THE SCHOOL KITCHEN AS A VALUE TO THE
EDUCATIONAL PROGRAM

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EDUCATIONAL PROGRAM

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CHAPTER I

INTRODUCTION

Statement of Problem

The American people are democratic. They are also a practical people, and, being committed to the public school system with its vast and increasing expenditures, they are concerned that the monies be spent effectively. Although public sentiment animated the establishment of the school kitchen, it has led to the setting up of a service of sound practical value. This movement has come about with the increase in knowledge concerning child health and the importance of good nutrition to health.

The school kitchen is the result of a rapidly growing understanding of this fact, and of the importance of an adequate noon meal to good nutrition. Beginning as a charity for the feeding of poor children, developing as a convenience service for pupils and faculty, and finally attaining its status as an indispensable feature of health and teaching programs for all school children, school feeding retains today the purpose of its three-fold origin.

The number of school kitchens incorporated in school buildings has increased greatly in the past two decades. The space provisions for student accommodations and service
needs have also been considerably increased. The change from the kitchen, limited in size, and tucked away in basement or dark waste spaces, to the well-planned kitchen, well lighted and well ventilated, is largely due to the influence of great social and educational forces. These forces have been at work within the school itself.

The home-life of the child has been altered by working conditions in industry and commerce. Economy and educational improvement have increased the size of school administrative units thus requiring larger numbers of children to travel longer distances to school. The over-crowding of the school curriculum and the effort to secure the most complete utilization of the school building have tended to restrict the time devoted to the noon recess.

During recent years, as the problems of this field have multiplied and become more pressing, the writer has felt an urge to analyse the school kitchen as a value to the educational program.

The need of a school kitchen developed in response to the urge for the establishment of government work projects for women and in response to the demand from local school officials and other interested persons that hungry children be fed. This demand came not only from metropolitan and urban areas but from rural and remote communities, where contrary to general belief, malnutrition has been a serious problem.
The problem involved in this thesis is to examine the organization, administration, and equipment of the school kitchens, and point out certain educational values derived from such a project. A special reference is made to one school kitchen in Hill County in order to establish certain basic facts applicable to any school kitchen.

The term school kitchen, lunchroom, and free lunch will be used interchangeably throughout this thesis.

Purpose of Study

Money has been wasted in the educational system trying to teach children with half starved bodies and minds. We shall spend tomorrow on the care of their sicknesses many times over what we save today on food which would prevent it.

The importance of nutritious lunches for children at school is almost universally recognized. Educators, classroom teachers, social workers, parent-teachers associations, public health officials, and others interested in child welfare agree that better health, better attendance, and improved scholarship, work habits, and attitudes result from regular school lunches.

Lunches served at school, sponsored by a competent supervisor, will provide the building materials for the soft tissues of the body, for sound teeth and bones, and for good red blood. These foods must supply a source of energy for almost ceaseless activity.
Probably no other project in the public schools has
developed more rapidly and with as much approval as the
school kitchen. It is considered at present a most impor-
tant essential to learning, and as a result the purpose of
this study is two-fold:

1. To tell how the program has been organized and ad-
ministered including management, furnishings and
expenditures.

2. To show in just as concrete a way as possible the
values of the program upon the development of pupils
in the public school.

Source of Data

An extensive study has been made of the school kitchens
now in operation with special reference to the free lunch
project now in operation in practically every school in the
United States. The related facts in the findings and in the
summary of this thesis are based upon physical tests, and upon
the research in reading materials with special reference to
bulletins explaining the Federal Works Project Administration,
and also upon my personal inspection of at least fifteen kitchens
in operation, personal interviews with superintendents, super-
visors, teachers, parents, pupils, and trustees of many more
schools having kitchens scattered over the state.

Reliability of Data

There are numerous ways of procedure in the study of
various problems. In some types of study it is expedient to use statistical data already compiled by authorities in their respective fields.

Recently scientific workers have begun to realize that in a democracy, the "primary purpose of all action is the welfare of each individual." ¹

The values of the school kitchen movement have spread rapidly throughout the United States. Hardy and Hoefer, in their article "Influences of Health Education", voiced the opinion that "through her public schools the nation reaches the children of all the people - her human resources." ² It is obvious that physical tests can be used on groups in order to bring out, with an exactness, certain basic facts common to all students.

¹Educational Policies Commission, Learning the Ways of Democracy, p. 18, 1940.

CHAPTER II

THE VALUE OF THE SCHOOL
KITCHEN TO EDUCATION

The purpose of this chapter is to point out values of certain foods and to show how these values affect the educational program.

Our newer knowledge of the relations of food to health is one of the major relations of modern science. Perhaps it is outstandingly the one which each of us can do every day for the lifelong welfare and happiness of ourselves and others.

The school kitchen plays a four-fold role in the educational program. As a source of nourishing noon meals it helps to combat malnutrition and to maintain in the children health and vigor essential to the success of the teaching program; it is a center for teaching proper food selection and of good health habits, for the vocational training of some students, and for the social training of all; it presents an opportunity for correlating classroom teaching with the interests and experiences of children which center around food; and it furnishes a means of interesting the community in the food service of the school and of giving some training in the nutritional needs of children through this interest.¹

¹Mary De Garmo Bryan, The School Cafeteria, p. 15.
The Value of the School
Lunch to Health

School health activities are based upon the realization that physically handicapped children are unable to profit to the fullest extent by the educational opportunities of the school. The increasing knowledge of nutrition continues to emphasize the necessity of proper feeding for good child health. Until recently a discussion of food and health would have dealt chiefly with ways in which food might carry infectious or poisonous substances. We were satisfied to think of health merely as freedom from disease; and we were accustomed to think of disease as caused by some actively injurious thing whether micro-organism or poisonous substance. But the discovery of the vitamins and study of their significance has now made it clear that diseases may also be due to shortage of essential food constituents.  

It is extremely difficult to feed a child properly if his noon meal is inadequate. The school kitchen is, therefore, a part of the health program of every school in which children must eat at noon and as such is essential to the full development of the educational program.

The relationship between the nutritive status of the child and his academic accomplishments is not a new issue. Much has been written of the scholastic benefits due to

2Henry C. Sherman, Food and Health, p. 2.
improvement of the nutrition and general health of children through good school feeding, in both city and rural communities. Recent reports by school and public health agencies here and abroad assume the association of a properly nourished body as a value to classroom progress. Undernutrition increases nervousness and fatigue. Broadhurst says undernutrition is a common cause of mental sluggishness and inability to concentrate with its attendant behavior problems and poor standards of work. Bodily resistance is lowered to certain types of infections and absences are increased by illness.

Malnutrition among school children has probably not increased during the depression years because of efforts of Federal and local agencies to secure adequate supplies of food. Nevertheless, the Children's Bureau estimates that at least one-fifth of all school children are underweight or are showing other conditions diagnosed by physicians as malnutrition. Most of their reports are from large cities; certain districts of some cities show rates as high as thirty, thirty-nine, and forty-two per cents. Reports from counties in rural and in mining districts have shown from forty-seven to fifty per cent of the school children to be more than ten per cent underweight and suffering from physical defects due to faulty nutrition. Slight declines noted in the amount of

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3 Jean Broadhurst, *Home and Community Hygiene*, p. 29.
underweight among school children of several cities in 1934 are considered by local health departments to be due to free school feeding of indigent children and to guided feeding of families on relief diets. The children may still be clinically malnourished. For this same reason many malnourished children have escaped such grouping when the diagnosis was made on the basis of weight--height--age only.  

The School Lunch

Americans as a whole are a very self-satisfied people; we commonly believe this country is the seat of all progress, and that we are leaders in all progressive movements. Unfortunately this is not true in many of the programs directed toward the conservation of human resources; for obvious reasons European nations, in some respects at least, have been more appreciative of their man power than has this country. Until the recent advent of the W.P.A. school lunch projects, little attention has been given the feeding of school children by the country at large, whereas in European countries efforts to improve the nutrition of school children have been made for almost two centuries. As early as 1790, municipal soup kitchens were established in Munich, to which were invited not only unemployed men but also hungry school children. In 1865, Victor Hugo started school feeding in England by providing warm meals in his own house in Guernsey

for children attending a neighboring school. In 1906, Parliament passed the Provision of Meals Act which gave local education authorities permission to install restaurants as a regular part of school equipment and to serve suitable lunches to children of the elementary schools. The Milk Act of 1934 made it possible for all children in England to receive one-third pint of milk daily at the price of a penny. Previous to the present European conflict, Holland, England, Denmark, Switzerland, Italy, Finland, Austria, Belgium, and France had national acts providing for school meals, and all children in the schools of Russia were fed. The cost of the lunches, as reported by Dr. Mary de Garmo Bryan, varied from one-half a cent in Holland to ten cents in Vienna; the average was three cents.  

Relatively speaking, it is an easy matter to interest school administrators and communities in elaborate gymnasiums, athletic fields, landscaping school grounds, or modernizing buildings. Little recognition, however, is given the fact that by very simple and inexpensive improvements of the noon meal, the achievement of the children both physically and scholastically may be immeasurably improved, a fact which is now being demonstrated in the numerous schools which are cooperating with the WPA in its hot lunch project. The striking results are revealed in a report from Jefferson.

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City, Missouri, where three hundred sixty-five children received hot noon lunches at the low cost of seven cents per child. At the end of the school year all children had gained in weight. The average gain was three pounds, while in contrast, during the preceding year, when no lunch was served, there was a loss of approximately three pounds. Teachers of these pupils asserted that the weight gains were not the only benefits; there were also improved general health, increased attendance, better classroom work, and a marked social gain both to the children and to the community. In addition, and still more valuable, the children were taught to eat the right foods. The net result will therefore be better health and greater happiness throughout life.  

Though difficult to prove in a scientifically acceptable manner, there is undoubtedly a relationship between the nutrition of children and their mental or scholastic progress. In a recent study at the Texas State College for Women, in which thirty-four school girls were observed for a period of thirty-four weeks, it was noted that the girls who ate the best breakfasts made the best grades and exhibited the best scholarship. Those who slept more and never omitted breakfast gained four times as much in weight as the group omitting breakfast half of the time. An analysis of the weight of six hundred children from six to sixteen years of age in

6Ibid.
Denton, revealed that one-fifth of the boys and one-fourth of the girls were underweight. With both boys and girls, fewer of the underweight than of the normal weight were making B averages.\textsuperscript{7}

It is sometimes difficult to recognize the effects of malnutrition, unless the degree is greater than that commonly found in America. Following the previous World War in Germany, the results of prolonged underfeeding of children were pronounced and unmistakable. Teachers complained of mental deterioration of their pupils, as shown by marked decrease in their energy for mental tasks, in their ability to concentrate, and in their memory. Their comprehension was poor, and they were inattentive. One teacher reported that, whereas she had formerly been able to keep the attention of her class for thirty minutes, she now could not keep it five; after a few minutes, the children would talk, laugh, and wiggle, and even fairy tales would not hold their attention. The number of children failing to pass their school work was doubled. Only one-half as many did superior work, and the number doing inferior work was increased from twenty to thirty per cent. While we in America are fortunately not often subjected to much drastic deprivation, milder deficiencies are without doubt universally prevalent and are detracting from our efficiency, health, and happiness.\textsuperscript{8}

\textsuperscript{7}Ibid. \hspace{1cm} \textsuperscript{8}Ibid.
Whenever improvements of the diets of school children have been made, the returns have been gratifying.

Seven years ago in Oslo, an experiment in school feeding was started. A morning meal, spoken of as "breakfast", was given which was designed to meet the deficiencies in the home diet. It included milk, cheese, whole wheat bread, and half an apple, orange, lettuce, or raw carrot. The plan was so successful that it was adopted by all Norway and other Scandinavian countries. Recently, this "Oslo breakfast" has been introduced into England, but it is given as the noon meal. Children receiving it show a greater increase in height and weight than children receiving the traditional English hot midday dinner. There is, moreover, a striking improvement in complexions and a complete disappearance of minor skin troubles.\(^9\)

Usually dietary supplements have been more limited, but even the addition of one nutritious food to the ordinary diet of children has proved beneficial. The advantages gained by the daily addition of a small amount of milk have been repeatedly demonstrated almost the world over. In 1927 in Scotland, one thousand five hundred children in elementary schools were given additional milk for a period of seven months. The rate of growth of those getting the milk was twenty percent greater than those not getting the milk. The increased

\(^9\)Ibid.
growth was accompanied by a noticeable improvement in health, vigor, and mental alertness. The experiment was repeated and the same results observed with as many as twenty thousand children. So impressed by the results were the people of Scotland that an Act was passed which made available an additional ration of graded milk to all school children. It was pointed out that the universal exercise of this authority in all localities would affect three hundred thousand children and "by improving their physical and mental well-being, would have a powerful influence in improving the quality of the Scottish race."

In Japan, where diets are more inferior, the addition of one-third pint of milk to the diet for six months caused a gain in weight of eighty-six per cent and in height of sixteen per cent above the corresponding gains of children not receiving the milk. In addition to the gains, the milk-fed children were reported to have improved complexions, more cheerful dispositions, more regular attendance at school, and more success in athletic contests than the children not given the milk.\(^{10}\)

In New Zealand, a daily supplement of one-half to one pint of milk caused an increase in height two times as great, and an increase in weight two and one-half times as great as the corresponding increases of children not given the milk.\(^{11}\)

\(^{10}\)Ibid., p. 32. \(^{11}\)Ibid.
In Italy a group of children six to twelve years of age in a summer camp were given one more cup of milk than other children in the camp with the result that the former gained in weight twenty per cent more than the latter.\textsuperscript{12}

Numerous, though less extensive, studies have also been made in the United States. It was recently reported from the University of Chicago that the addition of one pint of milk a day to the diet of some ninety children in an institution resulted in increased growth in height and weight, increased calcification of bones in the wrist, and an inhibited rate of dental decay.\textsuperscript{13}

While milk is probably the most valuable addition which can be made to the diets of most school children, whole grain cereal, one egg, citrus fruit or tomato juice would also effect a marked improvement in most cases, since the diets of the American people in general are lacking in some of the nutrients provided by these foods.

Constance Hart voiced her opinion of milk for children by saying:

\begin{quote}
Milk has long been accorded a place of basic importance in our daily diets, and especially is it essential for growing children. Since its consumption in adequate amounts is a prime factor in building strong, healthy bodies and in maintaining the well-being of children, its inclusion in the school diet becomes the immediate problem of every lunchroom manager. She must constantly constrive to include as much
\end{quote}

\textsuperscript{12} Ibid. \textsuperscript{13} Ibid.
milk as possible in the menus and to get the children to drink more of it.

Children of school age are undergoing marked physiological changes which can be accomplished successfully only if they are provided with the materials needed for these changes. Most simply stated, the day's ration for a school child of any age should include three cups to one quart of milk, preferably one quart, one egg, at least half of the cereals of the whole grain variety, one or two servings of green, leafy, and yellow vegetables, one serving of starchy vegetables, butter at each meal, one serving of citrus fruit or tomatoes, and one serving of meat or fish. Additional servings of fruit or vegetables, and one serving of beans, peas, or cheese are desirable in each day's rations. The noon lunch, whether at home or at school, should provide about one-third of the total food needed for the day. The basis for a good noon lunch is, therefore, one-fourth to one-third of a quart of milk, one to two slices of whole wheat bread, butter, a green, leafy, or yellow vegetable, and citrus fruit or tomatoes. To this should be added a nourishing hot dish containing eggs, meat, cheese, fish, or beans. If such a hot dish can not be included, the milk may be made into a hot drink or soup. There is much to say in favor of the hot dish; it increases the interest in the meal and causes the children

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14 Constance Hart, "Diets for Children," Practical Home Economics, X (March, 1933), 163.
to relax and eat more slowly. According to authorities on the subject, whenever it has been tried, it has resulted in improved vigor and mental alertness. \(^{15}\)

Too frequently the unsupervised, small school lunchroom degenerates to a so-called "hamburger joint." The typical self-selected lunch of unguided school children is a hamburger, soft drink, candy bar or an ice cream cone. Of eight nutrients needed by school children, such a lunch provides only two in the quantities which the noon meal should give. By very small changes, and with no additional expense, this type of lunch could be transformed into one completely adequate in the eight food factors studied. If the hamburger must be kept, use a whole wheat bun instead of the white flour bun. A glass of whole milk contains more of the dietary essentials than the ice cream cone, and a serving of fruit would be vastly better than the soft drink. Variety, of course, is to be encouraged. Any person, or people, living continuously on a limited diet is likely, sooner or later, to encounter nutritional difficulties. The school kitchen proposes to avoid faulty diet by providing a well-balanced diet for one and all alike.

Adequate time should be allowed for eating the noon lunch whether at home or at school. It is generally conceded that twenty minutes is an appropriate time; observations,

\(^{15}\)Ercel Eppright, "The School Lunch," Texas Outlook, XXV (January, 1941), 31.
however, suggest that the actual time is usually much less, probably ten minutes. Recently the schools of New York City were accused of "breaking down the physical and mental health of children through conditions, methods, and customs which are definitely harmful and require revision." Attention was especially called to the short lunch period, and it was recommended that the fifty minute period be changed to one and one-fourth hours. In more than one way prolongation of the noon hour would operate toward the promotion of health. The universal prevalence of dental decay to the extent of eighty per cent, or more, indicated that factors promoting calcification are not properly provided. One of the most valuable of these comes in the direct rays of the sun which are most effective at noon; in fact, after three or four o'clock their potency is greatly reduced in many Texas localities. Any measure which would increase the opportunity for our children to benefit from one of the most valuable of our natural assets, namely, this good Texas sunshine, would be an improvement over the old order. In towns, by and large, the hours after school are not very advantageously used by most children; the noon hour, however, if available, for more outdoor activity, would be beneficial, at least from the standpoint of health.\textsuperscript{16}

The school lunchroom which is the responsibility and interest of the food manager only is not likely to serve its

\textsuperscript{16} Ibid.
full purpose to the school. Primarily, of course, as stated by Dr. Mary de Garmo Bryan, it should provide nourishing meals which will maintain the health and vigor essential to the success of the teaching program. It should also provide a center for teaching proper food selection, good health habits, and social practices. It should furnish a means of enlisting the interest of the community in food service and the food needs of children. Through it valuable experiences may be provided for the home economics, health and physical education, art, business administration, and social science departments. Almost equally as important as efficient management for the lunchroom is an educational campaign on proper food selection and its relationship to health. The schools unquestionably must and do share with the home the responsibility of inculcating in children the principles of health, of which proper food selection is one of the most important. Possibly, too, a certain amount of public responsibility for the feeding of school children can be justified. As stated by Gove Hambidge:

Every stockman knows that a single sick and undernourished animal in his herd is a drag on the whole, and a source of danger through its weakness and susceptibility to infection. If he can not bring it up to par, he will quietly put it out of the way. Every general knows that an army travels on its stomach. When hundreds of thousands of civilians were drafted into the American Army for the World War, the first concern was to feed those boys well. The whole army had to be fit and vigorous, and the stomach was the starting place.17

17 Gove Hambidge, The Nations Schools, XXV (January, 1940), 70.
But a nation travels on its stomach not a whit less than an army. It is affected by weak individuals no less than a herd of cattle. Every sick and under-nourished human being is a drag on the rest. They do not do their work as efficiently as the healthy and vigorous. They lose more time through sickness. Their useful span of life is not as long. Therefore, they raise the cost of everything we make and use. They also raise the cost of insurance, and of hospitals, clinics, asylums. They constitute a festering problem in rural areas and the slums of cities. They add to the ranks of crime. They are subject to warped viewpoints and psychological maladjustments that affect their families, their neighbors, the community as a whole. 

The value of the school kitchen became a matter of national concern as early as 1931. The President's Organization on Unemployment Relief cooperation with a large number of organizations issued a release including the following proclamations:

The school lunch has been developed in the past as an educational measure as well as one for safeguarding the health of the pupils. This emphasis should continue to be stressed during this emergency period. Every child who remains at school through the noon hour should be assured of at least one nourishing hot dish.

Where school lunches are provided, food should be made available to all and there should be no outward distinction between those able to pay and those not able to pay. In rural and other communities where there are no established welfare agencies to determine family needs, schools should take the responsibility.

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18 Ibid.
20 Ibid.
Correlation of the School Kitchen with Other School Subjects

The school kitchen provides a real life situation and the lessons learned here are far more important than the few hours of academic subjects that they may miss during the year.

Nutritionists have long maintained that the school lunch is the ideal laboratory for teaching nutrition and that good lunch habits formed in the school kitchen provide an important link between classroom teaching and the practice of good meal selection at home and elsewhere.

When authorities are asked to list the educational methods used successfully in their school kitchens to teach better food values, the following ways were mentioned:

1. Health posters

2. Advice on individual trays as to what is needed to make a better lunch

3. Suggestions to individual children over the counter

4. Health mottoes on the bulletin board

5. Printed slips explaining a good lunch placed on each tray

6. Typed copy of menu with itemized cost posted where pupils may read it

7. Each child check his own tray

Other educational values of the school kitchen are:21

1. The school kitchen may be used by different classes as a project in art, painting walls, chairs, tables, making pictures for walls and flower boxes for window

21 Ethel Austin Martin, "The School Lunch As a Health Agency," Practical Home Economics, IV (April, 1933), 113.
sill, making posters showing good food combinations, etc.

2. The kitchen and the lunch period used as a "training school" for teaching good manners and correct eating habits by

   a. eating in groups with a teacher as a hostess

   b. encouraging conversation at the table during the meal

   c. teaching good table etiquette where and when necessary

   d. provide opportunity for teaching composure, quietness and thoughtfulness of others.

3. As a nutrition project teaching food selection, good food combinations, food values, food costs, good eating habits, what constitutes a good meal.

4. Plays, exhibits, movies, lectures, assemblies and campaigns, all dealing with health and the part played by proper food, are excellent teaching devices. 22

Great interest in diet may be aroused by exhibiting at intervals the animals used in nutrition experiments arranged jointly by the home economics and natural science, and art departments may arrange fruits and vegetables in season on some central table in the school kitchen.

Certainly commercial subjects may be correlated with the school kitchen. Students are trained in all phases of the business management of the cafeteria such as the set-up and keeping of records, accounting, and posting of commodities.

22 Ibid.
If education is to function in a democracy it must be built upon hard, clear thinking about democratic ideals and upon resolute, devoted application of those ideals to common, garden-variety problems of life in school, community, state and nation.

Teaching in the Cafeteria

In addition to the actual necessity for school feeding so that children may be kept physically strong, the school lunch should be an integral part of the health program of the school and should be used in health teaching. The school kitchen is a real classroom for the teaching of nutrition to all pupils through the service of well selected, adequate and attractive lunches during the twelve years of school life.

Teaching in the school room is concerned largely with training pupils in the selection of foods that contain nutritive requirements.

A matter of importance in teaching the selection of food is that high standards of quality and preparation in all items offered for serving must be maintained. It is absurd to urge a child to select a certain food and eat all of it when the quality is so inferior that anyone with a sensitive taste would refuse it. Children choose with their eyes

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23 Educational Policies Commission, Learning the Ways of Democracy, p. 460.

24 Mary Bryan, op. cit., p. 15.
first, but if the food does not live up to its appearance, the school kitchen has lost a great deal of ground. Ordinarily children do not desire highly seasoned foods, but they want the dish they select to taste like the thing that is supposed to be and not like a conglomeration of left-overs. High quality, flavor, and attractiveness should be the keynotes of the school kitchens food policy.

Well selected plate lunches are excellent training devices. Children learn in this way to like foods they would not select of their own accord. The eating of the proper foods in palatable combinations develops good nutrition habits and the selection of proper foods will become almost a matter of course at every other meal and in after school years.

The short lunch period allowed in some schools is harmful from the health standpoint and certainly impossible from the social standpoint. Children often gulp their food while standing. They speak to no one and are hurried out of the lunchroom as soon as possible. The lunch hour should be at least thirty to forty-five minutes if the children are to enjoy the meal and to profit by social contacts.

Dorothy E. Brevoort said the lunch period should, above all, be a tonic as well as restful in reaction, a period of the day eagerly anticipated by the hungry. Surprises and variations from the usual procedure offer this needed stimulant.
Rearranging tables and chairs from time to time prevent monotony. An occasional radio program, or good victrola record is enjoyable.\(^{25}\)

In a few small schools food preparation is taught by having the classes aid in the actual preparation of the lunches. In this case, it is necessary to be sure that children are not exploited. Work should be changed frequently. Children must be interested and instructed by allowing them to help in the planning of meals and estimating their nutritive values.\(^{26}\)


\(^{26}\)Ibid.
CHAPTER III

VALUES OF A PROPER PHYSICAL SET-UP
OF A SCHOOL KITCHEN

As a precautionary measure to safeguard the health of children who are served daily in the school kitchen, it is necessary that the physical set-up be made according to the strictest plans of sanitation. This chapter is a discussion of different types of school kitchens. Certain minimum standards are necessary in order to attain this objective. Eagerness to serve the need in a community should not prevent adherence to these standards; the minimum should be met by the sponsor before a unit is opened. Gradually, as the value of the project becomes evident to the community, more desirable standards can be achieved.

Types of School Kitchens

The availability of space, and facilities in the community will determine whether school kitchens will be located in the schools they are to serve or elsewhere. A survey of the local situation will indicate the type of operation which will be most effective.

Complete unit at school site.--If school buildings include already established kitchens and lunch rooms or when space which may be equipped for preparing and serving meals is available it
is usually desirable to operate the school lunch unit in the school itself. If space in the school building is not available, a separate building on the school grounds may be used. In many instances schools have found it possible to build kitchens and lunch rooms of inexpensive construction on the school premises, as separate buildings or additions in order to provide for the operation of a school lunch unit.¹

Complete unit in community building.--If facilities for cooking and serving lunches cannot be provided at the school site, school lunch quarters may be established in some other building in the community, preferably within easy walking distance of the school. The sponsor should provide for supervision of children between the school and lunch room and for transportation, if it is not feasible for the children to walk.

An already established, well-equipped kitchen and dining room in a church, club house, or community center may prove satisfactory and is desirable from the standpoint of minimizing equipment expense. If this type of housing is used arrangements should be made to insure that other activities carried on in the building will not interfere with school lunch operations.

Central preparation unit.--In certain situations it may be advisable to establish a central preparation unit to serve all the schools in a city or town or a number of rural schools.

within an accessible radius. Under this type of operation food is prepared in the central kitchen in sufficient quantities to supply the total number of lunches to be served and distributed in bulk to the individual schools.

The plan makes it possible to extend the school lunch program to schools which lack the necessary space and facilities for food preparation. It also offers a possible solution to the problem of providing school lunches in rural schools in localities where no certified workers are available.

When the schools served are located within a short distance of the central kitchen, workers who assist in the preparation of the lunches may go to the schools at the lunch hour to serve the food, wash and sterilize the dishes. When this is not possible, helpers may be assigned for full time at the serving site, provided the number of lunches served is sufficient to make the plan feasible from the standpoint of hours of work. In order to provide full time employment it may be desirable to have the workers at the school prepare a portion of the lunch. This preparation would necessarily be limited to foods requiring no cooking, such as salads, sandwiches, and uncooked desserts.2

If WPA labor is not available or if the number of lunches served does not justify the assignment of a worker, the sponsor

2Ibid.
should assume responsibility for the serving of the food. In such cases all WPA standards will apply.\(^3\)

Transportation of the food to the schools is an important factor in the central kitchen type of school lunch operation. All applicable state and local health and safety regulations shall be observed. Provision must be made for a transportation system which will insure deliveries to the various serving locations at the proper time. Covered containers, sterilized daily before they are filled, will be necessary to protect the food in transit. Two sets will usually be required for each school so that the truck making deliveries may pick up those used the previous day and bring them back to the preparation center. Insulated containers for hot foods should be provided, if possible; otherwise provision should be made for reheating food at the serving site.\(^4\)

**Central baking unit.**--In many instances full use cannot be made of the large quantities of flour, cornmeal, oatmeal, and other cereal products supplied by the Surplus Marketing Administration because school lunch units are not equipped with adequate oven space for baking all the breadstuffs required for the lunches or because sufficient labor is not available. For more efficient operation under those circumstances, a central baking unit is recommended to supply bread, rolls, muffins, and occasionally cakes and cookies, to a number of schools within

\(^3\)Ibid., p. 4. \(^4\)Ibid.
a given area. Adequate equipment, well qualified personnel, and a workable plan for distribution are essential to the successful operation of a central baking unit.  

When individual school lunch units are equipped for baking but are inadequately staffed for this activity, an itinerant baker might be used, particularly in a metropolitan area, to bake breads, cookies, etc., in the different locations on certain days each week. By careful scheduling of time, one baker might serve from two to six schools, depending on the quantities of baked goods required and distances to be traveled.  

Building Requirements

The housing of kitchens are not necessarily such elaborate buildings but they must be clean and attractive. Certain building requirements must be met before the operation of a school kitchen is permissible. It is the sponsor's responsibility to see that the space provided for a school lunch unit meets all safety and sanitary regulations in force in the community. Frequently, a little thoughtful planning with the sponsor will make it possible to improve existing conditions which do not already meet requirements, without great expenditures of time or money.  

Before a unit is opened, the location and all equipment shall be inspected and approved by the WPA safety representative in accordance with prescribed regulations.

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5Ibid., p. 4.  
6Ibid., p. 5.
A permanent building with inside finishes which are attractive and easy to clean is desirable. A rough temporary building, unfinished inside, may be accepted where the climate permits. Such a building should be whitewashed inside as a minimum standard.

**Walls and ceiling.**—A smooth, non-absorbent, washable finish which is easily cleaned is desirable. A soft, light color which reflects light without glare is preferred. A clean whitewashed wall with oilcloth above the sink will be acceptable as a minimum.

**Woodwork.**—A smooth washable finish, harmonizing in color with the walls, is preferred. The minimum requirement is unfinished woodwork sufficiently smooth to be kept clean.

**Floors.**—Floors should be resilient so that they will not be tiring to stand on, smooth, non-absorbent, easy to keep clean, durable, and attractive in appearance. Inlaid linoleum over a felt base is a very satisfactory material.

A minimum standard requires a floor which is reasonably smooth and possible to keep clean. With cement floors, rubber mats or wooden platforms should be provided at tables, sinks, and other work centers for the comfort of the workers.

**Light.**—Lighting which will enable workers to do all their required tasks without eyestrain is essential. Natural light is desirable but even a room with good natural light will require supplementary artificial lighting for dark days, particularly over the food preparation and cooking areas. Electric
lights of the semi-indirect type placed to give even light in all parts of the room are preferred. If this standard cannot be met the best available type of lighting which will meet safety requirements should be used.

Windows should be equipped with shades to prevent glare. If the sponsor is unable to purchase them, roll shades may be made out of wrapping paper, or unbleached muslin draw curtains, two to the top sash and two to the lower sash, may be used.

**Heat.**—A heating system should be provided which will maintain a comfortable temperature during the entire day, so that it will not be necessary for workers to wear sweaters, coats, rubbers, or overshoes in the kitchen or for the children to wear their wraps while eating lunch.

Thermostat controlled furnace heat is desirable. A wood or coal range, to be used for both cooking and heating, is a minimum.

**Ventilation.**—Space provided for school lunch units should be well ventilated. It is desirable to have windows on two or more sides of the room to provide cross ventilation. Windows should open from both top and bottom. If window space is not sufficient for good ventilation electric fans are recommended to increase the circulation of air.

School lunch units should not be located in rooms which have no opening to the outside, except in buildings equipped with adequate ventilating systems.

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Space Requirements

If any project is to function well certain standards must be met; the space requirements, including space for storage area, space for food preparation, and space for serving are essential to the serving of good wholesome food. The amount of space required for a school lunch unit will necessarily depend on the number of lunches to be prepared and the equipment to be used. It must be adequate to provide sufficient areas of work for all the activities of the unit: receiving and storing supplies; preparing and cooking food; serving the meal; washing dishes. Space where workers may hang their street clothes and change into their uniforms is another essential.

Storage space.—Safe and convenient storage space should be provided for all equipment and supplies. To receive supplies as they are delivered to the unit there should be a table or box as near to the storage area as possible.

The preferred type of storage space for food supplies is a separate room convenient to the kitchen. It should be dry, well ventilated, adequately lighted, and kept at cool but not freezing temperature. It should have shelves, bins, and racks, raised several inches from the floor, to provide for proper storage of all items. The door should have a lock. Refrigeration for butter and other perishables received in considerable quantities is highly desirable.

A minimum standard for storage space would require
adequate shelves, bins, and racks in the kitchen or other available place conveniently located. Such storage space should be enclosed and equipped with locks. Storage closets for cooking utensils and supplies used daily should preferably be located in the kitchen.

**Space for food preparation.**—A separate kitchen which can be arranged with convenient areas for food preparation, cooking, and dish washing is desirable. Part of a room providing adequate space for the satisfactory performance of this work is the minimum requirement.

The food laboratory of a school sometimes serves as a school lunch kitchen, but such an arrangement should not be permitted when the laboratory is used for classes at the time the lunch is being prepared.

**Space for serving.**—A separate room, convenient to the kitchen, is desirable for serving the school lunch. If it is necessary to serve the lunch in the same room in which food is prepared, the space farthest from stove and sink should be used for the purpose. Sufficient space to provide for seating the children at tables is required. Meals may be served in class rooms at the children’s desks or study tables when no other space is available.³

**Sanitation**

WPA school lunch units are food handling establishments;

³Ibid., Section 12, p. 2.
therefore, they should conform to state and local regulations for such establishments. "Where it is not possible in small rural schools to meet such regulations, the cooperation of the State Health Department should be sought in establishing standards which would permit the operation of school lunch project units under adequate conditions of safety and sanitation."\(^9\) Water, screens, garbage disposal, and sterilization of dishes are all important measures to complete sanitation.

**Water.**—A safe water supply is an essential for every school lunch project. If the water comes from a community supply which is regularly tested it is unnecessary to request a special test before using it. In the case of a school lunch unit located in a community having no approved water supply, it is the responsibility of the sponsor to have the water tested and approved before the unit opens and at frequent intervals thereafter.

Hot and cold running water in the kitchen and cold running water in the lunch room are highly desirable. The minimum requirement is an adequate supply of safe water on or very near the premises. Covered containers should be provided for carrying water from the source. Water must not be allowed to stand in the kitchen in uncovered containers. A covered barrel or tank with spiget for drawing the water is required for storage.

\(^9\)Ibid., p. 3.
of water. This container should be drained and thoroughly cleaned and sterilized at least once a week. A sanitary drinking fountain or paper cups for drinking water for the workers should be provided in accordance with WPA safety regulations. The use of a common dipper, cup, or glass should not be tolerated.\footnote{Ibid., p. 3.}

**Screens.**--All windows, doors, and other openings in rooms used for school lunch purposes should be screened for protection from flies and other insects. Removable screens of fine wire mesh are recommended. Mosquito netting is a possible substitute. Screens should fit tightly and be kept free from breaks. If windows open from both top and bottom the whole opening should be screened.\footnote{Ibid., p. 4.}

**Garbage disposal.**--Garbage and trash should be kept in covered, water-tight metal containers. It is the sponsor’s responsibility to remove garbage and trash from the lunch room daily and dispose of it in accordance with local health department regulations. It is the WPA workers’ responsibility to keep the containers in a sanitary condition. Garbage cans should be washed and scalded daily.\footnote{Ibid.}

**Sterilization of dishes.**--It is imperative that all dishes and tableware used by the children in the lunch room be sterilized. Applicable regulations in the state and local code for
food handling establishments should be observed. Where there are no such regulations local health officials should be consulted.

Equipment for the School Kitchen

To serve efficiently the school kitchen there must be certain standards for equipment. Minor standards have been omitted but the major standards of equipment are worthy of mention. Good stoves, refrigerators, work tables, sinks, and cooking utensils are essential to the school kitchen.

Stoves.--The stove should provide sufficient space for the efficient preparation of the types of dishes to be included on the menus. Gas or electric stoves with temperature controlled ovens are desirable, but kerosene, wood, or coal ranges in good working condition are acceptable. As a minimum a two burner stove with portable oven should be required. For large units and for central kitchens serving a large number of schools institutional type ranges, baking ovens, and steam jacketed kettles are desirable.

Refrigerators.--A well insulated refrigerator, with porcelain enamel finish inside and out is desirable. It may be either iced or mechanically cooled. A well built, wooden refrigerator, adequately insulated to maintain a safe temperature is acceptable.

13Ibid., p. 5.
Work Tables.---Work tables should be substantial in construction with smoothly finished non-absorbent tops. They should be of a height which will permit proper posture of workers. Linoleum, stain-resistant metal, and hard wood with water proof finish make good working surfaces.

Sinks.---It is desirable that school lunch units be equipped with separate sinks for dish washing and for washing vegetables and also a hopper for washing mops and other cleaning equipment and disposal of water used for cleaning purposes. Double or triple sinks are convenient for dish washing. If only one sink is available separate pans should be provided for washing dishes and vegetables. Stainless metal or porcelain enamel sinks are preferred. Other satisfactory materials are iron and soapstone. On small rural units it is possible to use home-made sinks constructed from oil drums. Sinks should be installed at a height to permit working without stooping.

Cooking utensils.---Steel or heavy aluminum kettles and saucepans are safest and most desirable. Enamel ware, especially inexpensive types, is not a good investment as it chips and must be replaced frequently. If it is used, extreme care must be taken to prevent bits of enamel from getting into the food. Iron is a satisfactory material for frying pans and Dutch ovens. If necessary some cooking utensils may be improvised from lard cans and other tin containers. 14

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14 Nell Morris, "Proper Equipment a Major Factor in School Cafeteria," The Nation's School, X (January, 1940), 10.
Serving equipment.—For convenient serving, tables large enough to hold the kettles or pans of cooked food and the dishes to be filled are needed. In a small unit the work table may be cleared at serving time and used for this purpose, if a separate table cannot be provided. Serving utensils include ladles for soups and stews, serving spoons for vegetables and desserts, and pitchers for beverages. A pitcher is also convenient for serving soups which pour easily. Serving trays should be provided for carrying the filled dishes to the tables. These should be strong, light in weight, and of a material which will not buckle. For kitchen service a long counter, table, or series of tables providing sufficient space for an orderly arrangement of food and dishes, is necessary. Steam tables for keeping food hot during the serving period are desirable where the number of children served is large. If this equipment is not possible, cooling may be retarded by setting kettles of food in containers of hot water. Kitchen service requires the use of individual trays, adequate in size for holding a plate, a glass, dessert dish, and other dishes usually used for the school lunch. 15

Layout of equipment.—Since space which was originally designed for some purpose other than the preparation and serving of food is often provided for a school lunch unit, an ideal layout is seldom possible. However, careful plans should be made

15 Ibid., p. 11.
for the most efficient work routine possible within the limitations of the space available. The various steps in the preparation and serving of a meal should be analyzed and equipment so placed that the work may progress in an orderly manner without wasted motion or interference between workers. Centers for the various activities should be set up so that progression of work will be around the room rather than back and forth across it. In a square room a work table in the center might prove to be a good arrangement while in a long narrow room it might be better to place all equipment against the walls, leaving the center free for passage. If possible, cupboard or shelf space should be included at each work area for convenient storage of the utensils and supplies necessary for the activity.\textsuperscript{16}

Serving tables should be placed at a point as near as possible to both stove and lunch tables. When cafeteria service is used the counter should be in or adjoining the lunch room so that children will not have to carry trays for long distances or walk through preparation and cooking areas.\textsuperscript{17}

Unlike many other parts of the building, the school kitchen is planned to accommodate the entire pupil body within a limited portion of the day. Since the lunch hour serves as a time for choosing and eating wholesome, nourishing food, each child should have a comfortable place to sit while eating his lunch. His environment should be cheerful, suitably quiet,

\textsuperscript{16}Ibid. \hspace{1cm} \textsuperscript{17}Ibid.
well lighted and properly ventilated. Not only should the kitchen be comfortable but it should be attractive.\footnote{18}{Rose Spearman, "Laying Out the Lunchroom," The Nations Schools, XXIV (November, 1939), 41.}

The next part of this chapter deals with a specific school kitchen in Hill County where the author of this thesis is a teacher. The aim of this project is to supply children with good wholesome food, which in turn will improve the scholastic rating of its pupils.

Set-up of a School Kitchen in Hill County

Administrators agree that for a business to function properly it must be organized and managed scientifically. A school kitchen would utterly fail if it were attempted in a laissez faire method. The supervisor of school kitchens in Hill County cooperated with the writer of this thesis by supplying the following information regarding the free lunch project.

\textbf{Work schedules.--} A supervisor's careful analysis of the work to be done on a school lunch unit was necessary before she could prepare work schedules of daily, weekly, and occasional duties to be performed by each worker. She also stated that the schedules should be simple and specific in order that workers might easily understand them and should be posted on a bulletin board in the work room in typed form.

Furthermore she said, it should not be necessary for a supervisor to make separate work schedules for each day. If
the schedules are well planned they can be used day after day and week after week. For example the following daily schedule for a helper could be used for an indefinite period:

<table>
<thead>
<tr>
<th>Step</th>
<th>Time</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8:30 to 10:00</td>
<td>Prepare vegetables to be cooked.</td>
</tr>
<tr>
<td>2.</td>
<td>10:00</td>
<td>11:00 Wash off tables in lunch room and set them.</td>
</tr>
<tr>
<td>3.</td>
<td>11:00</td>
<td>11:30 Wash dishes used in preparation. Serve dessert in individual dishes and place on table.</td>
</tr>
<tr>
<td>4.</td>
<td>11:30</td>
<td>12:00 Pour milk in glasses. Assist cook in serving plates.</td>
</tr>
<tr>
<td>5.</td>
<td>12:00</td>
<td>12:30 Children's lunch period--assist in serving children--pass breadstuff, serve second glasses of milk.</td>
</tr>
<tr>
<td>6.</td>
<td>12:30</td>
<td>1:00 Workers' lunch period.</td>
</tr>
<tr>
<td>7.</td>
<td>1:00</td>
<td>2:00 Remove dishes from tables--wash tables, sweep lunch room, mop if necessary.</td>
</tr>
<tr>
<td>8.</td>
<td>2:00</td>
<td>2:30 Assist cook in washing, sterilizing, and putting away dishes.</td>
</tr>
<tr>
<td>9.</td>
<td>2:30</td>
<td>3:00 Remove garbage and sterilize containers, sweep kitchen.</td>
</tr>
</tbody>
</table>

Fig. 1.—Sample daily schedule of work for helper

This schedule would be applicable for a unit employing one cook and one helper. However, the same schedule, with a few adjustments, might be used by several helpers on a larger unit. When workers are first assigned it may be necessary for a supervisor to make specific daily plans for cooks and helpers until they become accustomed to the routine
of their jobs. Following this section is a step by step plan of work for a lunch to be prepared by one cook and one helper for fifty children.

MENU

Creamed Dried Beef
with
Mashed Potatoes
Whole Wheat Sandwich with
Carrot Filling
Canned Peaches
Milk

<table>
<thead>
<tr>
<th>Step</th>
<th>Duties of Cook</th>
<th>Step</th>
<th>Duties of Helper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assemble supplies from store room.</td>
<td>1.</td>
<td>Make preliminary preparations such as filling tea kettle, etc.</td>
</tr>
<tr>
<td>2.</td>
<td>Make white sauce.</td>
<td>2.</td>
<td>Peel potatoes.</td>
</tr>
<tr>
<td>3.</td>
<td>Put potatoes on to cook.</td>
<td>3.</td>
<td>Scrape carrots.</td>
</tr>
<tr>
<td>4.</td>
<td>Combine dried beef with white sauce.</td>
<td>4.</td>
<td>Cut up dried beef.</td>
</tr>
<tr>
<td>5.</td>
<td>Grind or chop carrots and mix with salad dressing.</td>
<td>5.</td>
<td>Clean tables and set them.</td>
</tr>
<tr>
<td>6.</td>
<td>Spread bread with butter and sandwich filling and cover with moist clean towel.</td>
<td>6.</td>
<td>Place peaches at individual places.</td>
</tr>
<tr>
<td>7.</td>
<td>Serve peaches in individual dishes.</td>
<td>7.</td>
<td>Pour milk in glasses and place on tables.</td>
</tr>
<tr>
<td>9.</td>
<td>Take food to serving table.</td>
<td>9.</td>
<td>Place plates on tables.</td>
</tr>
<tr>
<td>10.</td>
<td>Serve potatoes, creamed dried beef and sandwiches on individual plates.</td>
<td>10.</td>
<td>Remove dishes from tables and clean off tables.</td>
</tr>
<tr>
<td>11.</td>
<td>Serve second helpings.</td>
<td>11.</td>
<td>Place garbage in closed container for janitor to remove.</td>
</tr>
<tr>
<td>12.</td>
<td>Put left-over food in refrigerator or cold room.</td>
<td>12.</td>
<td>Scrape, wash and sterilize dishes, leaving to drain.</td>
</tr>
<tr>
<td>13.</td>
<td>Check menu and supplies for following day.</td>
<td>13.</td>
<td>Sterilize garbage container.</td>
</tr>
<tr>
<td>15.</td>
<td>Make cookies for following day.</td>
<td>15.</td>
<td>Sweep floor and mop if necessary.</td>
</tr>
</tbody>
</table>

Fig. 2.—Sample plan of work for worker unit.
Planning Food for School Lunch Projects

**Provisions for securing food supplies.**—In order for the school kitchen or free lunch project to function as a value to health, food must be carefully selected and planned by the kitchen supervisor and the committee. Certain provisions must be made for securing food, and a carefully selected menu is of vast importance.

An adequate supply of food materials is fundamental to the operation of a school lunch project. The preliminary planning with sponsors and co-sponsors for the establishment of a unit should include provisions for securing the foods which will be needed throughout the year. In order that the sponsors may make an adequate plan it is necessary that they know the general types of foods and the estimated quantities required weekly for a specified number of children. They will need information also regarding the items expected to be available as surplus commodities and the amount of produce anticipated from gardening and food preservation projects. It should be made clear to the sponsor that, because of the nature of the Surplus Marketing Administration's program, surplus commodities cannot be counted on to furnish a sufficient variety of foods for adequate lunches at all times. The sponsor should be responsible for securing from local organizations and individuals in the community cash contributions for the purchase of foods needed in addition to surplus commodities and garden produce,
or contributions in kind in amounts sufficient to meet the requirements. Advisory committees can be of assistance in working out the details of the plan.

Contributions in kind should be definitely scheduled in advanced and arrangements made for their delivery to the project at a stated time according to specific menu plans for a given period. Daily contributions of food brought from home by the children should be prohibited. It is seldom possible to use these small quantities to advantage in carrying out the planned menus. Moreover, in many instances, the making of such contributions means that the family is deprived of food needed at home. Families financially able to contribute to the school lunch program should do so on a scheduled basis in accordance with the general plan set up by the sponsor.

Centralized menu planning.—Uniformity of operation and maintenance of good nutritional standards are best achieved when the planning of menus is centralized rather than handled by individual units. In the majority of states the district will be the logical basic unit. This does not mean, however, that the same menu will be used by every school throughout the district. It may be necessary to provide several types of menus to meet varying conditions which exist in different localities within the district.

It is recommended that the district technical supervisor of the school lunch project be responsible for the planning of menus. Where there is no technical supervision at the district
level, the state supervisor should plan menus adapted to the
different types of lunches served throughout the state. These
should be distributed to the districts in accordance with their
needs. Since surplus commodities, contributions in kind, and
fresh produce available in local markets vary within a state
and within a district, the person doing the planning must have
accurate information on availability of supplies. Suggested
menus which do not fit a local situation have little value.
A plan for securing adequate information for centralized menu
planning should be worked out by state and district offices.

In states where the organization of the project does not
make centralized planning feasible, menus planned by unit
foremen or cooks should be checked and approved by a tech-
nically qualified person. Home economics teachers, home
demonstration agents, and public health nutritionists are
usually glad to give this assistance.

School officials and teachers should recognize that it
is the responsibility of WPA workers on a school lunch unit
to prepare and serve the menus as planned. They should cooperate
with the workers in seeing that the plans are carried out and
should not request changes in menus. All suggestions for
menus should be made in advance to the persons responsible
for the planning.
CHAPTER IV

TEACHING DEMOCRACY IN THE SCHOOL KITCHEN

The purpose of this chapter is to emphasize the value of teaching democracy in the school kitchen or lunchroom. General John M. Palmer, retired general, said recently, "In my opinion our peril is greater than it ever has been in our history." If his words have meaning democracy must be taught at all times.

Educators of today are just beginning to sense the problems involved in "educating all the children of all the people," or "educating the whole child," in a "democratic system of education." These phrases, which are familiar to our ears, present almost insuperable difficulties when we are asked to translate them into the everyday experiences of the school; and one of the most pressing of these difficulties facing us at present is that of the school lunch.

Compulsory education demands that all children, regardless of the socio-economic status of their parents, attend school. The hours of attendance are rigidly fixed and in the attempt to lower cost and increase efficiency through consolidation these hours away from home are becoming increasingly long. In any case, it has come to be
the exception rather than the rule, for the children to have the privilege of going home for the noonday meal. The public school, in an endeavor to serve the ever increasing number of children who must eat their lunch at school, has gone into the kitchen business.

The way in which this business is operated, its major objectives, and its place in the school program should be a challenge to all thinking men.

The modern school recognizes educational values, not only in the academic experiences at school, but also in all the experiences in which pupils engage both in school and, through school direction, at home. Since the lunchroom as well as the classroom, the safety patrol as well as the health class, the community-chest campaign, as well as the arithmetic drill period are considered means to an all-round development of pupils, critical attention is given to the selection and planning of all the activities in which children or older students engage. All activities must be valuable for pupil growth; they must be consecutive, or at least have some cumulative effect; they must provide a well-rounded experience for boys and girls at each stage of development. This involves the inclusion of many types of experience, among them some that contribute primarily to social understandings, that provide for participation in significant aspects of social life, that acquaint the child with the
physical environment in which he lives, that contribute to healthful living, that offer opportunity for individual group creative activities, that provide for the development of efficient methods of work, and the like. To do this the teacher must be very thoroughly responsive to the changing demands of contemporary life.¹

Because of the changing social and industrial conditions of today, the task of the teacher is much greater than it once was. Every teacher must be a teacher of health. Life is much more complex. Because of the immensity and complexity of the task of teachers, methods of teaching must be changed to carry on the work.

Hockett and Jacobsen in their book Modern Practices in Elementary Education said:

If we aim to develop confident self-reliant individuals, we must build confidence through a program of success, in which the child continually grows in ability to assume responsibility for his own decision and behavior. If we value integrity and character, the school must encourage both emotional and intellectual sincerity on the part of each child, even though he may react differently from the other children or the teacher. If purposiveness, perseverance, and enthusiasm are desirable qualities, children must be permitted and helped to set up worthy purposes which they can carry through enthusiastically to successful conclusions. If open-minded respect for fact and truth is a desirable characteristic, many opportunities for practicing the scientific attitude must be

provided in children's school experiences. If appreciation and enjoyment of the beautiful are worth while, the school must provide time and opportunity for these experiences. If happiness and good fellowship are constituents of the good life, the school must show the child how they can be attained.  

The school kitchen is a friendly way of incorporating a program of democracy. It is a place where the child meets his classmates in a happy frame of mind; a place where the teacher can come close to the child, and where principles of health, courtesy, and honesty may be stamped indelibly upon the child.

The pages of history have never revealed such crucial times as these. Strong bodies are much in demand. Ideas about feeding children have undergone many changes in recent years. The former tendency to keep children unduly long on a body diet has given way to the recent practice of supplementing the milk diet early in life with a variety of wholesome foods simply prepared. The diet of the very young child differs from that of the older one mainly in the way the food is prepared and in the amounts served at various ages. Mistaken ideas passed along in families and communities have kept many good foods off the young child's menu. This is unfortunate because good nutrition is more easily attained on a well-chosen variety than on a limited diet, and better basic food habits are established.  


\[3\text{Ibid., p. 3.}\]
Begin early to give the child a carefully chosen variety of foods at regular meal times, and he will gradually form habits of eating that will influence his nutrition throughout life. A strong, healthy body depends upon a wholesome appetite, the right food, and good health habits from the start.  

A healthy child who has an abundance of the right kinds of food grows normally and is contented and well developed. His legs are straight and strong and his weight is satisfactory for his build, height, and age. He has sound teeth, and has hair that is glossy, smooth, and not brittle. His skin is clear, and his color is good. He has an alert expression, and bright clear eyes with no dark circles underneath. He is active and has a good appetite for his meals.  

Relation of Food to Good Nutrition

The food the child eats must furnish the material for his growth and development and must meet the demands made by his ceaseless activity. Food does this in three ways: by building and repairing all parts of the body, by keeping it healthy and regulating its running order, and by furnishing the energy for work, play, and such internal functions as breathing and the beating of the heart.  

\[\text{Ibid.}\]  
\[\text{Ibid.}\]
\[\text{Ibid.}\]
Body-building Materials

The building materials required in the construction of the body are proteins, water, and minerals. Children, because they are growing rapidly, must have foods that furnish an abundant amount of these materials. 7

Proteins are among the most important construction materials required as they are, not only for muscles and bones, but also for all body tissues and fluids. There are many kinds of protein in food, which can be used more economically than others. Those found in milk, cheese, eggs, and meat are especially valuable for growth. The child needs a liberal supply of these so-called efficient foods every day during the years of his rapid development.

Water occurring in every living cell makes about two-thirds of the weight of the body.

Minerals are used in the structure of all body fluids and tissues. In planning the growing child's diet three minerals, calcium, phosphorus, and iron must have special attention because they are not abundant in all foods. 8

Until recently a discussion of food and health would have dealt chiefly with ways in which food might carry infections or poisonous substances. We were satisfied to think of health merely as freedom from disease; and we were

7Ibid.

8United States Department of Agriculture, Food for Children, Farmers Bulletin, No. 1675, p. 27, April, 1940.
accustomed to think of disease as caused by some actively injurious thing whether micro-organism or poisonous substance. But the discovery of the vitamins and study of their significance has now made it clear that diseases may also be due to shortages of essential food constituents.  

Furthermore, not only may some shortage of some food constituent cause a nutritional deficiency disease, but even a lesser degree of such shortage—a merely ill chosen or poorly balanced food supply—may diminish the ability to resist infections. The protective foods are protective in the double sense of insuring against nutritional deficiencies and increasing our abilities to resist infections.

The Lunchroom Manager's Part in National Defense

In describing the program of the National Defense Advisory Commission the term "total defense" has gained wide usage. This means much more than the development of armed forces to their full strength, a two ocean navy, and a potent air force; more than the protection of our national physical plant. It embraces the defense of our human and social resources as well, and it aims to protect our democratic way of life. Everyone has a stake in a total defense program and everyone has a contribution to make to it, especially the school lunchroom manager.  

9Henry C. Sherman, Food and Health, p. 2.

Under the guidance of a group of the nation's scientific experts on food, the Committee on Food and Nutrition of the National Research Council has been appointed, and Nutrition Committees have been set up in each state to help coordinate and spread the services of those specially trained in this field. It is the school lunchroom manager's responsibility to get in touch with her local group and to cooperate in every way possible. We can become a nation united in thought, sound in nerve, and well-nourished in body. We can and must make America strong by making Americans stronger.

At a meeting of a committee composed of the nation's leading experts on nutrition, dietetics, home economics, agricultural economics, and food processing, one of the four points stressed was the development of a plan for teaching the population what it needs to know about food and nutrition. What more direct method of attack could there be than through the school child? School is where habits of thinking and acting are developed, and it is our task to make children's food habits the right ones. The other three items stressed by this committee as requiring improvement were: the augmenting of white flour with minerals and the B vitamins, to which our leading millers have attended very promptly; improvement of sugar, which likewise has been deprived of natural elements contained in the sugar cane from which it is made; and improvements in nutrition quality of edible fats.11

11Ibid.
Hungry, under-nourished people do not make for strong defense. As a nation, America is not so well-nourished as it should be. Studies of the diets of thousands of American families lead to the conclusion that at least a third of our families--45 million people--are below the safety line. Many of these people eat enough food, but not the right kinds. They may not be hungry and they may not show symptoms of pellagra, rickets, scurvy, and the other diseases produced by deficiency in the diet. But they tire easily, they lack pep and energy, their digestive systems are frequently upset, and they are subject to all kinds of aches and pains. They may not be sick in bed, but they are in the general condition of being "below par." Latent malnutrition, or "the hidden hunger" as it is sometimes called, is the largest and the most dangerous part of our problems. More and more emphasis must be placed upon optimum and not minimum standards. We all know and preach that a good diet should contain plenty of what we call the "protective" foods, foods which are known to be good sources of important vitamins and minerals, as well as plenty of proteins, carbohydrates, and fats. Milk, eggs, butter, green and yellow vegetables, fruits, and the less refined cereals are important in the list of protective foods. Dr. Hazel K. Steibling's analyses led her to conclude the "modification of present-day diets so as to improve their nutritive qualities without adding much to the outlay for food is chiefly a matter
of putting considerably more emphasis upon leafy and green-colored vegetables and upon milk." A poor diet is likely to have plenty of fats; it is the protective foods that it lacks. 12

Underlying some of the poor diets of the nation are the poor food habits of many people. If a family has been accustomed to eating foods which give protection, it is fortunate. If its habits of eating have omitted the important protective foods, for whatever reason, then something needs to be done to change those habits, for the good of the family and for the good of the nation. It is to this end that the nutrition committees are directing their efforts, and it is in this line of attack that the school lunchroom managers can function most effectively through the education of the children.

The first step is to make the children "nutrition-conscious." In the last few months we have become "democracy-conscious" almost over night, and so can we become "nutrition-conscious," too. Teaching children the protective foods necessary for health and strength is a first step in promoting their physical well-being. Make each child aware of what a well-balanced day's rations are, and then make it your job to practice those theories by seeing that the child gets at least one-third of the requirements in his noon lunch.

For those who do not have money enough to buy the foods they need, surplus foods are available. To provide food for needy families, other steps have also been taken through the Food Stamp Plan, through improved employment and its concomitant increase in income for the average family. And for those who can produce more food at home there is a great deal of help available in many forms.  

One practical and effective way of teaching the child better food habits is to surround him with visual illustrations of his optimum requirements. Use corridor exhibits emphasizing milk and fruits and vegetables, and display plate lunch combinations, custards, cream soups, etc., so that the child can be guided in buying his lunch to make direct application of the food principles we are propounding. One school stimulated a tremendous amount of interest among both students and teachers with a vegetable guessing contest. A corridor cabinet was filled with 53 numbered vegetables. Beside the cabinet were slips of paper, numbered from 1 to 53, on which the answers were to be written. The boy and girl and teacher who named the greatest number correctly were given a chicken dinner by the lunchroom. The home economics classes followed through by teaching the best ways of buying and the most effective methods of preparing these vegetables. In the health education classes the need for these foods in our diets may be stressed, while the general science classes...

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13 Ibid.
could well teach their component elements and their valuable role in building strong bodies.\textsuperscript{14}

The forty-five million people of the country estimated to be getting a diet inadequate to maintain good health and vigor have a dietary deficiency in specific essential elements, particularly vitamins $A$, $B_1$, $C$, and calcium. It has been estimated that if these people were to receive a liberal dietary our whole national food consumption would be increased to the point that no real surplus of food production would exist except in wheat. The great majority of the children of the United States have a heredity good enough to enable them to become productive workers and excellent citizens, provided they are given the right kind of food, proper training, and ordinary opportunities. And fundamental to adequate training and decent opportunity is food.\textsuperscript{15}

Strength is essential to all-out national defense. But America will be no stronger than the sum total of her local communities. The weak links in our community life and social well-being, found in the fields of health, nutrition, recreation, and child care, must be strengthened. Our job is to stamp out malnutrition, one of the worst foes of a strong, healthy nation.

\textit{Practicing Democracy in the Lunchroom}

The writer of this thesis is a teacher in a school in Hill County; therefore, first hand information is included in the second part of this chapter.

\textsuperscript{14}Ibid. \textsuperscript{15}Ibid.
Schools are supposed to be organized around democratic principles, but we are sometimes made to stop and wonder if we are taking advantage of the opportunities that come our way for instilling democratic ideals in the boys and girls of today who are to be the citizens of tomorrow. If American democracy has failed in even the slightest degree, this failure is due to the fact that it has not been given a thorough and fair trial. A real democracy must serve a big majority of its people; otherwise it is doomed.

A school kitchen in Hill County has truly become a democratic one through the school lunch program that it so successfully is carrying out. Our lunchroom is operated on a cooperative basis. No child is denied the privilege of eating regardless of whether he can pay for the food or not. No child is asked for money. Those who can and so desire pay cash for lunches. Others bring canned goods or other food surpluses from home. Many parents pay for lunches by donating a hog, a cow, or chickens. The fathers and mothers bring food to the lunchroom daily. This common interest has brought the parents and the school closer together with the result that parents have a greater interest in the school. Our citizens have learned to do things the American way!

In the spring of 1938 the Parent-Teacher Association sponsored a general health survey throughout the school. Each student was given a thorough physical examination. The results were alarming, even to the faculty. Permanent individual record
cards were filed. Bad tonsils proved to be the most serious problem. The P.T.A. has been instrumental in remedying this situation to a great extent. The second problem to be considered was that of bad skin. Our physician assured us that this deplorable condition was due largely to improper diet. For a time, the P.T.A. felt that its hands were tied insofar as this problem was concerned. But let me assure you that a much bigger problem would have to exist to halt the progress of a wide-awake P.T.A. such as we have at our school in Hill County. In the end, the bad skin problem was solved by opening the school lunchroom.

Every day each child gets a wholesome, nourishing, well-prepared, and balanced meal. The variety of food that is served from day to day is amazing. Many homes, even where food was plentiful, were found to be serving the same dishes over and over instead of giving the child the variety of food he so badly needed. The school lunch is making up for this deficiency in the home. The child carries home to his parents much valuable food information. Thus, the lunchroom not only aids in establishing correct food habits for our citizens of tomorrow, but also serves as a school for those of today. What more concrete example of democracy in its purest form can you give than having the rich eat with the poor, the self-conscious eat with the bold, and the teachers eat with the pupils? About ninety-five per cent of the student body participates. I call this democracy in action.
Another outstanding advantage of the lunch program is that children learn to sit at the table and eat together under pleasant conditions. Everyone agrees that food can be consumed much too rapidly for the good of the individual, and this is exactly what happens so long as cold lunches exist. At least twenty minutes is required for the correct eating of a proper school lunch.

General health conditions have improved throughout our school. An average gain of three pounds per child in weight is one proof of this fact. During the month of January when other schools were forced to close their doors because of student illness, attendance at the Hill County School was the highest of the year! We believe that school lunches played no small part in this remarkable record. At least, this is a point worthy of mention.

About seventeen workers are employed to prepare the three hundred fifty plates that are served each day. These seventeen monthly checks do much toward solving the unemployment problem of the community. In connection with the lunch program, there is a garden project which requires the time of two gardeners. Last summer approximately eight thousand quarts of food were canned from the school garden to be used in lunches this winter. Fresh vegetables are enjoyed in the spring and fall.

If you really want to see a workable school lunch program of which any American could be proud, then we invite you to Hill County where there is democracy around the dinner table!
National Nutritional Conference
for Defense

A highlight for the National Nutritional Conference was the statement of nutrition standards for the country. These standards resulted from the far-reaching work of the Food and Nutrition Committee of the National Research Council.

It is explained that the chart expressed in laboratory terms may be met by many combinations of food. For instance, the following daily diet would measure up to these proposals, the conference was informed: One pint of milk for an adult and more for a child, a serving of meat, and cheaper cuts are just as nutritious; one egg or some suitable substitute such as navy beans; two vegetables, one of which should be green or yellow; two fruits, one of which should be rich in Vitamin C, found abundantly in citrus fruits and tomatoes; breads, flour, and cereal, most or preferably all whole grain or enriched; some butter or oleomargarine with vitamin A added; other foods to satisfy the appetite.

The conference sent the President a nutrition program for defense and suggested the program become a basic part of permanent Government policy. The program covers research, economic policy, and social responsibility, public health and medical aspects of nutrition, nutrition workers in defense industries, methods of education in nutrition, nutrition problems in distribution and processing foods, community planning for nutrition, and nutrition problems in school kitchens.16

President Roosevelt responded to the nutrition program by saying:

I am highly gratified to learn that invitations to the National Nutrition Conference for Defense have met with such generous response. It demonstrates the eager interest of the public, of educational and research centers, or medical and social sciences alike. I only regret that because of the pressure of these critical days I shall be unable to meet with you.

The conference has significant responsibilities—to explore and define our nutrition problems, and to map out recommendations for an immediate program of action. This is vital. During these days of stress the health problems of the military and civilian population are inseparable. Total defense demands manpower. The full energy of every American is necessary. Medical authorities recognize completely the efficiency and stamina depend on proper food. Fighting men of our armed forces, workers in industry, the families, every man and woman in America, must have nourishing food. If people are undernourished, they cannot be efficient in producing what we need in our unified drive for dynamic strength.

In recent years scientists have made outstanding discoveries as to the amounts and kinds of food needed for maximum health and vigor. Yet every survey of nutrition, by whatever methods conducted, shows that here in the United States malnutrition is widespread and serious. The Department of Health has estimated that many millions of men, women and children do not get the foods which science considers essential. We do not lack and we will not lack the means of producing food in abundance and variety. Our task is to translate this abundance into reality for every American family.

I shall follow the work of the conference with deep interest and expectantly await its recommendations.17

These words from the President of the United States put new emphasis on the thought of teaching democracy. It behooves every teacher, social worker, and school lunch

supervisor to put forth a greater effort to uphold the
democracy that our forefathers fought and died for. The
school kitchen has a valuable place in the educational
program.
CHAPTER V

EVALUATION OF THE EFFECTS OF THE
SCHOOL KITCHEN TO HEALTH

This chapter is a presentation of facts verifying the values of the school kitchen to education. Evaluation is not limited to the giving of examinations. It involves the collection of any pertinent evidence which indicates the degree to which the school is attaining its objectives, that is, the degree to which the desired changes in pupils is actually taking place - instruments of evaluation include observations of pupils, record of their activities, products which they make, tests which they take, and other procedures for noting their reactions and their development.¹

The importance of evaluation to education is fundamental and its influence is pervasive, for evaluation is more than a technique subordinate to the purpose of education. To an extent so often not realized, evaluation influences the purposes, contents, and method in education, and sets goals for which students strive. The teaching practices in a school almost invariably tend to follow the lead of those evaluation methods which have the greatest prestige in that school. The school

¹Educational Policies Commission, Learning the Ways of Democracy, p. 167.
kitchen is becoming more and more an essential to education. Democracy must not only be taught but lived. If democracy is to function its populace must be well and able to defend democratic principles.

Well-Nourished Children

Children must be well nourished if they are to be happy in every way. This does not mean that well-nourished children cannot get sick. But they usually have more resistance to many kinds of disease and a better chance to get well quickly. Children who feel well and look well are usually happy.

Good appetite is a big help in forming good food habits. Children who have enough sleep and who do not come to meals overtired, who play actively - preferably in the open air - and who have good meals at regular hours under pleasant conditions are likely to have good appetites.

Eating between meals or "piecing" can become a bad habit that spoils the appetite for regular meals. But many very actively growing children may be better off if they are given tomato juice or fruit juice.

The following material was prepared for the Michigan School Lunch Committee by Mable S. Ehlers, Ruth Russel, and Sylvia M. Hartt under the chairmanship of Ruth Freegard, Michigan State Supervisor of Home Economics Education. These standards provide school administrators and teachers with a comprehensive device

\[2\text{Ibid.}\]
for judging school lunchrooms which are operated with paid help. The free lunch or school kitchen can apply the same standards to their projects.

This committee believes that each school administrator and each school lunchroom should consider the following selections:

Food

1. Does the child's food served at school supplement that served at home in order to supply him with his needs for the entire day?

2. Is it at least one-third of the entire day's food requirement (in calories, vitamins, and minerals) furnished by the school lunch?

3. Can each child select at least one hot dish, a raw vegetable, a glass of milk, a sandwich and some fruit?

4. Is training given in school for wise selection of food?

5. Does the kitchen manager use any device to encourage the child to select wisely and secure a well-balanced meal?

6. Are beverages limited to milk drinks and fruit juices?

7. Are sweets limited to nutritious fruits and desserts rather than candy?

8. Does the lunch offer fruit for dessert as well as cakes, pies and cookies?

9. Do whole grain cereals have a place in the menu?
10. Have tested recipes been used and is food prepared that is palatable?

11. Do the cooks avoid over-cooking of vegetables?

12. Are food combinations simple?

Service

1. Is the service simple?

2. Is the service quiet, quick, efficient?

3. Would a rearrangement of equipment improve service?

4. Can the number of persons employed take care of the group being served?

5. Has care been taken to insure neatness of arrangement of food on the dishes so that no food is so close to the edge of the dish that the patron or server must touch the food with fingers in taking hold of the dish?

6. Are all serving utensils, trays, dishes, and silver clean and unstained?

7. Does the lunchroom supervisor insist that employees have high standards of service?

Equipment

1. Are all pieces of equipment durable, designed for heavy duty but not ugly in appearance?

2. Is the equipment easy to clean, easy to operate?

3. Does the lunchroom have adequate refrigerator space for all perishable foods?
4. Aside from refrigeration, is there storage space for staples, canned goods, and cleaning supplies, so that no bags or boxes must be stored under tables and in the corners?

5. Is provision made for storing dishes where they may be protected from dust?

6. Are tables, chairs, shelves, and cupboards kept in good condition?

**Efficiency**

1. Is labor saving equipment used?

2. Has the time consumed in performing each operation been minimized?

3. Are workers scheduled properly and jobs dovetailed so as to prevent waste of time?

4. Have tools and equipment been adjusted at the right height for the majority of workers?

5. What provisions have been made for adequate lighting and ventilation?

6. Are the following rules of good buying observed?
   
   a. Whenever possible purchase in bulk rather than packages if the same standard of quality can be maintained.

   b. Buy goods produced near at hand rather than a long distance.
c. Take advantage of lower prices for food in season.
d. Buy non-perishables in large quantities.

Atmosphere

1. Does proper ventilation exclude all avoidable odors?
2. Are pleasing colors used in decoration so that the room is cheerful?
3. Are draperies or Venetian blinds used to make the room more interesting?

Cleanliness and Sanitation

1. Floors
   a. Are they constructed of suitable material?
   b. Are they in good repair?
   c. Are they swept and mopped daily?

2. Walls and ceiling
   a. Are they smooth, washable, free of dirt?

3. Lighting and ventilation
   a. Are bulbs and fixtures clean?
   b. Is the room provided with ventilated hoods over steam equipment and ranges?

4. Doors and windows
   a. Do frequent washings keep the glass in doors and windows clean and woodwork free from finger marks?
   b. Have screens been provided for all windows and doors?
5. Water supply
   a. Is there an adequate supply of hot and cold running water?
   b. Does the school provide lavatory facilities for employees?

6. Does the cafeteria maintain an effective method of stamping out flies, roaches and other vermin?  

Most children will refuse food now and then, often for good reasons. If they receive a lot of attention when they will not eat, they are likely to form the habit of refusing foods because they enjoy the center of interest.

The meal hour should not be a playtime. It should be a quiet, happy time.

The most important factor assuring good nutrition in children is the knowledge of how to select the proper kinds of food and how to encourage good food habits. Good nutrition in childhood is essential preparation for health throughout life.

There are certain facts found in one school common or applicable to any school in the same kind of project. The school that is offered as an example of how the school kitchen aided the health, and thereby the education of the child, is the one in which the writer of this thesis teaches. The

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school kitchen had been in operation in this school in Hill County only two years, therefore, it was easy to note specific gains. These gains were discovered by weighing and measuring eighteen school children at the beginning of school and at the closing. The results are included in this chapter. There are certain principles of accuracy to follow in taking measurements for such a comparison in weight and height.

Height

In taking heights, the easiest and most accurate way is to have an accurate measure on a straight wall, marked off plainly into inches, within the range of the pupils in the class or school. The pupil who is to be measured should remove his shoes and stand with heels, hips, shoulders and head touching the wall, eyes looking straight ahead. With a wooden box, about the size of a chalk box, on top of the child's head and placed flat against the wall at his back, it is possible to get a true right angle and mark his height on the wall. Here again, taking two or three successive measurements, or comparing measurements with a colleague, will impress the possibilities of error and the necessity for fine regard for details and accuracy. Some of the poor posture pupils may find an incentive for "standing straight" by showing them their measurement for height in the slumping position and when they stand as tall as they can. Feet should be watched to see that they are on the ground or floor.
Sherman said, "Normal growth in weight and height is probably the best single index of good health and good nutrition during childhood."\(^4\)

**Weight**

Measurement, to be of value, requires accuracy; accuracy requires details; and care for details requires time and alertness and a certain flair of fine points. Whenever the weighing of children is to be used for serious recording, such as regular report cards or the individual weight curves, only someone with these qualities, and who has the scientific attitude, should be entrusted with it. When the weighing is merely a matter of sport or casual past-time, anyone can do it. The person who does the weighing should know how to equilibrate a balance scale, and attend to this before each weighing.\(^5\)

**Height Distribution**

The height distribution for all the children at the beginning of the study showed (Table 1) slightly more than a third to be short of stature, and slightly less than half to fall in the medium height group. Compared with standard distribution a larger percentage was found in extremes, the larger deviation being in the short group. The number of

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children in the medium group fell 26.6 per cent below standard distribution. The tall and short groups were found to exceed standard distribution by three per cent and 23.5 per cent respectively.

TABLE 1

HEIGHT AND WEIGHT DISTRIBUTION IN SEPTEMBER

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Short</th>
<th>Medium</th>
<th>Tall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Per Cent</td>
<td>No.</td>
</tr>
<tr>
<td>Pre-School</td>
<td>19</td>
<td>3</td>
<td>15.7</td>
<td>7</td>
</tr>
<tr>
<td>2-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-adolescent</td>
<td>45</td>
<td>17</td>
<td>37.9</td>
<td>21</td>
</tr>
<tr>
<td>Girls 7-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>29</td>
<td>11</td>
<td>37.9</td>
<td>17</td>
</tr>
<tr>
<td>Girls 14-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>19</td>
<td>6</td>
<td>31.5</td>
<td>9</td>
</tr>
<tr>
<td>Boys 14-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>37</td>
<td>33.0</td>
<td>54</td>
</tr>
<tr>
<td>Per Cent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td></td>
<td>12.5</td>
<td>75.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td>20.5</td>
<td>25.9</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Table 2 shows that at the end of the study the number of children in each group compared with standards was 11.5 per cent more for short, 8.5 per cent more for tall and 20 per cent less for medium.

The progress in height was good, and the figures indicate that the children are overcoming their stunted heights. The
food was favorable to growth, and marked growth occurred in a great number of them, especially the children who had chosen their food properly.

### Table 2

**Height Distribution in May**

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Short No.</th>
<th>Short Per Cent</th>
<th>Medium No.</th>
<th>Medium Per Cent</th>
<th>Tall No.</th>
<th>Tall Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-School 2-6</td>
<td>19</td>
<td>1</td>
<td>5.2</td>
<td>7</td>
<td>36.8</td>
<td>11</td>
<td>57.8</td>
</tr>
<tr>
<td>Pre-adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls 7-13</td>
<td>52</td>
<td>14</td>
<td>27.6</td>
<td>28</td>
<td>53.8</td>
<td>10</td>
<td>19.1</td>
</tr>
<tr>
<td>Pre-adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys 7-13</td>
<td>56</td>
<td>14</td>
<td>25.0</td>
<td>32</td>
<td>57.1</td>
<td>10</td>
<td>17.8</td>
</tr>
<tr>
<td>Adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls 14-17</td>
<td>30</td>
<td>11</td>
<td>36.6</td>
<td>18</td>
<td>60.0</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Adolescent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys 14-17</td>
<td>18</td>
<td>2</td>
<td>11.1</td>
<td>10</td>
<td>55.5</td>
<td>6</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>175</td>
<td>42</td>
<td>24.0</td>
<td>95</td>
<td>55.0</td>
<td>38</td>
<td>21.7</td>
</tr>
<tr>
<td><strong>Standard</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.2</td>
</tr>
</tbody>
</table>

The greatest number of short stature were among those who had lived in poor homes and who showed signs of previous nutritional conditions. Their rapid growth shows that they are over-coming their previous state of malnutrition.
Table 3 shows the weight of the children in September. The children were weighed every six weeks to see just how much each child had gained. A decided improvement in school work was noticeable as the child became more physically fit.

**TABLE 3**

**WEIGHT DISTRIBUTION OF CHILDREN IN SEPTEMBER**

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Short No.</th>
<th>Per Cent</th>
<th>Medium No.</th>
<th>Per Cent</th>
<th>Tall No.</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginners 6</td>
<td>18</td>
<td>14</td>
<td>77.8</td>
<td>4</td>
<td>22.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pre-adolescent Girls 7-13</td>
<td>40</td>
<td>27</td>
<td>66.5</td>
<td>4</td>
<td>10</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>Pre-adolescent Boys 7-13</td>
<td>51</td>
<td>34</td>
<td>66.7</td>
<td>3</td>
<td>5.9</td>
<td>14</td>
<td>27.4</td>
</tr>
<tr>
<td>Adolescent Girls 14-17</td>
<td>28</td>
<td>21</td>
<td>75</td>
<td>3</td>
<td>10.7</td>
<td>4</td>
<td>14.2</td>
</tr>
<tr>
<td>Adolescent Boys 14-17</td>
<td>20</td>
<td>14</td>
<td>70</td>
<td>3</td>
<td>15</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td>110</td>
<td>70</td>
<td>17</td>
<td>11</td>
<td>30</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4 shows the gain from September to May. Records kept the previous years do not show such marked progress. It is natural to conclude then, that the school kitchen is of value to the health of the child. It has been shown that education cannot function properly without a good wholesome hot lunch, therefore, the school kitchen or hot lunch is a distinct value to education.
### TABLE 4

WEIGHT DISTRIBUTION IN MAY IN AGE GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Normal</th>
<th>Overweight</th>
<th>Underweight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per Cent</td>
<td>No.</td>
<td>Per Cent</td>
</tr>
<tr>
<td>Beginners 6</td>
<td>21</td>
<td>16</td>
<td>76.2</td>
<td>4</td>
</tr>
<tr>
<td>Pre-adolescent Girls 7-13</td>
<td>51</td>
<td>31</td>
<td>61</td>
<td>5</td>
</tr>
<tr>
<td>Pre-adolescent Boys 7-13</td>
<td>53</td>
<td>38</td>
<td>71.7</td>
<td>1</td>
</tr>
<tr>
<td>Adolescent Girls 14-17</td>
<td>29</td>
<td>17</td>
<td>58.6</td>
<td>5</td>
</tr>
<tr>
<td>Adolescent Boys 14-17</td>
<td>21</td>
<td>17</td>
<td>80.9</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>175</td>
<td>119</td>
<td>68</td>
<td>17</td>
</tr>
<tr>
<td><strong>Per Cent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard</strong></td>
<td>70</td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td>2</td>
<td></td>
<td></td>
<td>5.3</td>
</tr>
</tbody>
</table>
CHAPTER VI

CONCLUSION

It is hardly feasible to set up a rating scale on which all values of the school kitchen may be judged, but it is possible to set up certain specific values by analysis, comparisons, and contrasted examples of certain widely current practices which are being used in the school kitchens.

The facts revealed in this study tend to show that in a very definite manner the school kitchen is necessary in order for the child to progress physically and mentally. It was also found that better attendance, and improved scholarship, work habits, and attitudes resulted from the hot lunch project.

Furthermore, this study reveals that through the existing world conditions, new educational values have been discovered and that the lunch program is essential to the defense program, and the democratic ideals of true Americans.

In order for the school lunch program to function at its best, certain physical plans for the proper set-up were offered.

Another worthwhile statement was made by Loyd A. Cook\(^1\) when he said, the depression has been a stern taskmaster to

many persons. It has set educators to thinking of basic institutions, including the school. The school has expanded in curriculum, teachers and their training, plants and equipment.

However, the school is charged with lag, and rightly so, for these changes are in the outer shell. The real cause of lag, in many instances, has not been recognized. The health of the school child has been weighed lightly until recent months. Money was donated to hospitals to care for sick and crippled children, but preventative measures were not considered. Then a well balanced lunch program is a challenge to the American schools, the only agency that can give rebirth to democratic ideals of liberty and justice for all.
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