left-overs, and the percentage of left-overs for the different salads. Only a few portions of each salad were made at the beginning of the service period. The salad girl prepared the salads as they were needed. This not only kept them fresh and crisp, but also helped to keep the percentage of left-overs low. All left-over tomato, cucumber and head lettuce salads were freshened and used in combination salad. This salad was very popular. All other left-over salads were served the following meal.

Combination, large	5	1	20	same	1	$\frac{1}{2}$
Combination, small	15	1	7	same	1	$\frac{1}{2}$
Pineapple and cheese	4	1	25	same	1	$\frac{1}{2}$
Head lettuce	8	1	12	combination	1	$\frac{1}{2}$
Fruit cup	8	2	25	same	1	$\frac{1}{2}$
Crab meat	5	1	20	same	1	$\frac{1}{2}$
Sliced cucumbers	5	2	40	combination	1	$\frac{1}{2}$
Stuffed peaches	6	2	33	same	1	$\frac{1}{2}$
Sliced tomatoes	8	1	12	combination	1	$\frac{1}{2}$
Head lettuce	6	2	33	combination	1	$\frac{1}{2}$
Vegetable plate	5	2	40	same	1	$\frac{1}{2}$
Carrot	5		20	same	1	$\frac{1}{2}$
Sliced tomatoes			12	combination	1	$\frac{1}{2}$
Combination, small		2	7	same	1	$\frac{1}{2}$
Pineapple and cheese		1	20	same	1	$\frac{1}{2}$
Crab meat		1		same	1	$\frac{1}{2}$

erved during the period studied
 prepared involved left-overs.

The results in Table XXIII show that the desserts are a problem. With five or six varieties of pie at a meal, it is impossible not to have a few portions left-over. Often only one or two pies of a kind are made. The desserts are made in the morning for both meals. If more are needed they are made in the afternoon. The pies are very popular. Cakes and puddings do not sell very well, and even though small amounts are prepared they often have to be re-served several times.

Hot breads are very popular and several kinds are served each meal. If any are left-over they are served at night, and if all of the muffins are served out at noon, more are made for the dinner meal.

TABLE XXIII - Desserts - Cafeteria B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapse before re-serving
Apple pie	12	6	50	Same	1	$\frac{1}{2}$
Rhubarb pie	12	3	25	same	1	$\frac{1}{2}$
Apricot pie	66	3	25	same	2	$\frac{1}{2}-\frac{1}{2}$
Butterscotch pie	12	6	50	same	1	$\frac{1}{2}$
Chocolate cake	7	3	43	2 same 1 cake pudding	1	$\frac{1}{2}$
Baked custard	9	7	78	same	2	$\frac{1}{2}-\frac{1}{2}$
Apple pie	66	5	83	same	1	$\frac{1}{2}$
White cake	77	6	86	same	4	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
#Chocolate cake pudding	12	6	50	same	3	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Pineapple pie	6	4	67	same	1	$\frac{1}{2}$
Blackberry Pie	6	2	33	same	1	$\frac{1}{2}$
Mince pie	6	2	33	same	1	$\frac{1}{2}$
Apple pie	12	6	50	same	1	$\frac{1}{2}$
Butterscotch pie	6	2	33	same	1	$\frac{1}{2}$
Rhubarb pie	12	2	17	same	1	$\frac{1}{2}$
Peach pie	6	3	50	same	1	$\frac{1}{2}$
Raisin pie	6	1	17	same	1	$\frac{1}{2}$
Blackberry pie	6	3	50	same	1	$\frac{1}{2}$
Apple pie	12	4	33	same	1	$\frac{1}{2}$
Lemon cream	12	2	17	same	1	$\frac{1}{2}$
Mince pie	6	4	67	same	1	$\frac{1}{2}$
Peach pie	6	2	33	same	1	$\frac{1}{2}$
#Bread pudding	12	11	92	same	5	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
White cake	7	3	43	same	1	$\frac{1}{2}$
Apple pie	18	9	50	same	1	$\frac{1}{2}$
Pineapple cream pie	12	3	25	same	1	$\frac{1}{2}$
Peach tapioca	16	8	50	same	2	$\frac{1}{2}-\frac{1}{2}$
White cake	7	3	43	2 same 1 pudding	1	$\frac{1}{2}$
Bavarian cream	10	7	70	same	1	$\frac{1}{2}$
Fig cream pie	12	2	17	same	1	$\frac{1}{2}$
Blanc Mange	16	13	81	same	5	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Drop cakes	9	1	11	same	1	$\frac{1}{2}$
Date pudding	12	8	67	same	1	$\frac{1}{2}$
Apple pie	12	8	67	same	1	$\frac{1}{2}$
Cherry pie	6	3	50	same	1	$\frac{1}{2}$
Mince pie	6	3	50	same	1	$\frac{1}{2}$
Chocolate cake	14	8	57	same	2	$\frac{1}{2}-\frac{1}{2}$
Baked custard	9	6	67	same	3	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Mince pie	6	4	67	same	1	$\frac{1}{2}$
Peach pie	6	2	33	same	1	$\frac{1}{2}$
Fruit jello	24	10	42	same	3	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Nut Jumble	8	5	62	same	3	$\frac{1}{2}-\frac{1}{2}-\frac{1}{2}$
Apple pie	3	2	66	same	2	$\frac{1}{2}-\frac{1}{2}$
Cherry pie	6	3	33	same	1	$\frac{1}{2}$
Apple pie	6	2	33	same	1	$\frac{1}{2}$
Pumpkin pie	12	1	8	same	1	$\frac{1}{2}$
Cherry pie	6	3	50	same	1	$\frac{1}{2}$
Drop cakes	12	3	25	same	1	$\frac{1}{2}$
Apple pie	12	3	25	same	1	$\frac{1}{2}$
Chocolate pie	12	3	25	same	1	$\frac{1}{2}$
Apple Tapioca	18	3	17	same	1	$\frac{1}{2}$
Drop cakes	4	4	100	2 same 2 pudding	1	$\frac{1}{2}$
White cake	7	5	71	same	2	$\frac{1}{2}-\frac{1}{2}$
Apple pie	12	3	25	same	1	$\frac{1}{2}$
Pumpkin pie	12	6	50	same	1	$\frac{1}{2}$
Mince Pie	6	2	33	same	1	$\frac{1}{2}$
Apricot pie	6	2	33	same	1	$\frac{1}{2}$
Gooseberry pie	12	1	8	same	1	$\frac{1}{2}$
Apple pie	6	2	33	same	1	$\frac{1}{2}$
Chocolate pie	12	2	17	same	1	$\frac{1}{2}$
Rhubarb pie	18	4	22	same	1	$\frac{1}{2}$
Raisin pie	6	4	67	same	1	$\frac{1}{2}$
Cherry pie	6	3	50	same	1	$\frac{1}{2}$
Bavarian cream	11	4	36	same	1	$\frac{1}{2}$

Note: 118 desserts were prepared to be served during the period studied.
64 desserts, or 54%, of the number prepared involved left-overs.



TABLE XXIV - Hot breads and rolls - Cafeteria B

FOOD PREPARED	Portions prepared	Portions left-over	Percentage left-over	Method of re-serving	Number of times re-served	Days elapsed before re-serving
Bran muffins	24	6	25	same	1	$\frac{1}{2}$
White muffins	24	7	29	same	1	$\frac{1}{2}$
Nut bread	36	12	33	same	1	$\frac{1}{2}$
White rolls	50	19	38	same	1	$\frac{1}{2}$
White rolls	48	18	38	same	1	$\frac{1}{2}$
White rolls	24	9	38	same		$\frac{1}{2}$
Hard rolls	18	12	67	8 same 4 bread crumbs	1	$\frac{1}{2}$
White muffins	12	2	17	same	1	$\frac{1}{2}$
Bran muffins	12	6	50	same	1	$\frac{1}{2}$
Cinnamon rolls	22	9	41	same	1	$\frac{1}{2}$
White rolls	36	26	72	17 same 9 bread crumbs	1	$\frac{1}{2}$
White muffins	18	2	11	same	1	$\frac{1}{2}$
Bran muffins	18	4	22	same	1	$\frac{1}{2}$
White rolls	36	6	17	same	1	$\frac{1}{2}$
White muffins	24	13	54	same	1	$\frac{1}{2}$
Graham muffins	24	15	62	same	1	$\frac{1}{2}$
Cloverleaf rolls	20	6	30	same	1	$\frac{1}{2}$
White rolls	46	20	43	15 same 4 bread crumbs	1	$\frac{1}{2}$
Hard rolls	18	8	44	3 same 5 bread crumbs	1	$\frac{1}{2}$
Graham Muffins	24	8	33	same	1	$\frac{1}{2}$
White muffins	18	2	11	same	1	$\frac{1}{2}$
White rolls	48	18	38	same	1	$\frac{1}{2}$
Corn bread	24	6	25	same	1	$\frac{1}{2}$
White rolls	20	20	100	same	1	$\frac{1}{2}$
Pecan rolls	17	4	24	same	1	$\frac{1}{2}$
White rolls	36	6	17	same	1	$\frac{1}{2}$
Hard rolls	18	12	67	same	1	$\frac{1}{2}$
White rolls	30	20	67	same	1	$\frac{1}{2}$
White rolls	48	12	25	same	1	$\frac{1}{2}$
White muffins	18	8	44	same	1	$\frac{1}{2}$
Graham muffins	18	8	44	same	1	$\frac{1}{2}$
White rolls	36	16	44	same	1	$\frac{1}{2}$
Graham muffins	22	4	18	same	1	$\frac{1}{2}$
White muffins	18	6	33	same	1	$\frac{1}{2}$

Note: 66 Hot breads were prepared to be served during the period studied
 34 Hot breads, or 51%, of the number prepared involved left-overs.

The left-over food problem of Cafeteria P is quite easily handled. Foods are prepared in small amounts and at intervals during the serving period. This practice lessens the number of left-overs. Foods that are left-over are re-served withⁱⁿ a very short time. Only a few left-overs are placed on the counter at the same time, thus one never sees the counter practically composed of left-overs, as is the case in some food units.

VI. COMPARISON OF THE FOOD UNITS

Dormitories and cafeterias always will have left-over problems. The problems may be large or small depending upon the many factors involved. The dormitory will have a problem that is more easily regulated because it has a set menu with few choices and a fairly good estimation of the numbers to be served. Also if cafeteria service is used for a part of the meals this will afford an outlet for any excess food prepared.

Although many think that a cafeteria can easily use its left-overs and therefore that a cafeteria will have no left-over problem, this is not the case. Because of the many items to choose from on the menu, and the inability of the manager to judge accurately in all cases just how much of each item to have prepared, and because a cafeteria sells so much of its food through eye appeal, it can be understood just how important it is to have the food controlled so as to have as few left-overs as possible.

A plan that has been adopted by many cafeterias is to prepare food in small amounts, and if more food is needed prepare as necessary during the serving period. This will assure the customers of having food fresh and appetizing, and at the same time, the left-over problem of the cafeteria will be reduced.

The two dormitories and the two cafeterias have been compared as to the percentage of dishes remaining after the serving period was over. They have also been compared as to the

percentage of the remainders of these particular dishes which did involve left-overs.

Data for the percentage of the dishes prepared that involved left-overs were obtained by counting the number of dishes that were prepared for each class of food during the study and also by counting the number of dishes of those prepared that involved left-overs and calculating the percentage. These data are given as foot notes on tables I to XXIV inclusive.

In Tables XXV and XXVI a comparison is given of the percentage of the number of foods prepared that involved left-overs for the dormitories and the cafeterias. Table XXV shows that in all but two classes of foods Dormitory B shows a smaller percentage of the dishes prepared involving left-overs. The two exceptions are soups and hot breads. These are foods in which the left-overs are easily cared for.

The results in Table XXVI show that the percentage of the dishes prepared involving left-overs is higher in Cafeteria A in all classes of foods but hot breads. This percentage is considerably lower but it should be remembered that the hot breads in Cafeteria A are few in number, and that these few are prepared in small amounts.

TABLE XXV

Comparison of Dormitory A and B
as to the percentage of the dishes
prepared involving left-overs.

Classes of Food	Dormitory A	Dormitory B
Soups	33 percent	50 percent
Meats and meat substitutes	53 percent	49 percent
Vegetables	54 percent	53 percent
Salads	32 percent	24 percent
Desserts	67 percent	39 percent
Hot Breads	73 percent	28 percent

TABLE XXVI

Comparison of Cafeteria A and B
as to the percentage of the dishes
prepared involving left-overs.

Classes of Food	Cafeteria A	Cafeteria B
Soups	78 percent	57 percent
Meats and meat substitutes	57 percent	47 percent
Vegetables	60 percent	60 percent
Salads	73 percent	35 percent
Desserts	56 percent	54 percent
Hot Breads	21 percent	51 percent

Concerning the dormitories, the results in Table XXVII show that the percentage of left-over food with the exception of soups and hot breads was slightly higher in Dormitory A. Table XXVIII, concerning the cafeteria, contains data showing that percentages of left-overs are higher for Cafeteria A for meats and meat substitutes, vegetables and salads. The percentage of left-over salads is very high. Breads and soups show a higher percentage in Cafeteria B and desserts are slightly higher, as has been mentioned before the higher percentage for Cafeteria A is probably due to problems in management; allowing the cooks to plan the amounts to prepare; poor supervision of left-overs and ways to re-serve them.

TABLE XXVII

Comparison of Dormitories as to
the Percentage of Left-Over Food
of the Dishes Involving Left-Overs.

Classes of Food	Dormitory A	Dormitory B
Soups	17 percent	30 percent
// Meats and meat substitutes, pounds	9 percent	22 percent
// Meats and meat substitutes, portions	23 percent	24 percent
// Vegetables, quarts	25 percent	22 percent
// Vegetables, pounds		25 percent
Salads	19 percent	12 percent
Desserts	25 percent	23 percent
Hot Breads	14 percent	20 percent

// Meats and meat substitutes and vegetables could not
always be checked in the same unit.

TABLE XXVIII

Comparison of Cafeteria as to the
Percentage of Left-Over food of
the dishes involving left-overs.

Classes of Food	Cafeteria A	Cafeteria B
Soups	32 percent	50 percent
Meats and meat sub- stitutes, pounds	50 percent	43 percent
Meats and meat sub- stitutes, portions	42 percent	22 percent
Meats and meat sub- stitutes, quarts		40 percent
Vegetables, portions	52 percent	41 percent
Vegetables, quarts	45 percent	25 percent
Salads	61 percent	12 percent
Desserts	40 percent	43 percent
Hot Breads	24 percent	39 percent

VI. LEFT-OVER FOOD CHART

CEREALS

Thickening soups
 Quenquettes
 Puddings
 Muffins
 Cookies
 Cereal balls
 Fried Cereal

COFFEE

Moche Cake
 Moche icing for cakes
 Chocolate icing
 Coffee Gelatine
 Coffee ice cream

CAKE

Hot cake puddings
 Cake delicious
 Crumb cookies
 Brown bread
 Cabinet pudding

BREAD

Bread puddings
 Toast
 Croutons for soups
 Brown Potty

BREAD (continued)

Dressing
 Fenchus
 Meat Loaf
 Hamburger balls
 Crumb pancakes
 Crumb muffins
 Cinnamon pudding
 Crumbs for breaded meats
 Escalloped dishes
 Brown bread

DAIRY PRODUCTS & EGGSSour Milk

Cakes
 Corn bread
 Biscuits
 Ginger bread
 Pan Cakes
 Muffins

Sour Cream

Butter
 Corn Bread
 Sour Cream Cake
 Salad Dressing

Cheese

Croquettes
 Souffles
 Fondues
 Macaroni & cheese
 Spaghetti & cheese
 Diced in salads
 Spinach & cheese
 Welsh Rarebit
 Pittsburgh Potatoes
 Au Gratin Potatoes
 Rice & cheese
 Bean Loaf

Broken Eggs

Dipping mixture
 Cakes
 Custards
 Salad dressings
 Croquettes
 Puddings

FRUITS

Blanc Manger
 Brown Betty
 Fruit Cup
 Cocktail
 Cobblers
 Gelatine Salads & desserts
 Fruit salads
 Whips
 Tapioca
 Fruit Puddings
 Sauces
 Pies
 Dumplings
 Jam
 Custard
 Short Cake
 Mince Pie
 Tarts
 Sherberts
 Ice Cream
 Muffins

FRUIT JUICES

Gelatine desserts
 Jellies
 Fruit Punch
 Fruit soup
 Salad Dressings
 Sherberts and ices
 Pudding sauce
 Puddings
 Mince Meat

VEGETABLESPlain or buttered vegetables

Soups

Escalloped or creamed vegetables

Vegetable Casserole

Meat stews

Hash

Salads

Croquettes

Succotash

Carrots and peas

Meat Pie

Vegetables molded in Gelatin Creamed Vegetables

Goulash

Corn and tomatoes

Stuffed peppers

Stuffed tomatoes

Potatoes

Fried

Hashed brown

Soup

Pimento and bacon potato

Potato puff

Shepherd's Pie

Potato cakes

Escalloped

Pittsburg

O'Brien

Raw Vegetables

Mixed vegetable salad

Garnish

Celery stuffed with cheese

Lettuce hearts and outer

leaves in salads, and

wilted lettuce

Escalloped

Cream soups

Potatoes (continued)

Hash

Croquettes

MEATS

Croquettes

Meat stews

Meat pies

Stuffed peppers

Stuffed tomatoes

Hash

Ham en Panier

Ham and eggs

Escalloped Ham

Goulash

Sandwich filling

Salads

Cold meat

Omelets

Mince meat

Chop suey

Meat loaf

Bacon muffins

Casserole meats

Spanish Rice

Shepherd's Pie

Chicken a la King

Chicken Pie

Chicken sandwiches

Chicken salad

Chicken croquettes

Chicken patties

Meat bones for soup stock

Bacon fat for frying

Other fats used as flavoring
in main dishes

VIII. SUMMARY AND CONCLUSION

1. The tables show that in the dormitories and cafeteria studied quite a large percentage of the number of foods prepared involve left-overs.

2. Left-Overs were re-served either as first prepared or as a new dish. Because of the kind of food, some dishes could be re-served better as first prepared, while others could be improved by working over.

3. The percentage of food left-over in both dormitories is quite small and although Dormitory A shows a higher percentage of left-overs, the difference is insignificant.

4. The percentage of food left-over in the cafeterias is much higher than in the dormitories.

5. Cafeteria A shows a much higher percentage of left-overs than Cafeteria B.

6. From the study it is evident that almost any food unit of the kind investigated will have a left-over problem.

7. The control of the problem is largely one of management. Mistakes in the recipe; errors made in the quantities the cooks are told to make; poor judgment used by allowing the cooks to plan the amounts of food to prepare; mistakes made in the kinds and amounts of food purchased; and the failure of the food supervisor to see that excess food is properly utilized, all help to make for a left-over problem.

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