

A DIETARY STUDY OF FAMILIES OF HOME DEMONSTRATION CLUB  
MEMBERS AND OF NON-CLUB MEMBERS

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I hereby recommend that the thesis prepared  
under my supervision by Martha W. Buttrill  
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## TABLE OF CONTENTS

|                                                                                                                    |      |
|--------------------------------------------------------------------------------------------------------------------|------|
| PREFACE . . . . .                                                                                                  | iii  |
| LIST OF TABLES . . . . .                                                                                           | vi   |
| CHAPTER                                                                                                            | PAGE |
| I. INTRODUCTION: HISTORY AND DEVELOPMENT OF<br>HOME DEMONSTRATION WORK IN THE UNITED<br>STATES AND TEXAS . . . . . | 1    |
| The Beginning of Extension and of<br>Demonstration Work . . . . .                                                  | 2    |
| The Beginning of Extension and Demonstra-<br>tion Work in Texas . . . . .                                          | 4    |
| Boys', Girls', and Women's Demonstration<br>Work . . . . .                                                         | 8    |
| II. THE DEVELOPMENT OF THE HOME FOOD SUPPLY<br>DEMONSTRATION . . . . .                                             | 15   |
| III. PLAN OF STUDY . . . . .                                                                                       | 23   |
| Selecting the Families . . . . .                                                                                   | 23   |
| Keeping the Record . . . . .                                                                                       | 24   |
| Classifying and Analyzing the Material . . . . .                                                                   | 26   |
| Selecting Standards . . . . .                                                                                      | 28   |
| Food Selection . . . . .                                                                                           | 29   |
| IV. PRESENTATION OF RESULTS . . . . .                                                                              | 31   |
| Description of Families . . . . .                                                                                  | 31   |

## TABLE OF CONTENTS -- CONTINUED

| CHAPTER                                       | PAGE |
|-----------------------------------------------|------|
| Money Value Among Classes . . . . .           | 36   |
| Money Value and Home Production of Food . . . | 40   |
| Nutritive Value of the Diets . . . . .        | 44   |
| Diets of Families with and without Children . | 52   |
| Selection of Food . . . . .                   | 53   |
| V. DISCUSSION OF RESULTS . . . . .            | 63   |
| Percentage Distribution of Money Value        |      |
| Among Classes of Food . . . . .               | 64   |
| Money Value and Comparison of the Per Cent    |      |
| of Food Produced . . . . .                    | 67   |
| Comparison of Average Daily Nutrients . . . . | 70   |
| Percentage Deviation From Standard . . . . .  | 71   |
| A Comparison of Sources of Calories . . . . . | 73   |
| Comparison of the Adequacy of Diets of        |      |
| Families with and without Children . . .      | 74   |
| Standards of Extension Service . . . . .      | 75   |
| VI. SUMMARY . . . . .                         | 78   |
| BIBLIOGRAPHY . . . . .                        | 81   |
| APPENDIX . . . . .                            | 84   |

## LIST OF TABLES

| TABLE |                                                                                                                       | PAGE  |
|-------|-----------------------------------------------------------------------------------------------------------------------|-------|
| I.    | Composition of Twenty Club Families . . . . .                                                                         | 32-33 |
| II.   | Composition of Nineteen Non-club Families . . . . .                                                                   | 34-35 |
| III.  | Percentage Distribution of Money Value of<br>Food Among the Classes, For Club Group . . . . .                         | 37    |
| IV.   | Percentage Distribution of Money Value of<br>Food Among the Classes, For Non-club<br>Families . . . . .               | 38    |
| V.    | Money Value of Foods Used by Club Families in<br>Thirty Days and Per Cent of Food Produced. . . . .                   | 41    |
| VI.   | Money Value of Foods Used by Non-club Families<br>in Thirty Days and Per Cent of Food<br>Produced . . . . .           | 42    |
| VII.  | Money Value of Food Per Man Unit Per Day For<br>Club and Non-club Families . . . . .                                  | 43    |
| VIII. | Percentage Distribution of Calories . . . . .                                                                         | 45    |
| IX.   | Average Daily Nutrients Per Man Unit and Per-<br>centage Deviation From Standard, For<br>Club Families . . . . .      | 47-48 |
| X.    | Average Daily Nutrients Per Man Unit and Per-<br>centage Deviation From Standard, For Non-<br>club Families . . . . . | 49-50 |
| XI.   | Dietary Inadequacies for Club Families with and<br>without Children . . . . .                                         | 54    |
| XII.  | Dietary Inadequacies for Non-club Families with<br>and without Children . . . . .                                     | 55    |
| XIII. | Selection of Foods By Club Families . . . . .                                                                         | 57-58 |
| XIV.  | Selection of Foods By Non-club Families . . . . .                                                                     | 59-60 |

# LIST OF TABLES -- CONTINUED

| TABLE                                                                  | PAGE |
|------------------------------------------------------------------------|------|
| XV. Allocation of Money Value for Different<br>Types of Food . . . . . | 65   |
| XVI. Per Cent of Food Produced . . . . .                               | 68   |
| XVII. Comparison of Average Daily Nutrients Per<br>Man Unit . . . . .  | 70   |
| XVIII. Per Cent Deviations of Nutrients from Standard .                | 72   |
| XIX. Comparison of Sources of Calories . . . . .                       | 73   |
| XX. Comparison of Amounts of Foods Used . . . . .                      | 76   |

CHAPTER I  
INTRODUCTION: HISTORY AND DEVELOPMENT OF  
HOME DEMONSTRATION WORK IN THE  
UNITED STATES AND TEXAS

For the past five years the writer has given one-third of her time as the county home demonstration agent in McLennan County, Texas, to the Home Food Supply Demonstration or to its predecessor, the 4-H Pantry Demonstration. After planning with farm homemakers who were members of a home demonstration club on how to produce, how to conserve the surplus, and how to prepare and serve an adequate diet, the writer was interested in the next step, namely, checking the diets of club families and comparing them with diets consumed by non-club families.

This study is an analysis of the food consumption of 39 farm families in Denton, Rockwall, McLennan, and Lampasas Counties. Twenty of these families from McLennan and Denton Counties are members of Home Demonstration Clubs and are receiving help from the Extension Service through the home demonstration agents in their respective counties. Nineteen of the families, four from Rockwall County, six from Lampasas County, and nine from Denton County, have never participated in home demonstration work. Thus were formed two groups --

one which had the advantage of guidance by the Extension Service and one which had not had the advantages offered by this source of help. It was difficult to find uninfluenced families, but in Lampasas and Rockwall Counties, where the Extension program had not been in operation, several were to be found in addition to the few in Denton County. Throughout the study, the two groups of families are referred to as club group and non-club group.

#### The Beginning of Extension and of Demonstration Work

Almost from the day when independence was won from England, the Government of the United States has been deeply interested in the advancement and problems of agriculture. As early as 1776, John Adams introduced in the Continental Congress resolutions to encourage agriculture. George Washington, in his first inaugural address, proposed Government aid to agriculture, commerce, and manufacture. In his first annual message, in 1796, he went much further and asserted: "As nations advance in population, the cultivation of the soil becomes more and more an object of public patronage." In 1839, upon the recommendation of Patent Commissioner Ellsworth, Congress appropriated \$1,000 to be used in collecting and distributing seeds, conducting agricultural investigations, and compiling agricultural statistics. On May 15, 1862, President Lincoln signed a bill creating a separate Department of Agriculture. Two months later extension work, in a small way,

had its beginning when Lincoln, on July 2, 1862, approved the Morrill Act, which provided for the establishment of agricultural land-grant colleges, which were to be endowed by the Federal Government by grants of public lands for the purpose in each state. Twenty-five years later, in 1887, the Hatch Act was passed by Congress for the purpose of creating state agricultural experiment stations and of providing appropriations for experimentation and research in each state in the field of agriculture. Although a small amount of extension work had been carried on by some of the agricultural land-grant colleges established in 1862 by the Morrill Act, not until the passage of the Smith-Lever Act of 1914 was such work adequately provided for and set up in each state by its own land-grant college in co-operation with the United States Department of Agriculture.<sup>1</sup> This significant and far-reaching act was projected upon the thought that information regarding better agricultural practices should be made available to more than those who could enjoy the advantages of the agricultural colleges. Moreover, the sponsors of the Lever Bill believed that such information should be made available to women, boys, and girls as well as to men. The Smith-Lever Law sought and accomplished remarkably well the democratization of the existing system of agricultural education.

At the present time the Extension Service of the United

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<sup>1</sup>Extension Service Review, VIII (May, 1937), 72.

States Department of Agriculture operates in each of the 48 states through the state agricultural and mechanical colleges, and in three territories, Alaska, Hawaii, and Puerto Rico.<sup>2</sup> As an indication of the growth and work of the Extension Service during recent years, the following data are presented. In 1935 (no later figures were available to the writer), there were 8,539 extension workers in various parts of the nation, 41,504 home demonstration groups, 950,927 women enrolled in home demonstration groups, 60,720 4-H clubs, and 997,744 young people enrolled in 4-H clubs.<sup>3</sup>

#### The Beginning of Extension and Demonstration Work in Texas

Like most great movements, the demonstration work developed out of necessity. Although responsible for many of the misfortunes of rural life in the South, the Mexican boll weevil in a measure proved a blessing not only to the South but to the entire nation, for this insect pest had a direct influence upon the beginning of farm demonstration work.<sup>4</sup> "In 1903 the cotton boll weevil was spreading across Texas and threatening the adjacent states, and to the worried cotton farmers it seemed that the end of their world had come."<sup>5</sup> Officially,

<sup>2</sup>Ibid., VIII (July, 1937), 108.

<sup>3</sup>Ibid., VII (December, 1936), 188.

<sup>4</sup>Lilla Graham Bryan, "The Story of the Demonstration Work in Texas," Bulletin B-93 (revised), Extension Service, Texas A. and M. College, p. 5.

<sup>5</sup>"Resume of Extension History," mimeographed bulletin distributed by Extension Service, Texas A. and M. College, April 6, 1939, p. 1.

the farmers' co-operative demonstration work program was begun in Texas as a result of the boll weevil threat. The inroads of the boll weevil presented a world problem, and the best minds of the country concentrated their efforts to discover a means of defense. Congress, too, was aroused by the situation and appropriated money to be used in studying the problem and in experimenting for remedies.

The citizens of Terrell, Texas, disheartened by the widespread agricultural crisis and by generally demoralized business conditions, were the first to begin an earnest search for better farming methods. They had heard of a group of discouraged rice farmers in southern Louisiana who had found success through the assistance and leadership of Dr. Seaman A. Knapp, special agent appointed by the United States Secretary of Agriculture to work with the Bureau of Plant Industry in studying the agricultural resources of the Gulf States. In their desperation these discouraged Texans invited Dr. Knapp to visit them and to tell them of the improved farming methods he advocated.<sup>6</sup>

In February, 1903, Dr. Knapp went to Terrell to advise the citizens in the business crisis precipitated by the advance of the boll weevil. After being assured that the people were willing to co-operate in his proposed plans, he solicited \$1,000 from the bankers and business men of the community and offered this money as an indemnity to any farmer who would make a demon-

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<sup>6</sup>Bryan, op. cit., p. 5.

stration on his farm and agree to accept Dr. Knapp's advice and instruction on periodic visits to the farm throughout the year. Walter C. Porter volunteered, and on his farm Dr. Knapp established the first privately owned and operated "demonstration farm" in this country. At the end of the year Porter's "demonstration" showed an excellent profit, and its success resulted in the founding of the Farmers' Co-operative Demonstration Work in the Bureau of Plant Industry in the United States Department of Agriculture, on January 15, 1904.

Walter Porter has conducted demonstrations on his farm for the benefit of his neighbors every year since 1903. His farming methods have constantly improved, and he has prospered greatly. Sometime ago he remarked to a demonstration agent: "I thank God that Dr. Seaman A. Knapp put the principles of the demonstration into my life and work."

In the fall of 1903, Secretary Wilson of the United States Department of Agriculture, and Dr. B. T. Galloway, chief of the Bureau of Plant Industry, visited the scenes of the boll weevil fight in Texas. After making a personal visit to Dr. Knapp and examining the work he was doing, they allocated to him \$40,000 of the Congressional appropriation that had been set aside to aid in the widespread fight against the boll weevil. This money, together with the contributions of bankers and business men in various cities, was used in the promotion of the work in various sections of Texas.<sup>7</sup>

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<sup>7</sup>O. B. Martin, The Demonstration Work (Boston: The Stratford Company, 1921), pp. 4-6. "Resume of Extension History," p. 1.

The first county agents, 33 men familiar with farming conditions in Texas, were appointed by Dr. Knapp in 1904 to travel from town to town and establish crop demonstrations. The first county agricultural agent in the United States to work exclusively in one county was W. C. Stallings, who was appointed for Smith County in 1906.<sup>8</sup>

The development of co-operative demonstration work as an educational movement was very rapid. It was natural and logical that the sons of farmers should wish to follow the successful work of their fathers and likewise become demonstrators. Hence it was only a matter of time until the general principles and methods of demonstration work were made applicable to the farm youths, to the housewife in her farm kitchen, and to every member of the family in his own particular work. The program was also extended from the cotton grower to the stock raiser. Before permanent legislation had been enacted by Congress incorporating the work into the statutory laws of the country, the movement had resulted not only in farm demonstration work, but also in home demonstration work, and women agents had been appointed in all of the southern states. Before the Lever Extension Act was passed, there were more than 500 men agents and more than 200 women agents engaged in their regular duties; and in 1914, the year the Lever Bill became a law, there were 781 farm demonstration agents and 351 home demonstration agents in the United States.<sup>9</sup> In that year, Texas

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<sup>8</sup>"Resume of Extension History," p.1.

<sup>9</sup>Martin, op. cit., pp. 36-37.

had at work 98 county agricultural agents and 29 county home demonstration agents; 8,750 club boys were enrolled in crop and livestock clubs, and 3,210 girls were enrolled in canning and poultry clubs.<sup>10</sup>

#### Boys', Girls', and Women's Demonstration Work

After the benefits of the farm demonstration movement had been ascertained, it was only natural that rural young people should become interested in better methods of carrying on farm work and desire to experiment for themselves in order to supplement the improved practices that their fathers were adopting. Through a peculiar situation, the boys of the Middle West were the first to be encouraged or given an opportunity to enter into the movement. Soon, however, after the girls and women had become interested, the activities of the entire farm family were characterized by progressive methods that rapidly gained widespread acceptance.

So far as is known, the first boys' club was organized in Macoupin County, Illinois, in 1899, as a result of the failure of the Farmers' Institute to secure an attendance. The secretary of the Institute conceived the idea of distributing some good seed corn to the boys of the county with the belief that they would enjoy growing some good ears of corn and bringing them to the annual meeting of the Institute. He worked under the assumption that if the boys came, their fathers would

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<sup>10</sup>"Resume of Extension History," p. 1.

come also. He was not mistaken -- they came in large numbers. Attention was first given to corn; in fact, the boys' clubs were called corn clubs. Between 1900 and 1905 the idea of such clubs spread into neighboring states of the Middle West, and in many sections boys were soon growing small plots of corn in order to be able to take beautiful ten-ear exhibits to the fairs. Dr. Knapp fostered the idea in other sections of the country, and was instrumental in bringing the boys' club work to the South, where he was determined to have the South show the rest of the country that large yields of corn could also be produced in the so-called cotton belt.<sup>11</sup> He suggested prizes as awards for success in carrying out effective methods of growing corn and various other crops and for producing better pigs, sheep, and cattle; his purpose was to foster friendly competition between individual boys, between clubs, and between county and state organizations so as to improve quality.

As early as 1903, a number of agricultural clubs, organized in connection with the rural schools, were in existence throughout Texas. Both boys and girls were members of these clubs, and worked mostly with small school gardens. J. H. Connell, president of the Farmers' Institute of Texas, suggested a state-wide organization of these clubs, perfected in July, 1903, as the Farm Boys' and Girls' Progressive League. Perhaps it is significant that this step was taken at the time

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<sup>11</sup>Martin, op. cit., p. 40.

when the first farm demonstration project was being carried out by Dr. Knapp in Kaufman County. The first boys' corn club in the state under the supervision of a county agricultural agent was organized in Jack County in 1908, and thus began a branch of the work that has brought immeasurable benefits to the youth of Texas. The first state rally of club boys was held at the State Fair at Dallas two years later, when 1,500 boys paraded the streets of Dallas as "soldiers of the farms", wearing uniforms of overalls and carrying cornstalks as guns.<sup>12</sup>

At the time when boys' club work was becoming well-established, Dr. Knapp realized the urgency and necessity of similar work for the girls, but he believed that if both were taken up simultaneously, neither would be more than half done. So he preferred that the demonstration work for girls be deferred until the boys' work was more firmly rooted. In an address before the State Teachers' Association of South Carolina in July of 1907, Dr. Knapp outlined the proposed program for girls' demonstration work:

If much can be done for boys to interest and instruct them in their life work, more can be done for girls. Teach them to mend and sew and cook; how to doctor; how to dress a wound or make a ligature; how to adorn the simple home and make it appear like a palace; how by a simple arrangement the environment of the home can be transformed into a place of beauty. In the United

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<sup>12</sup>Lilla Graham Bryan, "Some Highlights of Home Demonstration Work in Texas," mimeographed bulletin, Extension Service, Texas A. and M. College, 1939, p. 2. Bryan, "The Story of the Extension Work in Texas," pp. 8-9.

States the art of cooking is mainly a lost art. There are communities where not to be dyspeptic is to be out of fashion. If we could have some lessons on how to live royally on a little; how to nourish the body without poisoning the stomach; and how to balance a ration for economic and healthful results, there would be a hopeful gain in lessening the number of bankrupts by the kitchen route.<sup>13</sup>

The first girls' "canning club" was organized in Aiken County, South Carolina, early in 1910, by Miss Marie Cromer, a country school teacher, who saw no reason why girls could not improve upon the methods used in the kitchen and in the general household duties, just as the girls' brothers were improving their part of the farm labors. By spring Miss Cromer had enrolled 47 club members in different parts of the county. She met with considerable apathy, indifference, and some opposition, but she aroused the girls and got them started, even though she had to write numerous letters almost every day after her work was done in the schoolroom. Later in the same year Miss Ella G. Agnew began similar work in two or three counties of Virginia, so that about 300 girls were enrolled in club work before the initial year of the movement had expired.<sup>14</sup>

Obviously, the growth of the girls' demonstration movement, together with the particular line of work that it involved, necessitated the employment of women to supervise the club work. In Texas the first of these women, called "home demonstration agents", Mrs. Edna W. Trigg of Milam Coun-

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<sup>13</sup>Martin, op. cit., p. 59.

<sup>14</sup>Ibid., p. 64.

ty, was appointed in the early part of 1912. She was later transferred to Denton County, where she served as home demonstration agent continuously until her recent retirement on a pension as the oldest extension worker, in point of service, in the state. Before the beginning of 1913, 16 counties had home demonstration agents. These "lady agents" were paid for only two or three months out of the year, but actually worked nearly every month. In those pioneer days, demonstrations were carried on through the girls' clubs, tomato clubs or canning clubs, as they were designated.

In 1913, ten years after the first demonstration in Kaufman County, there were 60 county agricultural agents in the state, bringing new scientific facts and ideas of practical farming to the farmers; and 18 home demonstration agents were teaching farm girls how to grow and can tomatoes. Not for several years after their organization did the girls' clubs include in their work the preservation and preparation of foods other than tomatoes.<sup>15</sup>

Demonstration work with women was a natural outgrowth of the program for girls, and its place and date of origin are unknown, since it developed gradually in a number of places. Girls' club work had opened the doors of the homes for the agents to do demonstration work among the adult women, and when the agents went to the homes, they found themselves demonstrating practices and techniques not only to the girls but

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<sup>15</sup>Bryan, "The Story of the Demonstration in Texas", pp. 9-10.

frequently to their mothers as well. The mothers desired the help of the agents in meeting the food problems of the family, and were anxious to become demonstrators. Later, of course, the program for both girls and women was broadened to include every phase of homemaking.<sup>16</sup>

Farm demonstration work that began as one experiment on a cotton farm in Kaufman County, Texas, 36 years ago, has expanded until now the demonstrations embrace all phases of agriculture: corn and other crops; pastures; gardens; potatoes; melons, orchards; farm forestry and use of timber; one-variety cotton work; work with cotton gins; control of insect pests; terracing and soil conservation; construction of farm buildings; beef cattle, sheep and goats; dairying; swine; poultry; meat butchering and curing; leather utilization; farm management and accounting; farmers' organizations; game conservation; co-operative marketing; whole farm demonstrations; and county agricultural planning. In each of these subjects, Texas has a specialist who directs the work in the state.

In 1938 every county in the state had an agricultural agent and 182 counties had home demonstration agents; 43 counties had negro agricultural agents and 33 had negro home demonstration agents. In that year white agents enrolled 24,970 club boys and 32,425 club girls, whereas negro agents enrolled 4,423 club boys and 6,327 club girls. Some phase of the extension program reached 336,713 white farm families and

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<sup>16</sup>Martin, op. cit., p. 82.

23,521 negro farm families.<sup>17</sup>

At the present time the rural women of Texas are organized into 2,036 home demonstration clubs with 38,136 members; the girls, into 1,767 clubs with 30,174 members. During 1938 these club families helped about 100,000 other farm and ranch families to attain better living.

Home demonstration work in Texas, as in other states, has for its purpose the giving of a special type of training in those things which pertain directly to the conduct of the home and to the enrichment of the individual, the family, and the community life in rural Texas. The basis of this work is home economics. It begins in the home and at whatever point of development the woman or girl may be, moving forward as she is willing to go and as her needs are revealed.<sup>18</sup>

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<sup>17</sup>Bryan, "The Story of the Demonstration Work in Texas," pp. 14-15. "Resume of Extension History," p. 2.

<sup>18</sup>Mildred Horton, "Texas Home Demonstration Work," Journal of Home Economics, XXXI (March, 1939), 168.

## CHAPTER II

### THE DEVELOPMENT OF THE HOME FOOD SUPPLY DEMONSTRATION

The home food supply demonstration is the development of twenty-seven years of work by the Texas Extension Service. It began with the canning of tomatoes by girls and has grown into a demonstration which includes work with six major foods -- milk, vegetables, fruits, poultry products, meats, and grains. At present, there are three women specialists who devote their time to this demonstration; these are the Extension Specialist in Home Production Planning, the Extension Specialist in Food Preservation, and the Extension Specialist in Food Preparation. While the women work with all the foods, the girls work only with vegetables, fruits, and poultry products.<sup>1</sup>

By 1915, the farm women were organized to do work similar in principle to that of their daughters in their 4-H clubs. Their interests, however, lay primarily in the type of information that would assist them in the planning and preparation of a more wholesome diet for their families, and, in general, in all practices and techniques that would render the home more comfortable, beautiful, and efficient. It was natural

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<sup>1</sup>Jennie Camp, Grace I. Neely, and Nora Ellen Elliott, Bulletin MS223, Texas Extension Service, Texas A. and M. College, 1939 (revised edition).

that their interests would find expression in such channels of endeavor as canning, gardening, poultry raising, cooking, the perfection of labor-saving devices, and sewing. During the World War practically all the time was devoted to food production and preservation and to the use of substitutes in the diet, as types of flour other than wheat. Safe canning of non-acid vegetables and meat was made possible and easy with the invention of the pressure cooker, which became popular in 1917. Thereafter, more canned foods and a greater variety of canned vegetables, fruits, and meats were possible. Consequently, the farm diet benefitted by the introduction of foods that previously had been unknown except in season. Many rural homemakers, however, prided themselves on number rather than distribution of foods, and it was not uncommon to find as many as 100 cans or jars of one product, such as beans, greens, and black-eyed peas, stored for the year's use.<sup>2</sup>

A planned budget of quality products on organized shelves replaced the former standard of quantity and comprised the 4-H pantry demonstration. When the writer began working with club women in 1930, she observed much interest on the part of the women in how to plan a canning budget and how to organize the contents of their pantries so that meal planning would be easier and canned goods more readily accessible. Recipe and menu files and bulletin boxes were made and organ-

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<sup>2</sup>Proceedings of the Silver Anniversary Meeting of Co-operative Demonstration Work, Houston, Texas, February 5-7, 1929, p. 72.

ized in order that their contents would be in logical order. These were put in a convenient place so that they might be referred to often and could be used easily and quickly when needed.

The 4-H pantry demonstration was based upon the daily food required to keep a person well-nourished and healthful. The following list, which was considered as the daily minimum, was devised as a guide in planning the food supply; for the first time, the program outwardly stressed vitamins and minerals:

Vegetables: 3 servings (a serving is at least one-half cup of all foods except butter and milk) -- 1 leafy or green in color, 1 starchy, 1 other.

Fruits: 2 servings, with tomatoes or citrus fruit at least 3 times per week.

Milk: 1 pint for each adult; 1.5 pints to 1 quart for each child.

Butter: at least 1 tablespoonful, preferably more.

Protein (other than milk): 2 servings of meat or eggs or cheese or nuts or dried peas and beans.

Grains: at least 1 serving of a whole grain.

Fats, sweets, and other grain (flour and cereals) in addition to above.<sup>3</sup>

From these food requirements the kinds and amounts of

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<sup>3</sup>Lola Blair, "Feeding the Family the 4-H Pantry Way," Bulletin C-76. College Station, Texas: Extension Service, Texas A. and M. College, n. d., p. 2.

food needed for a year by the family were calculated. Since families differ in size, appetite, and taste, there was necessarily a wide range in the planned budgets. A suggested budget for a family of five (two adults and three children), according to the general plans of 1930, is the following:

1. Leafy or green-colored vegetables

Total: 728 pounds

Fresh and stored: 608 pounds

Canned and brined: 120 pounds (120 pints or  
No. 2 cans)

2. Starchy vegetables

Total: 728 pounds

Fresh, stored, and cured: 628 pounds

Canned: 100 pounds (100 pints or No. 2 cans)

3. Other vegetables

Total: 728 pounds

Fresh and stored: 648 pounds

Canned and brined: 80 pounds (80 pints or  
No. 2 cans)

4. Fruits

Total: 1,456 pounds

Fresh or stored: 906 pounds

Canned: tomatoes and tomato juice, 250  
pounds (135 No. 3 cans or quarts)

Fruits and fruit juices: 300 pounds (150  
No. 3 cans or quarts)

5. Protein

Total: 728 pounds lean meat and other pro-  
tein foods other than milk

1 -- 500 pound beef -- fresh, cured, and canned  
 2 -- 200 pound hogs -- fresh, cured, and canned  
 100 -- fowls -- fresh and canned  
 52 pounds cheese (1 gallon milk for each pound)  
 26 pounds nuts  
 156 dozen eggs  
 104 pounds dried peas and beans

#### 6. Grains

Total: 780 pounds  
 312 pounds flour, white and whole wheat  
 312 pounds corn meal  
 52 pounds rice or ground wheat or other grain  
     for cereal  
 26 pounds hominy (26 pints)  
 52 pounds grits  
 26 pounds additional grain foods from noodles,  
     spaghetti, and macaroni

#### 7. Sweets

Total: 310 pounds  
 52 pounds (52 pints) jelly, preserves, jam  
 52 pounds honey and syrup  
 Sugar purchased to furnish 206 pounds

#### 8. Fats

Total: 234 pounds  
 130 pounds butter (10 gallons milk weekly)  
 52 pounds lard  
 52 pounds salt pork and bacon

## 9. Milk

Total: 365 gallons

## 10. Miscellaneous foods

5 pints soup. 5 pints gumbo. 10 pints  
brown bread. 10 pounds pop corn. 8 pints  
mince meat. 10 pints sandwich spread. 5  
pints sauces for meats. 30 quarts pickles.  
20 pints relishes.<sup>4</sup>

By 1936, the 4-H pantry demonstration had grown into the home food supply demonstration, which emphasized not only the pantry shelf but also the production of the various classes of food needed for proper nutrition in sufficient amounts for the family. This demonstration, still in popular use, is planned to be completed in a period of from one year to three years, and includes the simple demonstrations on gardening, orchards, dairying, poultry, meat animals, canning, and food preparation and serving. The daily and yearly food requirements, called Texas Food Standards, are as follows:

## FOR A SAFE DIET I NEED DAILY:

1 qt. milk  
1 egg  
1 serving of meat  
  
1 serving of potatoes  
1 serving of green or yellow  
vegetables  
1 serving of other vegetables  
1 serving of citrus or tomatoes  
1 serving of other fruit

## FOR 365 DAYS I NEED:

91 gallons milk  
30 doz. eggs  
175 lbs. of meat (and fat  
for cooking)  
200 lbs. of potatoes  
200 lbs. of green or yellow  
vegetables  
200 lbs. of other vegetables  
100 lbs. citrus or tomatoes  
200 lbs. of other fruits

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<sup>4</sup>Ibid., pp. 3-7.

FOR A SAFE DIET I NEED DAILY:  
(Continued)

1 serving of whole grain products  
Bread and butter at every meal  
Some sweets  
Dried peas and beans 3 times  
per week  
6 to 8 glasses of water daily<sup>5</sup>

FOR 365 DAYS I NEED:  
(Continued)

170 lbs. of grain products  
20 lbs. butter  
70 lbs. sweets  
15 lbs. dried peas and beans

For every Texas farm family to eat an adequate diet is the ultimate goal fostered by the home food supply demonstration. The first step, how to plan the kinds and amounts of foods necessary for an adequate diet, was begun in the counties by having the specialist in nutrition hold training schools for the home demonstration agents of the counties which had selected this demonstration. Help was given on how to make a production sheet -- D-145, "Long-time Plan for Home Food Supply" (later replaced by C-131). "Diets to Fit the Family Income" (Farmer's Bulletin No. 1757) was studied and used as the basis for the demonstration. Bulletin B-99, "Filling the Farm Storehouse," helped to determine the amount of acreage needed to produce the food planned on the production sheet. C-108, "Food Preservation Budget," gave assistance in planning the amount of food to can for the non-productive months of the year. C-111 gave help in planning meals that would meet the requirements of an adequate diet. After the plan was outlined, the work was divided into units extending over a period

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<sup>5</sup>"Co-operative Extension Work in Agriculture and Home Economics," Bulletin C-133, Extension Service, Texas A. and M. College.

of one to three years in order that the demonstrator and the home demonstration agent may have a definite goal toward which to work. After attending the training school, the home demonstration agent returned to her county and passed on to home food supply demonstrators the information she had received.

The home demonstration agent accomplishes this work with the home food supply demonstrators by making personal visits to their homes, by holding training schools where all interested women may confer, and by regularly scheduled club meetings. The plan includes an annual event, usually an open-house, when the year's work is in an interesting stage, and the public is invited to see and hear about the demonstration.

A summary of the home food supply demonstration for 1938 shows that 40,564 women and girls from 127 counties reported on garden work; 36,189 women and girls from 121 counties reported on their farm fruit plot work; 28,036 women and girls in 99 counties reported on home poultry. Over six million quarts of fruits, vegetables, and meats were canned, brined, and preserved in 169 counties (this figure, of course, includes only the amounts reported by club women); and 14,240 families in 152 counties stated that they were making and following weekly meal plans.<sup>6</sup>

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<sup>6</sup>Report of Director, Bulletin R-1, Texas Extension Service, Texas A. and M. College, 1938, p. 69.

### CHAPTER III

#### PLAN OF STUDY

This study parallels the previous investigation of Mrs. Charlotte Kyle Clark, made in 1938, of the food consumption of farm families living on a restricted income and under the guidance of the Farm Security Administration in Denton County, Texas. In contrast with the previous study, the present investigation deals with the food consumed by farm families belonging to the middle and upper classes. Some of the families selected had participated in home demonstration clubs and some had not had this experience. The location of the study was in Denton, McLennan, Rockwall, and Lampasas Counties. In Denton and McLennan Counties a home demonstration program had been well-developed; the work has been carried on for the past 23 years by two agents in Denton County and for 22 years by six different agents in McLennan County. Lampasas and Rockwall Counties have never co-operated with the Extension Service in a program of home demonstration work; hence neither has ever had the services of a home demonstration agent.

#### Selecting the Families

With the help of the two women who have worked as county home demonstration agents in Denton County, a list of 25 rep-

representative farm club homemakers was obtained. The club women who participated in the study were selected because they had co-operated with the home demonstration program, and were thought capable of keeping accurate records. They were scattered over the county in such a way as to give a fair picture of conditions throughout the county. The non-club women who helped with the study were selected at random in the three other counties mentioned, yet care was taken to ask women whose families were on a comparable economic level with the club families, so far as could be determined by outward appearances. A check was made to see that none of the families was working under the guidance of the Farm Security Administration.

#### Keeping the Record

After a list of names was secured, the next step was to visit the families and ask the homemakers to keep records. Two visits were made to each family participating. After a few introductory remarks which usually included informing the homemaker as to how her name was obtained, as well as to the purpose and nature of the study, she was asked to keep a record of the amount of food the family consumed during a period of thirty days. If the agreement was made, a memorandum, consisting of 31 pages, was shown and explained (see Appendix for chart). The first page provided a place for the family number (to be used throughout the study as a means of identification instead of the family name), the family name, and members of

the family with their age, sex, and occupation. The next 30 pages, which were identical since one page was included for each day of the month, were to be used in recording the name and amount of the food used by the family. These sheets were divided into four parts: the first part provided for a space to list the name, amount, and cost of food purchased; the second part provided a space for listing the name and amount of food used from the pantry; the third part provided for a space to write the name and amount of other foods used that were produced at home; and the fourth part provided space for listing gifts and the amount of each.

After explaining the chart, the experimenter filled in the first page and assisted in taking an inventory of all food on hand in the kitchen. The second visit to the home was made 30 days from the date of the first. At this time the record was checked and a second inventory of all food on hand in the kitchen was made.

All charts were kept during the months of November, December, January, or February, since these were the months during which the study of families in the Farm Security Administration was made. Twenty-one club women were asked to keep a record; and twenty-one records were kept, although one was discarded because two children in this family ate lunch in the school cafeteria five days during each week. Of the twenty-one non-club women who agreed to keep records, only nineteen completed satisfactory records; one moved away before completing

the record and the other one was called away from home for two weeks during the time the records was to have been kept.

### Classifying and Analyzing the Material

The foods listed on the charts kept by each family were grouped, as suggested by Carpenter and Stiebeling,<sup>1</sup> into the following classes:

1. Milk and other dairy products.
2. Vegetables, fruits, legumes, and nuts.
3. Eggs.
4. Lean meat, poultry, and fish.
5. Flour and cereals.
6. Fats.
7. Sweets.
8. Accessories.

The foods were kept in classes for the study in order to have a basis for comparison of money and food values. All the foods used were listed on the form prepared for calculating amount and money value of the food used (see Appendix). The amount of each item was entered in the column corresponding to the source of the foods, i. e., bought, produced at home, or a gift. The amount of food on hand was listed in the inventory space marked "Inventory 1", and that left at the end of the 30 days was entered in the inventory column marked "Inventory 2".

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<sup>1</sup>Rowena Schmidt Carpenter and Hazel K. Stiebeling, "Diets to Fit the Family Income," Farmer's Bulletin 1757, United States Department of Agriculture, 1936, p. 5.

The total money value of the food used was determined from the family records by using the purchase price of the items bought and the Extension Service price list for 1938 for the value of the items produced at home. The percentage value of foods raised and bought and the cost per man unit were calculated. The amount, in pounds, of each item was transferred from the form for calculating amounts and money values to the form prepared for calculating nutrients of the foods consumed by each family (see Appendix). The items were kept in classes as grouped in the former chart. The following calculations were made for each item:

1. Protein in grams.
2. Fats in grams.
3. Carbohydrates in grams.
4. Calcium in grams.
5. Phosphorus in grams.
6. Iron in grams.
7. Total calories.

Most of the figures used in calculating nutritive values were taken from tables by Rose.<sup>2</sup> Others were obtained from tables by Chaney and Ahlborn<sup>3</sup> and from Atwater and Bryant.<sup>4</sup> The "as purchased" figures were used for the calculations so

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<sup>2</sup>Laboratory Handbook for Dietetics (New York: Macmillan Company, 1937), passim.

<sup>3</sup>Nutrition (New York: Houghton Mifflin Company, 1934), pp. 386-409.

<sup>4</sup>The Chemical Composition of American Food Materials, Bulletin No. 28 (rev. ed.), United States Department of Agriculture. Washington: Government Printing Office, 1906.

that an allowance would be made for the difference in the articles as they were bought and as they were consumed.

### Selecting Standards

With the cost of the diets computed and the nutritive values calculated, the next step was to determine the adequacy of the diets per man unit and the expenditure per person as a basis which could be compared with other figures. The "Scale Equivalent Nutritive Requirements for Use with Food Check Lists" (see Appendix), compiled by the Bureau of Home Economics, was used for this purpose. The standard amount of nutrients per man unit was compared with the amount actually consumed per man unit, and percentage deviations were calculated. Next, the figures, in pounds, obtained from the chart for calculating nutrients, were compared with the standard for Texas farm and ranch families, as set up by the Extension Service in the home food supply demonstration.

As outlined, the moderate cost diet that will give the average person under average conditions safe amounts of all kinds of food for the month consists of:

Milk -- 10 11-12 gallons. To drink and use in cooking at the rate of 1 quart daily per child and 1 pint daily per adult, 7 7-12 gallons; to use in making butter and cheese, 3 1-3 gallons.

Vegetables -- 51 1-4 pounds. For 1 serving daily of green and yellow vegetables, 16 2-3 pounds; for 1 serving daily of vegetables other than green and

yellow, 16 2-3 pounds; for 1 serving daily of sweet or Irish potatoes, 16 2-3 pounds; for 3 servings weekly of dried peas and beans, 1 1-4 pounds.

Fruits -- 25 pounds. For 1 serving daily of citrus or tomatoes, 8 1-3 pounds; for 1 serving daily of other fruits, 16 2-3 pounds.

Eggs -- 2 1-2 dozen.

Meats -- 14 7-12 pounds, dressed weight, for eating and to provide for cooking. 1 2-3 pounds poultry; 5 5-6 pounds pork; 1 2-3 pounds lamb; 4 7-12 pounds beef; and 5-6 pound sea food or other meat.

Grains -- 14 1-6 pounds. 4 1-6 pounds corn (meal, grits, hominy). 10 pounds wheat flour or other grain products.

Sweets -- 5 5-6 pounds. For 1 serving daily, 5-6 pound honey and syrup, 1 1-4 pounds jellies and preserves, 3 3-4 pounds sugar.

Butter -- 1 2-3 pounds (requires 4 1-6 gallons milk).<sup>5</sup>

#### Food Selection

As a final study, an analysis was made of the thirty-nine diets to determine the amount and kind of important foods consumed during the 30-day period. The items given special

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<sup>5</sup>Jennie Camp, Grace Neely, and Nora Ellen Elliott, "Home Supply Demonstration Plan -- Women and Girls," Texas Extension Service, Texas A. and M. College, 1939.

attention were milk, cheese, vegetables and fruits, potatoes, meats (including fish and glandular meat), whole cereals, and sweets.

## CHAPTER IV

### PRESENTATION OF RESULTS

The data secured were analyzed for per cent of money distribution among the various classes of foods used. The value of food produced at home and the value of food purchased were calculated, together with the cost per man unit per day. The nutrients in the form of carbohydrates, fats, and protein were estimated. The percentage deviations from the standard requirements in energy, protein, calcium, phosphorus, and iron were computed. The nutritive value of the diets of families with children was compared with that of families without children, and a study was made of the food selection of the families.

#### Description of Families

The personnel of the families is shown in Tables I and II, which give the number of persons in each family with their age and sex. The man units required for each family for energy, protein, calcium, phosphorus, and iron are given. These families vary in size from two to eight individuals in the club group and from two to ten in the non-club group. There were two parents in all of the families except in one club family, which consisted of the mother and two boys. Seven

TABLE I  
COMPOSITION OF TWENTY CLUB FAMILIES

| Family<br>Number | Number<br>in<br>Family | Men | Women | Chil-<br>dren<br>Under<br>4 | Boys |     |          |           |           |           |
|------------------|------------------------|-----|-------|-----------------------------|------|-----|----------|-----------|-----------|-----------|
|                  |                        |     |       |                             | 4-6  | 7-8 | 9-<br>10 | 11-<br>12 | 13-<br>15 | 16-<br>19 |
| 1..              | 6                      | 1   | 1     |                             |      | 1   |          | 1         |           |           |
| 2..              | 4                      | 2   | 1     |                             |      |     |          |           |           |           |
| 3..              | 3                      | 1   | 1     |                             |      |     |          | 1         |           |           |
| 4..              | 7                      | 1   | 1     |                             | 1    | 1   | 1        |           | 1         | 1         |
| 5..              | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 6..              | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 7..              | 4                      | 1   | 1     |                             |      |     | 1        |           | 1         |           |
| 8..              | 3                      | 1   | 1     |                             |      |     |          |           |           |           |
| 9..              | 3                      | 1   | 2     |                             |      |     |          |           |           |           |
| 10..             | 4                      | 1   | 1     |                             |      |     |          |           | 1         |           |
| 11..             | 5                      | 1   | 2     |                             | 1    |     |          |           |           |           |
| 12..             | 3                      | 1   | 2     |                             |      |     |          |           |           |           |
| 13..             | 3                      | 1   | 2     |                             |      |     |          |           |           |           |
| 14..             | 8                      | 1   | 2     |                             | 1    |     | 1        |           | 1         | 1         |
| 15..             | 5                      | 1   | 2     | 2                           |      |     |          |           |           |           |
| 16..             | 4                      | 1   | 2     |                             |      |     |          |           |           |           |
| 17..             | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 18..             | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 19..             | 4                      | 1   | 2     |                             |      |     |          |           |           |           |
| 20..             | 4                      | 1   | 1     | 1                           | 1    |     |          |           |           |           |

TABLE I. -- CONTINUED

| Girls |      |       |        | Man Units |         |         |            |      |
|-------|------|-------|--------|-----------|---------|---------|------------|------|
| 4-7   | 8-10 | 11-13 | 14-19  | Calories  | Protein | Calcium | Phosphorus | Iron |
| 1     | 1    |       | 1<br>1 | 5.26      | 6.20    | 8.30    | 5.40       | 5.20 |
|       |      |       |        | 4.33      | 4.10    | 4.80    | 3.90       | 3.90 |
|       |      |       |        | 2.73      | 3.20    | 4.10    | 2.90       | 2.90 |
|       |      |       |        | 6.40      | 7.10    | 9.40    | 6.50       | 6.00 |
|       |      |       |        | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |        | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |        | 3.83      | 4.20    | 5.30    | 3.80       | 3.70 |
|       |      |       |        | 2.90      | 3.00    | 3.80    | 2.80       | 2.70 |
|       | 1    |       |        | 3.10      | 3.00    | 3.60    | 3.00       | 3.00 |
|       |      |       |        | 3.90      | 4.10    | 5.10    | 3.80       | 3.70 |
|       | 1    | 1     |        | 4.20      | 4.90    | 6.30    | 4.70       | 4.30 |
|       |      |       |        | 2.60      | 3.00    | 3.30    | 3.00       | 3.00 |
|       |      |       |        | 2.58      | 2.40    | 2.82    | 2.40       | 2.40 |
|       |      |       |        | 7.00      | 7.90    | 10.40   | 7.50       | 6.80 |
|       |      |       |        | 3.80      | 4.40    | 6.30    | 4.60       | 3.80 |
|       |      |       |        | 3.17      | 3.33    | 4.13    | 3.13       | 3.03 |
|       |      |       |        | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |        | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       | 1    |       |        | 3.60      | 3.80    | 5.10    | 3.80       | 3.50 |
|       |      |       |        | 3.10      | 3.50    | 5.30    | 3.60       | 2.90 |

TABLE II  
COMPOSITION OF NINETEEN NON-CLUB FAMILIES

| Family<br>Number | Number<br>in<br>Family | Men | Women | Chil-<br>dren<br>Under<br>4 | Boys |     |          |           |           |           |
|------------------|------------------------|-----|-------|-----------------------------|------|-----|----------|-----------|-----------|-----------|
|                  |                        |     |       |                             | 4-6  | 7-8 | 9-<br>10 | 11-<br>12 | 13-<br>15 | 16-<br>19 |
| 1..              | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 2..              | 3                      | 1   | 1     |                             | 1    |     |          |           |           |           |
| 3..              | 3                      | 1   | 1     |                             |      |     |          |           |           |           |
| 4..              | 5                      | 3   | 2     |                             |      |     |          |           |           |           |
| 5..              | 8                      | 3   | 1     |                             |      |     |          |           | 1         |           |
| 6..              | 3                      | 1   | 1     |                             |      |     |          |           |           |           |
| 7..              | 4                      | 2   | 1     |                             |      |     |          |           |           | 1         |
| 8..              | 3                      | 1   | 2     |                             |      |     |          |           |           |           |
| 9..              | 3                      | 2   | 1     |                             |      |     |          |           |           |           |
| 10..             | 3                      | 2   | 1     |                             |      |     |          |           |           |           |
| 11..             | 3                      | 2   | 1     |                             |      |     |          |           |           |           |
| 12..             | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 13..             | 2                      | 1   | 1     |                             |      |     |          |           |           |           |
| 14..             | ..                     | ..  | ..    | ..                          | ..   | ..  | ..       | ..        | ..        | ..        |
| 15..             | 4                      | 1   | 1     | ..                          | ..   | ..  | ..       | ..        | 1         | ..        |
| 16..             | 4                      | 1   | 1     |                             |      |     |          |           |           |           |
| 17..             | 5                      | 1   | 1     |                             |      |     |          |           |           |           |
| 18..             | 3                      | 1   | 1     |                             |      |     |          |           |           | 1         |
| 19..             | 10                     | 2   | 1     | 1                           |      | 1   |          |           |           |           |
| 20..             | 4                      | 1   | 1     | 1                           |      |     | 1        |           |           |           |

TABLE II -- CONTINUED

| Girls |      |       |       | Man Units |         |         |            |      |
|-------|------|-------|-------|-----------|---------|---------|------------|------|
| 4-7   | 8-10 | 11-13 | 14-19 | Calories  | Protein | Calcium | Phosphorus | Iron |
| 1     |      | 1     | 1     | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |       | 2.70      | 2.80    | 3.80    | 2.80       | 2.50 |
|       |      |       |       | 2.75      | 2.73    | 3.30    | 2.60       | 2.60 |
|       |      |       |       | 5.20      | 5.00    | 5.30    | 5.00       | 5.00 |
|       |      |       |       | 7.53      | 8.10    | 10.40   | 7.60       | 7.20 |
|       |      |       |       | 3.03      | 3.10    | 3.80    | 2.90       | 2.90 |
|       |      |       |       | 4.70      | 4.10    | 4.60    | 4.00       | 4.00 |
|       |      |       |       | 2.55      | 2.50    | 2.80    | 2.50       | 2.50 |
|       |      |       |       | 4.40      | 4.00    | 4.30    | 4.00       | 4.00 |
|       |      |       |       | 3.10      | 3.00    | 3.30    | 3.00       | 3.00 |
|       |      |       |       | 3.50      | 3.00    | 3.60    | 3.00       | 3.00 |
|       |      |       |       | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |       | 2.20      | 2.00    | 2.30    | 2.00       | 2.00 |
|       |      |       |       | ..        | ..      | ..      | ..         | ..   |
| ..    | ..   | ..    | ..    | 3.90      | 4.10    | 5.10    | 3.80       | 3.70 |
| 1     | 1    |       | 2     | 3.86      | 4.20    | 5.30    | 3.80       | 3.80 |
|       |      |       |       | 4.23      | 4.90    | 6.80    | 4.50       | 4.10 |
|       |      |       |       | 3.40      | 3.10    | 3.60    | 3.00       | 3.00 |
| 2     | 1    | 2     |       | 7.35      | 9.50    | 13.80   | 8.80       | 7.40 |
|       |      |       |       | 3.40      | 3.80    | 5.30    | 3.70       | 3.20 |

club and eight non-club families had no children, while thirteen club and eleven non-club families had children. There were forty-nine adults and twenty-nine children in the club group, and fifty adults and twenty-five children in the non-club group. In all, there were seventy-eight individuals in the club group and seventy-five in the non-club group.

#### Money Value Among Classes

There was a wide range in the percentage distribution of money among the eight classes of food, as shown in Tables III and IV. For milk and other dairy products (Class 1) the average per cent of total money value was 14.9 for the club group and 11.8 for the non-club group. The maximum allotments to dairy products were 23.2 per cent in the club group and 18.6 per cent in the non-club group, while the minima were 6.0 per cent and 5.8 per cent, respectively. The largest average per cent of total money value given to any one class of foods was allotted to fruits and vegetables (Class 2), a condition which prevailed in both groups; the average per cent of total money value was 29.4 for the club group and 23.4 for the non-club group. Legumes represented a small amount of the average total money value in the diets of the families in both groups; for this item the average per cent of value was 1.7 in the club families and 1.3 in the non-club families. Eggs (Class 3) ranked second to the lowest in the average per cent of total money value in the club diets and third to the lowest in the

TABLE III  
PERCENTAGE DISTRIBUTION OF MONEY VALUE OF FOOD AMONG  
THE CLASSES, FOR CLUB GROUP

| Family<br>Number | Classes |      |     |     |      |      |      |      |     |
|------------------|---------|------|-----|-----|------|------|------|------|-----|
|                  | 1       | 2A   | 2B  | 3   | 4    | 5    | 6    | 7    | 8   |
| 1..              | 11.4    | 37.3 | 1.5 | 5.6 | 16.1 | 5.8  | 14.8 | 3.2  | 3.9 |
| 2..              | 18.9    | 24.4 | 0.3 | 4.0 | 9.2  | 11.0 | 13.3 | 14.5 | 3.9 |
| 3..              | 12.5    | 30.2 | 0.3 | 9.2 | 16.3 | 9.2  | 9.9  | 6.3  | 5.6 |
| 4..              | 21.4    | 26.7 | 2.6 | 1.1 | 13.0 | 14.2 | 5.5  | 8.2  | 6.9 |
| 5..              | 20.2    | 22.6 | 2.1 | 3.4 | 20.3 | 7.6  | 9.8  | 8.9  | 4.6 |
| 6..              | 9.1     | 28.9 | 0.5 | 5.2 | 23.2 | 10.8 | 6.0  | 8.8  | 7.1 |
| 7..              | 9.1     | 37.2 | 9.8 | 4.0 | 14.4 | 6.0  | 9.2  | 5.1  | 4.9 |
| 8..              | 21.8    | 27.5 | 1.4 | 5.1 | 9.4  | 9.4  | 7.7  | 11.8 | 5.5 |
| 9..              | 21.9    | 29.5 | 3.1 | 5.5 | 5.0  | 7.6  | 10.6 | 11.2 | 5.1 |
| 10..             | 16.9    | 8.0  | 1.8 | 7.9 | 12.4 | 8.0  | 14.9 | 26.0 | 3.8 |
| 11..             | 22.0    | 21.1 | 1.5 | 1.3 | 27.4 | 8.2  | 11.7 | 3.7  | 2.8 |
| 12..             | 6.4     | 38.5 | 0.3 | 5.4 | 7.8  | 9.1  | 16.6 | 7.0  | 8.5 |
| 13..             | 16.3    | 26.0 | 0.4 | 3.6 | 26.1 | 5.2  | 8.9  | 7.4  | 5.6 |
| 14..             | 18.1    | 24.0 | 1.6 | 5.5 | 18.8 | 11.6 | 12.5 | 3.9  | 3.5 |
| 15..             | 8.8     | 36.3 | 2.2 | 0.9 | 17.5 | 7.5  | 14.4 | 5.2  | 6.6 |
| 16..             | 23.2    | 20.1 | 2.2 | 2.9 | 11.7 | 14.8 | 9.2  | 6.6  | 8.7 |
| 17..             | 14.5    | 30.4 | 0.7 | 5.1 | 10.2 | 11.6 | 11.3 | 6.9  | 8.8 |
| 18..             | 6.0     | 37.0 | 1.0 | 4.7 | 17.0 | 3.2  | 20.0 | 7.2  | 3.4 |
| 19..             | 7.9     | 26.4 | 0.4 | 8.7 | 13.4 | 7.6  | 22.2 | 5.0  | 7.9 |
| 20..             | 12.4    | 21.9 | 1.1 | 6.0 | 19.7 | 10.8 | 16.5 | 5.8  | 5.5 |
| Av..             | 14.9    | 27.7 | 1.7 | 4.7 | 15.4 | 8.9  | 12.2 | 8.1  | 5.6 |

TABLE IV  
PERCENTAGE DISTRIBUTION OF MONEY VALUE OF FOOD AMONG  
THE CLASSES, FOR NON-CLUB FAMILIES

| Family<br>Number | Classes |      |     |      |      |      |      |      |     |
|------------------|---------|------|-----|------|------|------|------|------|-----|
|                  | 1       | 2A   | 2B  | 3    | 4    | 5    | 6    | 7    | 8   |
| 1..              | 8.1     | 28.1 | 0.5 | 6.1  | 27.8 | 11.3 | 3.8  | 10.2 | 3.7 |
| 2..              | 18.6    | 29.8 | 1.8 | 6.0  | 14.4 | 10.0 | 10.6 | 4.5  | 3.8 |
| 3..              | 8.6     | 33.7 | 3.8 | 12.7 | 6.4  | 10.5 | 15.6 | 5.5  | 2.7 |
| 4..              | 5.8     | 25.6 | 3.1 | 1.3  | 22.6 | 11.1 | 15.2 | 9.1  | 5.7 |
| 5..              | 7.5     | 23.3 | ..  | 3.6  | 35.2 | 6.7  | 11.3 | 5.3  | 6.7 |
| 6..              | 15.7    | 9.2  | ..  | 9.1  | 17.9 | 13.2 | 23.0 | 9.0  | 2.5 |
| 7..              | 17.8    | 15.1 | 0.1 | 10.4 | 26.3 | 9.4  | 11.3 | 4.0  | 5.1 |
| 8..              | 5.9     | 17.5 | 1.2 | 6.0  | 25.7 | 8.4  | 15.5 | 13.6 | 5.8 |
| 9..              | 9.6     | 26.1 | ..  | 10.7 | 19.3 | 11.8 | 10.5 | 8.5  | 3.2 |
| 10..             | 6.9     | 21.5 | 0.6 | 2.8  | 25.1 | 9.3  | 16.4 | 10.1 | 6.8 |
| 11..             | 15.5    | 30.0 | ..  | 4.4  | 23.0 | 7.9  | 4.4  | 10.3 | 4.4 |
| 12..             | 5.5     | 30.4 | 0.7 | 4.1  | 22.0 | 11.5 | 7.5  | 12.4 | 5.5 |
| 13..             | 7.9     | 30.5 | 4.5 | 6.7  | 19.2 | 6.2  | 14.6 | 5.6  | 4.5 |
| 14..             | ..      | ..   | ..  | ..   | ..   | ..   | ..   | ..   | ..  |
| 15..             | 15.4    | 10.0 | 0.6 | 10.5 | 12.2 | 9.0  | 21.2 | 15.4 | 5.2 |
| 16..             | 18.2    | 15.6 | 0.2 | 6.2  | 30.8 | 7.8  | 13.3 | 2.3  | 5.1 |
| 17..             | 12.8    | 18.7 | 1.9 | 7.5  | 10.9 | 9.6  | 28.5 | 5.1  | 5.0 |
| 18..             | 11.8    | 25.7 | 0.7 | 5.0  | 19.8 | 7.5  | 12.7 | 13.0 | 3.8 |
| 19..             | 17.6    | 12.1 | 3.1 | 1.8  | 25.6 | 16.4 | 10.3 | 7.9  | 5.0 |
| 20..             | 15.3    | 16.5 | 2.1 | 5.7  | 16.1 | 10.8 | 15.0 | 12.5 | 6.0 |
| Av..             | 11.8    | 22.1 | 1.3 | 6.3  | 21.1 | 9.9  | 13.7 | 8.6  | 4.8 |

non-club diets. For this class of foods the average per cent of total money value was 4.7 for the club families and 6.3 for the non-club group. Meats (Class 4) occupied the second highest place in both club and non-club groups; the average per cent of total money value was 15.4 for the club group and 21.1 for the non-club group. The average per cent of total money value for cereal products (Class 5) was 8.9 and 9.9 for the club and non-club families, respectively. Fats (Class 6) occupied an important place in the diets of both club and non-club families; the average per cent of total money value was 12.2 for the club families and 13.7 for the non-club families. Approximately as great a per cent of the total money value was used for sweets as for cereals in both groups; the average per cent of total money value for sugars was 8.1 and 8.6 for the club and non-club groups, respectively. Accessories, coffee, tea, cocoa, baking powders, spices, vinegars, had a small share in the average per cent of total money value in both groups, as shown by the fact that the averages for the club group and the non-club group were only 5.6 per cent and 4.8 per cent, respectively. In dairy products, vegetables and fruits, and accessories, the per cent of total money value of club families exceeded that of non-club families for the same items; while in eggs, meats, cereals, fats, and sweets, the per cent of total money value of non-club families exceeded that of the club families.

### Money Value and Home Production of Food

The money value of food produced, the money value of food purchased, the total value per family, the value per man unit, the per cent produced and the per cent purchased, are shown in Tables V, VI, and VII.

The total value of food consumed by the individual families during the period of 30 days ranged from \$82.44 to \$24.65 for club families and from \$56.04 to \$20.33 for non-club families; the averages were \$35.97 and \$32.44, respectively. Six club families consumed food above the average value, and fourteen club families consumed food below the average; whereas, in the non-club group, the food consumed by ten families was above the average, while that of nine families was below the average.

For the club group, the value of food per man unit for the 30-day period ranged from \$15.50 to \$5.42, or from \$0.52 to \$0.20 per day, with an average of \$10.69 per month or \$0.35 per day. In the non-club group, the range for 30 days was from \$12.83 to \$4.62, or from \$0.43 to \$0.15 per day, with an average of \$8.92 per month or \$0.30 per day. In the club group, the money value of the food per man unit of one family was average, of ten families above average, of nine families below average. The money value per man unit of ten non-club families was above the average, while that of nine was below the average. The average value per man unit of the food con-

TABLE V

MONEY VALUE OF FOODS USED BY CLUB FAMILIES IN THIRTY  
DAYS AND PER CENT OF FOOD PRODUCED

| Family<br>Number | Value<br>Produced | Value<br>Bought | Total<br>Value | Value Per<br>Man Unit <sup>x</sup> | Per Cent<br>Produced | Per Cent<br>Bought |
|------------------|-------------------|-----------------|----------------|------------------------------------|----------------------|--------------------|
| 1..              | \$26.05           | \$17.84         | \$43.89        | \$ 8.34                            | 59.3                 | 40.7               |
| 2..              | 17.86             | 8.41            | 26.27          | 6.06                               | 67.9                 | 32.1               |
| 3..              | 5.18              | 34.17           | 39.35          | 14.41                              | 13.1                 | 86.9               |
| 4..              | 19.78             | 14.93           | 34.71          | 5.42                               | 56.9                 | 43.1               |
| 5..              | 10.07             | 16.62           | 26.69          | 12.13                              | 37.7                 | 62.3               |
| 6..              | 16.04             | 18.06           | 34.10          | 15.50                              | 47.0                 | 53.0               |
| 7..              | 18.16             | 14.15           | 32.31          | 8.43                               | 56.2                 | 43.8               |
| 8..              | 15.28             | 14.61           | 29.81          | 10.30                              | 48.8                 | 51.2               |
| 9..              | 15.61             | 13.99           | 29.60          | 9.54                               | 52.7                 | 47.3               |
| 10..             | 17.21             | 24.21           | 41.42          | 10.62                              | 41.5                 | 58.5               |
| 11..             | 21.86             | 11.07           | 32.93          | 7.84                               | 66.3                 | 33.7               |
| 12..             | 20.88             | 11.70           | 32.58          | 12.53                              | 64.0                 | 36.0               |
| 13..             | 22.36             | 10.37           | 32.73          | 14.87                              | 68.3                 | 31.7               |
| 14..             | 53.08             | 29.36           | 82.44          | 11.77                              | 64.3                 | 35.7               |
| 15..             | 28.41             | 12.36           | 40.77          | 10.72                              | 69.7                 | 30.3               |
| 16..             | 14.04             | 12.01           | 26.05          | 7.04                               | 53.9                 | 46.1               |
| 17..             | 9.18              | 15.47           | 24.65          | 11.20                              | 37.2                 | 62.8               |
| 18..             | 26.15             | 3.76            | 29.91          | 13.59                              | 87.4                 | 12.6               |
| 19..             | 15.75             | 30.21           | 45.96          | 12.76                              | 32.0                 | 68.0               |
| 20..             | 19.48             | 13.66           | 33.14          | 10.69                              | 58.7                 | 41.3               |
| Av..             | \$19.61           | \$16.34         | \$35.97        | \$10.69                            | 54.2                 | 45.8               |

<sup>x</sup>Based upon energy man unit -- 3,000 calories per day.

TABLE VI

MONEY VALUE OF FOODS USED BY NON-CLUB FAMILIES IN THIRTY  
DAYS AND PER CENT OF FOOD PRODUCED

| Family<br>Number | Value<br>Produced | Value<br>Bought | Total<br>Value | Value Per<br>Man Unit <sup>x</sup> | Per Cent<br>Produced | Per Cent<br>Bought |
|------------------|-------------------|-----------------|----------------|------------------------------------|----------------------|--------------------|
| 1..              | \$11.90           | \$ 9.03         | \$20.93        | \$ 9.51                            | 56.8                 | 43.2               |
| 2..              | 13.09             | 9.13            | 22.22          | 8.23                               | 58.4                 | 41.6               |
| 3..              | 14.91             | 5.42            | 20.33          | 6.70                               | 73.3                 | 26.7               |
| 4..              | 14.40             | 24.87           | 39.27          | 7.55                               | 36.6                 | 63.4               |
| 5..              | 41.89             | 14.15           | 56.04          | 7.44                               | 74.8                 | 25.2               |
| 6..              | 13.42             | 14.18           | 27.60          | 9.11                               | 48.6                 | 51.4               |
| 7..              | 22.80             | 12.26           | 35.06          | 7.46                               | 65.0                 | 35.0               |
| 8..              | 17.74             | 19.48           | 37.22          | 12.83                              | 47.6                 | 52.4               |
| 9..              | 19.07             | 24.61           | 43.68          | 9.92                               | 43.6                 | 56.4               |
| 10..             | 19.95             | 12.90           | 32.85          | 10.60                              | 60.7                 | 39.3               |
| 11..             | 16.30             | 10.65           | 26.95          | 7.70                               | 60.5                 | 39.5               |
| 12..             | 6.73              | 15.00           | 21.73          | 9.88                               | 31.0                 | 69.0               |
| 13..             | 21.45             | 5.10            | 26.55          | 12.17                              | 80.8                 | 19.2               |
| 14..             | ..                | ..              | ..             | ..                                 | ..                   | ..                 |
| 15..             | 20.66             | 8.61            | 29.27          | 7.50                               | 70.6                 | 29.4               |
| 16..             | 21.60             | 10.34           | 31.94          | 8.27                               | 67.9                 | 32.1               |
| 17..             | 27.43             | 15.92           | 43.35          | 10.24                              | 63.2                 | 36.8               |
| 18..             | 29.43             | 5.35            | 34.78          | 10.23                              | 84.6                 | 15.4               |
| 19..             | 18.75             | 15.26           | 34.01          | 4.62                               | 55.1                 | 44.9               |
| 20..             | 14.02             | 18.48           | 32.50          | 9.55                               | 43.1                 | 56.9               |
| Av..             | \$19.24           | \$13.20         | \$32.44        | \$ 8.92                            | 59.1                 | 40.9               |

<sup>x</sup>Based upon energy man unit -- 3,000 calories per day.

TABLE VII  
MONEY VALUE OF FOOD PER MAN UNIT PER DAY  
FOR CLUB AND NON-CLUB FAMILIES

| Family Number | Club Families | Non-club Families |
|---------------|---------------|-------------------|
| 1.....        | \$0.28        | \$0.32            |
| 2.....        | .20           | .27               |
| 3.....        | .48           | .22               |
| 4.....        | .18           | .25               |
| 5.....        | .40           | .25               |
| 6.....        | .52           | .30               |
| 7.....        | .28           | .25               |
| 8.....        | .34           | .43               |
| 9.....        | .32           | .33               |
| 10.....       | .35           | .35               |
| 11.....       | .26           | .26               |
| 12.....       | .42           | .33               |
| 13.....       | .50           | .41               |
| 14.....       | .39           | ..                |
| 15.....       | .36           | .25               |
| 16.....       | .23           | .28               |
| 17.....       | .37           | .34               |
| 18.....       | .45           | .34               |
| 19.....       | .41           | .15               |
| 20.....       | .36           | .32               |
| Average..     | \$0.35        | \$0.30            |

sumed during 30 days was \$1.77 less for the non-club families than for the club families. The difference per man unit per day was \$0.05.

Although both groups of families produced more than half of their food, the non-club families produced a larger proportion of their food than did the club families. The average per cents were as follows: club group, 54.2 of food produced and 45.8 purchased; non-club families, 59.1 of food produced and 40.9 purchased. In no instance was more than 87 per cent of the food raised at home. The maximum and minimum per cents of food produced were 87.4 and 13.1, respectively, for the club group, and 84.6 and 31.0, respectively, for the non-club group. In fact, the largest number of families produced approximately 60 per cent of their food. The range of per cents of food bought was as follows: from 86.9 to 12.6 for club families; from 69.0 to 15.4 for non-club families. Eleven families in the club group and ten families in the non-club group produced more than the average amount of food.

#### Nutritive Value of the Diets

The thirty-nine diets were studied to determine the number of grams of carbohydrates, fats, and protein in each and the per cent of total calories derived from each of the three nutrients. The results are presented in Table VIII.

The average per cent of total calories derived from carbohydrates was 49.7 for the club group and 51.0 for the

TABLE VIII  
PERCENTAGE DISTRIBUTION OF CALORIES

| Family<br>Number | Club Group         |      |         | Non-club Group     |      |         |
|------------------|--------------------|------|---------|--------------------|------|---------|
|                  | Carbohy-<br>drates | Fats | Protein | Carbohy-<br>drates | Fats | Protein |
| 1..              | 44.2               | 50.3 | 5.4     | 57.9               | 28.8 | 13.3    |
| 2..              | 59.5               | 31.4 | 9.1     | 51.1               | 33.7 | 15.1    |
| 3..              | 46.2               | 42.5 | 11.2    | 45.7               | 44.3 | 9.9     |
| 4..              | 61.9               | 26.3 | 11.8    | 57.5               | 34.0 | 8.4     |
| 5..              | 53.8               | 35.5 | 10.6    | 53.2               | 33.1 | 13.6    |
| 6..              | 56.4               | 32.7 | 11.8    | 40.5               | 48.2 | 11.2    |
| 7..              | 49.8               | 37.0 | 13.1    | 43.9               | 42.6 | 13.4    |
| 8..              | 52.6               | 36.7 | 10.6    | 55.9               | 30.4 | 13.6    |
| 9..              | 52.7               | 36.6 | 10.6    | 63.8               | 23.2 | 12.0    |
| 10..             | 40.1               | 47.9 | 11.9    | 51.9               | 36.4 | 11.6    |
| 11..             | 50.4               | 37.7 | 11.8    | 44.4               | 41.7 | 13.8    |
| 12..             | 48.8               | 38.2 | 12.9    | 44.9               | 43.3 | 11.7    |
| 13..             | 49.9               | 37.7 | 12.3    | 51.2               | 35.2 | 13.5    |
| 14..             | 52.1               | 35.6 | 12.2    | ..                 | ..   | ..      |
| 15..             | 52.1               | 37.0 | 10.9    | 46.2               | 42.1 | 11.6    |
| 16..             | 46.7               | 40.1 | 13.1    | 40.6               | 49.2 | 10.1    |
| 17..             | 44.8               | 44.5 | 10.6    | 40.6               | 48.7 | 10.6    |
| 18..             | 41.6               | 47.8 | 10.5    | 52.8               | 35.6 | 11.5    |
| 19..             | 41.8               | 49.8 | 8.3     | 82.2               | 13.3 | 4.4     |
| 20..             | 48.9               | 38.5 | 12.5    | 44.3               | 43.2 | 12.4    |
| Av..             | 49.7               | 39.1 | 11.1    | 51.0               | 37.3 | 11.6    |

non-club group. The average per cent obtained from fats was 39.1 for the club group and 37.3 for the non-club group, whereas the average per cent of total calories which came from protein foods was 11.1 for the club group and 11.6 for the non-club group. The most striking observation was in the case of Family 19 in the non-club group, in whose diet 82.2 per cent of the total calories came from carbohydrates. This diet consisted of approximately 350 pounds of carbohydrates, 60 pounds of protein, and 30 pounds of fats during the 30-day period.

A study, on the man unit basis, was made of the diets of the twenty club families and of the nineteen non-club families to determine the total number of calories, the grams of protein, calcium, phosphorus, and iron used. Using the findings of this study, the experimenter calculated the per cent of deviation from the standard. The results are shown in Tables IX and X.

Calories. -- The average consumption of calories per man unit per day was 4,436 for the club group and 3,448 for the non-club group. These amounts deviated from the standard by 47.7 per cent and 14.8 per cent, respectively. Seven of the families in the club group had diets that were from 70 to 90 per cent above standard. The highest in the non-club group was 59.9 per cent above standard.

Protein. -- The average consumption of protein per man

TABLE IX  
AVERAGE DAILY NUTRIENTS PER MAN UNIT AND PERCENTAGE  
DEVIATION FROM STANDARD, FOR CLUB FAMILIES

| Family<br>Number | Average Daily Nutrients |                 |                 |                    |              |
|------------------|-------------------------|-----------------|-----------------|--------------------|--------------|
|                  | Calories                | Protein<br>(g.) | Calcium<br>(g.) | Phosphorus<br>(g.) | Iron<br>(g.) |
| 1..              | 3,430                   | 74              | .68             | 1.50               | .016         |
| 2..              | 2,861                   | 66              | .47             | 1.15               | .016         |
| 3..              | 3,652                   | 84              | .75             | 1.61               | .014         |
| 4..              | 3,243                   | 86              | .77             | 1.68               | .015         |
| 5..              | 4,317                   | 125             | 8.15            | 6.95               | .042         |
| 6..              | 5,362                   | 152             | 1.74            | 2.83               | .036         |
| 7..              | 5,236                   | 117             | .84             | 1.99               | .021         |
| 8..              | 4,393                   | 110             | 1.53            | 2.38               | .018         |
| 9..              | 4,186                   | 117             | 1.78            | 2.34               | .022         |
| 10..             | 4,910                   | 104             | 1.14            | 2.24               | .017         |
| 11..             | 3,434                   | 97              | 1.07            | 1.85               | .015         |
| 12..             | 5,821                   | 163             | 1.52            | 2.70               | .029         |
| 13..             | 5,157                   | 170             | 1.81            | 2.82               | .043         |
| 14..             | 5,717                   | 154             | .45             | 2.87               | .030         |
| 15..             | 4,749                   | 111             | .98             | 1.92               | .035         |
| 16..             | 2,978                   | 100             | 1.22            | 2.14               | .017         |
| 17..             | 5,231                   | 141             | 1.49            | 2.42               | .020         |
| 18..             | 4,823                   | 150             | 1.48            | 2.29               | .036         |
| 19..             | 5,239                   | 103             | .94             | 1.96               | .021         |
| 20..             | 3,994                   | 116             | 1.72            | 2.08               | .018         |
| Av..             | 4,436                   | 117             | 1.45            | 2.39               | .024         |

TABLE IX -- CONTINUED

| Percentage Deviation from Standard |                  |                    |                  |                  |
|------------------------------------|------------------|--------------------|------------------|------------------|
| Calories                           | Protein          | Calcium            | Phosphorus       | Iron             |
| <del>14.3</del>                    | <del>5.7</del>   | <del>1.4</del>     | <del>14.0</del>  | <del>11.8</del>  |
| <del>7.9</del>                     | <del>5.7</del>   | <del>30.2</del>    | <del>63.0</del>  | <del>9.8</del>   |
| <del>21.7</del>                    | <del>20.0</del>  | <del>10.4</del>    | <del>22.3</del>  | <del>0.5</del>   |
| <del>8.1</del>                     | <del>22.8</del>  | <del>13.6</del>    | <del>27.7</del>  | <del>6.5</del>   |
| <del>43.9</del>                    | <del>78.5</del>  | <del>1,097.9</del> | <del>42.7</del>  | <del>18.1</del>  |
| <del>78.7</del>                    | <del>117.1</del> | <del>15.6</del>    | <del>11.4</del>  | <del>14.0</del>  |
| <del>74.5</del>                    | <del>67.1</del>  | <del>23.9</del>    | <del>51.0</del>  | <del>43.6</del>  |
| <del>46.4</del>                    | <del>57.1</del>  | <del>125.2</del>   | <del>80.4</del>  | <del>21.7</del>  |
| <del>39.5</del>                    | <del>67.1</del>  | <del>162.6</del>   | <del>77.7</del>  | <del>50.8</del>  |
| <del>63.6</del>                    | <del>48.5</del>  | <del>68.3</del>    | <del>69.8</del>  | <del>16.7</del>  |
| <del>14.4</del>                    | <del>38.5</del>  | <del>57.3</del>    | <del>40.1</del>  | <del>1.0</del>   |
| <del>94.0</del>                    | <del>132.8</del> | <del>123.6</del>   | <del>104.5</del> | <del>98.0</del>  |
| <del>71.9</del>                    | <del>142.8</del> | <del>167.2</del>   | <del>114.2</del> | <del>190.9</del> |
| <del>90.5</del>                    | <del>120.0</del> | <del>32.6</del>    | <del>117.4</del> | <del>100.6</del> |
| <del>58.3</del>                    | <del>58.5</del>  | <del>44.4</del>    | <del>45.6</del>  | <del>137.2</del> |
| <del>0.7</del>                     | <del>42.8</del>  | <del>79.5</del>    | <del>62.6</del>  | <del>16.4</del>  |
| <del>74.3</del>                    | <del>101.4</del> | <del>119.5</del>   | <del>83.4</del>  | <del>35.2</del>  |
| <del>60.7</del>                    | <del>114.2</del> | <del>117.6</del>   | <del>73.4</del>  | <del>142.5</del> |
| <del>74.6</del>                    | <del>47.1</del>  | <del>39.1</del>    | <del>48.6</del>  | <del>44.8</del>  |
| <del>33.1</del>                    | <del>65.7</del>  | <del>152.9</del>   | <del>57.8</del>  | <del>23.0</del>  |
| <del>47.7</del>                    | <del>67.1</del>  | <del>142.1</del>   | <del>78.5</del>  | <del>63.6</del>  |

TABLE X

AVERAGE DAILY NUTRIENTS PER MAN UNIT AND PERCENTAGE  
DEVIATION FROM STANDARD, FOR NON-CLUB FAMILIES

| Family<br>Number | Average Daily Nutrients |                 |                 |                    |              |
|------------------|-------------------------|-----------------|-----------------|--------------------|--------------|
|                  | Calories                | Protein<br>(g.) | Calcium<br>(g.) | Phosphorus<br>(g.) | Iron<br>(g.) |
| 1..              | 2,957                   | 104             | .38             | 1.78               | .018         |
| 2..              | 2,976                   | 106             | 1.16            | 1.99               | .020         |
| 3..              | 3,352                   | 84              | .78             | 1.53               | .021         |
| 4..              | 4,086                   | 90              | .72             | 1.47               | .016         |
| 5..              | 3,004                   | 96              | .57             | 1.39               | .020         |
| 6..              | 3,600                   | 102             | 1.06            | 2.14               | .024         |
| 7..              | 2,631                   | 101             | 1.25            | 1.92               | .016         |
| 8..              | 4,797                   | 152             | 1.36            | 2.92               | .044         |
| 9..              | 3,500                   | 125             | 1.22            | 2.42               | .031         |
| 10..             | 4,215                   | 127             | .93             | 1.98               | .044         |
| 11..             | 2,840                   | 115             | 1.59            | 2.13               | .015         |
| 12..             | 3,622                   | 117             | 1.12            | 1.97               | .016         |
| 13..             | 4,546                   | 174             | 1.58            | 3.10               | .043         |
| 14..             | ..                      | ..              | ..              | ..                 | ..           |
| 15..             | 2,977                   | 82              | .85             | 1.51               | .014         |
| 16..             | 2,637                   | 58              | .25             | .89                | .009         |
| 17..             | 3,822                   | 87              | .79             | 1.70               | .017         |
| 18..             | 3,887                   | 122             | 1.18            | 2.20               | .022         |
| 19..             | 2,583                   | 47              | .12             | .75                | .011         |
| 20..             | 3,477                   | 99              | 1.07            | 1.80               | .019         |
| Av..             | 3,448                   | 105             | .95             | 1.87               | .022         |

TABLE X -- CONTINUED

| Percentage Deviation from Standard |         |         |            |        |
|------------------------------------|---------|---------|------------|--------|
| Calories                           | Protein | Calcium | Phosphorus | Iron   |
| -1.4                               | /48.6   | -43.0   | /33.5      | /25.5  |
| -0.8                               | /51.4   | /71.0   | /51.2      | /34.5  |
| /11.7                              | /20.0   | /15.3   | /16.6      | /40.5  |
| /36.2                              | /28.6   | /6.6    | /12.0      | /12.9  |
| /0.1                               | /37.1   | -15.9   | /5.9       | /37.9  |
| /20.0                              | /45.7   | /56.8   | /62.7      | /65.2  |
| -12.3                              | /44.3   | /84.4   | /46.0      | /1.0   |
| /59.9                              | /117.1  | /101.2  | /121.2     | /199.9 |
| /16.6                              | /78.6   | /80.3   | /83.3      | /110.1 |
| /40.5                              | /81.4   | /38.1   | /50.5      | /194.7 |
| -5.3                               | /64.3   | /134.6  | /61.4      | /2.8   |
| /20.7                              | /67.1   | /64.7   | /49.3      | /12.0  |
| /51.5                              | /148.6  | /132.8  | /135.4     | /188.7 |
| ..                                 | ..      | ..      | ..         | ..     |
| -0.7                               | /17.1   | /25.4   | /14.9      | -5.2   |
| -12.1                              | -17.1   | -62.1   | -33.3      | -37.7  |
| /27.4                              | /24.3   | /17.4   | /29.2      | /16.8  |
| /29.5                              | /74.3   | /74.0   | /67.0      | /50.5  |
| -13.9                              | -32.9   | -66.8   | -42.8      | -21.3  |
| /15.9                              | /41.4   | /58.2   | /36.7      | /29.7  |
| /14.8                              | /49.5   | /40.7   | /42.1      | /50.4  |

unit per day was 117 grams for club families and 105 grams for non-club families, a deviation from the standard of  $\pm 67.1$  per cent for the former and  $\pm 14.8$  per cent for the latter. Seven families had diets which were more than 100 per cent above standard in protein, five of these in the club group and two in the non-club group. Only one club family and two non-club families had less than the standard.

Calcium. -- Two club families and four non-club families received less than the standard for calcium. The average amount of calcium consumed per man unit per day was 1.45 grams for club families and 0.95 gram for non-club families, a deviation from the standard of  $\pm 124.9$  per cent for the club families and  $\pm 40.7$  per cent for the non-club families. The range for the club group was from 0.45 gram to 8.15 grams (the latter family used calcium food in hot milk as a beverage); and the second highest in calcium consumption was 1.81 grams.

Phosphorus. -- The average for phosphorus consumption per man unit per day was 2.39 grams for the club group and 1.88 grams for the non-club group; the deviations from standard were  $\pm 42.1$  per cent and  $\pm 40.7$  per cent, respectively.

Iron. -- The average iron consumption per man unit per day for the club group was 0.025 gram, a positive deviation of 63.6 per cent from standard. The average iron consumption per man unit per day for the non-club group was 0.023 gram, a positive deviation of 50.4 per cent from standard.

Summary. -- Sixteen of the twenty club families (80 per

cent) and eleven of the nineteen non-club families (58 per cent) had diets which were adequate in every factor studied. In other words, three club families (15 per cent) and four non-club families (21 per cent) had diets inadequate in one factor, two non-club families (10 per cent) had diets inadequate in two factors, one club family (5 per cent) had diet inadequate in four factors, and two non-club families (10 per cent) had diets inadequate in all factors. In the club group the families with inadequate diets (20 per cent) were families No. 2, 3, 14, and 16. The diet of family No. 2 was inadequate in calories, protein, calcium, and phosphorus; the diet of family No. 3 was inadequate in iron; that of family No. 14 was inadequate in calcium; and that of family No. 16, in calories. In the non-club group the families with inadequate diets (42 per cent) were families No. 1, 2, 5, 7, 11, 15, 16, and 19. The diet of family No. 1 of this group was inadequate in calories and calcium; that of families No. 2, 7, and 11, in calories; that of family No. 5, in calcium; that of family No. 15, in calories and iron; and that of families No. 16 and 19, in all nutrients calculated.

#### Diets of Families With and Without Children

Thirteen club families and eleven non-club families had one or more children. Nine of the thirteen club families with children had an adequate diet, whereas the diets of four of the families were found to be inadequate. The diets of five of the eleven non-club families with children were adequate, and those of six families were inadequate. All seven of the

club families with no children had an adequate diet, and six of the eight non-club families with no children had adequate diets (see Tables XI and XII).

Unfortunately, both in the club and non-club group, the families with children presented the larger proportion of inadequate diets; there were twenty-two instances of inadequacies in the diets of these families, in contrast with only three inadequacies in the group of families with no children. In this latter group, all three cases of inadequacy occurred in non-club families, whereas in the former group (those families with children) fifteen, or 68.1 per cent, of the instances of inadequacies were found in non-club families.

More inadequate diets were found among families with children than among families without children; also, more inadequate diets were found in the non-club group with children than in the club group with children.

#### Selection of Food

A qualitative study was made of the food consumed to determine the consumption of milk, cheese, meat, potatoes, corn meal, butter, eggs, and sweets eaten by the families during the 30-day period. Also, the dietaries were inspected to ascertain the varieties of vegetables and fruits and the varieties of coarse cereals used during the month. All these data are shown in Tables XIII and XIV.

Milk. -- The twenty club families used 463 gallons of milk, which, on the average, amounted to six gallons per person

TABLE XI  
DIETARY INADEQUACIES FOR CLUB FAMILIES WITH  
AND WITHOUT CHILDREN

| Family Number | Number of Adults | No. of Children | Club Families With Children    |                     |                     |                   |                  |
|---------------|------------------|-----------------|--------------------------------|---------------------|---------------------|-------------------|------------------|
|               |                  |                 | Adequate in Calories           | Adequate in Protein | Adequate in Calcium | Adequate in Phos. | Adequate in Iron |
| 1..           | 2                | 4               | /                              | /                   | /                   | /                 | /                |
| 2..           | 3                | 1               | -7.9%                          | -5.7%               | -30.2%              | -63%              | /                |
| 3..           | 2                | 1               | /                              | /                   | /                   | /                 | -.5%             |
| 4..           | 2                | 5               | /                              | /                   | /                   | /                 | /                |
| 7..           | 2                | 2               | /                              | /                   | /                   | /                 | /                |
| 8..           | 2                | 1               | /                              | /                   | /                   | /                 | /                |
| 10..          | 2                | 2               | /                              | /                   | /                   | /                 | /                |
| 11..          | 3                | 2               | /                              | /                   | /                   | /                 | /                |
| 14..          | 3                | 5               | /                              | /                   | -32.6%              | /                 | /                |
| 15..          | 3                | 2               | /                              | /                   | /                   | /                 | /                |
| 16..          | 3                | 1               | -.7%                           | /                   | /                   | /                 | /                |
| 19..          | 3                | 1               | /                              | /                   | /                   | /                 | /                |
| 20..          | 2                | 2               | /                              | /                   | /                   | /                 | /                |
| Total.        | 32               | 29              | /11<br>-2                      | /12<br>-1           | /11<br>-2           | /12<br>-1         | /12<br>-1        |
|               |                  |                 | Club Families Without Children |                     |                     |                   |                  |
|               |                  |                 |                                |                     |                     |                   |                  |
| 5..           | 2                | ..              | /                              | /                   | /                   | /                 | /                |
| 6..           | 2                | ..              | /                              | /                   | /                   | /                 | /                |
| 9..           | 3                | ..              | /                              | /                   | /                   | /                 | /                |
| 12..          | 3                | ..              | /                              | /                   | /                   | /                 | /                |
| 13..          | 3                | ..              | /                              | /                   | /                   | /                 | /                |
| 17..          | 2                | ..              | /                              | /                   | /                   | /                 | /                |
| 18..          | 2                | ..              | /                              | /                   | /                   | /                 | /                |
| Total.        | 17               | ..              | /7                             | /7                  | /7                  | /7                | /7               |

TABLE XII  
DIETARY INADEQUACIES FOR NON-CLUB FAMILIES WITH  
AND WITHOUT CHILDREN

| Family Number | Number of Adults | No. of Children | Non-club Families With Children |                     |                     |                   |                  |
|---------------|------------------|-----------------|---------------------------------|---------------------|---------------------|-------------------|------------------|
|               |                  |                 | Adequate in Calories            | Adequate in Protein | Adequate in Calcium | Adequate in Phos. | Adequate in Iron |
| 2..           | 2                | 1               | -.8%                            | /                   | /                   | /                 | /                |
| 3..           | 2                | 1               | /                               | /                   | /                   | /                 | /                |
| 5..           | 4                | 4               | /                               | /                   | -15.9%              | /                 | /                |
| 6..           | 2                | 1               | /                               | /                   | /                   | /                 | /                |
| 7..           | 3                | 1               | -12.3%                          | /                   | /                   | /                 | /                |
| 15..          | 2                | 2               | -.7%                            | /                   | /                   | /                 | -5.2%            |
| 16..          | 2                | 2               | -12.1%                          | -17.1%              | -62.1%              | -33.3%            | -37.7%           |
| 17..          | 2                | 3               | /                               | /                   | /                   | /                 | /                |
| 18..          | 2                | 1               | /                               | /                   | /                   | /                 | /                |
| 19..          | 3                | 7               | -13.9%                          | -32.9%              | -66.8%              | -42.8%            | -21.3%           |
| 20..          | 2                | 2               | /                               | /                   | /                   | /                 | /                |
| Total.        | 26               | 25              | /6<br>-5                        | /9<br>-2            | /8<br>-3            | /9<br>-2          | /8<br>-3         |

  

|        |    |    | Non-club Families Without Children |    |          |    |    |
|--------|----|----|------------------------------------|----|----------|----|----|
|        |    |    |                                    |    |          |    |    |
| 1..    | 2  | .. | -1.4%                              | /  | -43.0%   | /  | /  |
| 4..    | 5  | .. | /                                  | /  | /        | /  | /  |
| 8..    | 3  | .. | /                                  | /  | /        | /  | /  |
| 9..    | 4  | .. | /                                  | /  | /        | /  | /  |
| 10..   | 3  | .. | /                                  | /  | /        | /  | /  |
| 11..   | 3  | .. | -5.3%                              | /  | /        | /  | /  |
| 12..   | 2  | .. | /                                  | /  | /        | /  | /  |
| 13..   | 2  | .. | /                                  | /  | /        | /  | /  |
| Total. | 24 | .. | /6<br>-2                           | /8 | /7<br>-1 | /8 | /8 |

per month. The nineteen non-club families used 355 gallons of milk, or an average of 5 gallons per person per month. At the rate of one pint of milk per person per day for adults and one quart of milk per child per day, 402 gallons would be required for the club group and 375 gallons for the non-club group. On this basis, the club group had a surplus of 61 gallons, but the non-club group failed to meet the requirement by 20 gallons.

Cheese. -- Twenty-six pounds of cheese were consumed by the club families, which was an average of one and three-tenths pounds per family. Sixteen pounds were eaten by the non-club families, which was an average of four-fifths pound per family.

Butter. -- Two club families consisting of ten people reported milk consumption which included the butter used; these two families used 600 pounds of milk during the period. The other eighteen families reported 173 pounds of butter, which was an average of 2.5 pounds per person for the month. The nineteen non-club families reported 112 pounds of butter, which was an average of two pounds per person for the month.

Meat. -- The average consumption of meat in the club group was approximately ten and one-half pounds per person per month, and in the non-club group, approximately ten and one-third pounds per person per month. The meat consumed by the club group consisted of 740 pounds of poultry, beef, and pork; 50 pounds of fish; and 18 pounds of liver, heart, sweet breads, and brains; while that of the non-club group consisted of 728 pounds of poultry, beef, and pork; 16 pounds of fish; and eight

TABLE XIII  
SELECTION OF FOODS BY CLUB FAMILIES

| Family Number       | Milk (Lbs.) | Cheese (Lbs.)   | Meat (Lbs.)      | Glandular Meats <sup>a</sup> (Lbs.) | Fish <sup>b</sup> (Lbs.) | Eggs (No.) | Vegetables (Var.) |
|---------------------|-------------|-----------------|------------------|-------------------------------------|--------------------------|------------|-------------------|
| 1..                 | 221         | ..              | 44               | ..                                  | ..                       | 120        | 9                 |
| 2..                 | 236         | ..              | 19               | 2                                   | 3                        | 26         | 9                 |
| 3..                 | 106         | 2               | 34               | ..                                  | ..                       | 138        | 13                |
| 4..                 | 321         | ..              | 32               | ..                                  | ..                       | 114        | 13                |
| 5..                 | 66          | 2               | 29               | ..                                  | 1                        | 61         | 15                |
| 6..                 | 102         | 4               | 30               | 1                                   | 3                        | 165        | 18                |
| 7..                 | 106         | 2               | 47               | 3                                   | 3                        | 75         | 22                |
| 8..                 | 250         | 1               | 19               | ..                                  | ..                       | 102        | 10                |
| 9..                 | 256         | 2               | 14               | ..                                  | 4                        | 80         | 16                |
| 10..                | 255         | 1               | 32               | 1                                   | 1                        | 117        | 15                |
| 11..                | 30          | 1               | 56               | ..                                  | 8                        | 29         | 11                |
| 12..                | 179         | ..              | 65               | 4                                   | 1                        | 219        | 11                |
| 13..                | 193         | ..              | 59               | ..                                  | ..                       | 96         | 11                |
| 14..                | 638         | ..              | 105              | ..                                  | 9                        | 306        | 11                |
| 15..                | 187         | 3               | 55               | ..                                  | 11                       | 25         | 14                |
| 16..                | 207         | 3               | 25               | ..                                  | 2                        | 30         | 11                |
| 17..                | 128         | 1               | 33               | 1                                   | ..                       | 83         | 13                |
| 18..                | 64          | 2               | 38               | 2                                   | 1                        | 95         | 16                |
| 19..                | 128         | 1               | 44               | 7                                   | 2                        | 336        | 19                |
| 20..                | 257         | 1               | 28               | ..                                  | 1                        | 133        | 15                |
| Av. <sup>f</sup> .. | 196         | 1 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 1 $\frac{1}{2}$                     | 2 $\frac{1}{2}$          | 118        | 15                |

<sup>a</sup>The weights of glandular meats are included in the "meat" column.

<sup>b</sup>Weights for fish are included in the "meat" column.

<sup>c</sup>The "fruit" column includes varieties of fresh, canned, and dried fruits.

<sup>d</sup>Varities of dried fruits are included in the "fruit" column.

<sup>e</sup>Eighteen families, consisting of 68 persons, reported on butter.

<sup>f</sup>Averages are given per family.

TABLE XIII -- CONTINUED

| Potatoes<br>(Lbs.) |     | Fruit <sup>c</sup><br>(Var.) | Dried<br>Fruit <sup>d</sup> | Whole<br>Cereal<br>(Lbs.) | Corn Meal,<br>Hominy,<br>and Grits<br>(Lbs.) | Butter<br>(Lbs.) | Sugar<br>(Lbs.) |
|--------------------|-----|------------------------------|-----------------------------|---------------------------|----------------------------------------------|------------------|-----------------|
| Ir.                | Sw. |                              |                             |                           |                                              |                  |                 |
| 61                 | 63  | 9                            | 2                           | ..                        | 6                                            | 13               | 20              |
| 25                 | 8   | 8                            | ..                          | 1                         | 11                                           | 11               | 40              |
| 17                 | 7   | 11                           | 2                           | ..                        | 1                                            | 6                | 17              |
| 52                 | 36  | 6                            | ..                          | 22                        | 7                                            | ..               | 58              |
| 14                 | 11  | 10                           | 1                           | ..                        | 5                                            | 4                | 33              |
| 43                 | 6   | 11                           | 5                           | 3                         | 3                                            | 4                | 30              |
| 10                 | 40  | 14                           | ..                          | 12                        | 24                                           | 9                | 14              |
| 27                 | 32  | 13                           | 1                           | 2                         | 2                                            | 2                | 33              |
| 22                 | 10  | 11                           | 3                           | 2                         | 10                                           | 8                | 37              |
| 11                 | 3   | 6                            | 2                           | 1                         | 6                                            | 15               | 28              |
| 41                 | 6   | 6                            | 1                           | 5                         | 3                                            | 8                | 24              |
| 32                 | 21  | 10                           | ..                          | 2                         | 5                                            | ..               | 26              |
| 17                 | 45  | 10                           | 2                           | ..                        | 3                                            | 7                | 37              |
| 15                 | 60  | 8                            | 2                           | 9                         | 37                                           | 29               | 54              |
| 23                 | 105 | 7                            | ..                          | 6                         | 10                                           | 13               | 37              |
| 6                  | 12  | 8                            | ..                          | 10                        | 8                                            | 4                | 15              |
| 17                 | 4   | 10                           | 2                           | 1                         | 3                                            | 4                | 18              |
| 6                  | 34  | 6                            | ..                          | 1                         | 4                                            | 14               | 26              |
| 17                 | 5   | 15                           | 1                           | 2                         | 3                                            | 16               | 58              |
| 10                 | ..  | 9                            | 4                           | 7                         | 16                                           | 6                | 16              |
| 49                 |     | 9 <sup>f</sup>               | 1 <sup>f</sup>              | 4                         | 8                                            | 2.5 <sup>e</sup> | 31              |

TABLE XIV  
SELECTION OF FOODS BY NON-CLUB FAMILIES

| Family Number | Milk (Lbs.) | Cheese (Lbs.) | Meat (Lbs.) | Glandular Meats <sup>a</sup> (Lbs.) | Fish <sup>b</sup> (Lbs.) | Eggs (No.) | Vegetables (Var.) |
|---------------|-------------|---------------|-------------|-------------------------------------|--------------------------|------------|-------------------|
| 1..           | 68          | ..            | 21          | ..                                  | 3                        | 86         | 14                |
| 2..           | 192         | ..            | 18          | ..                                  | 1 $\frac{1}{2}$          | 141        | 13                |
| 3..           | 64          | 1             | 13          | ..                                  | ..                       | 175        | 12                |
| 4..           | 98          | ..            | 52          | ..                                  | 5                        | 30         | 5                 |
| 5..           | 183         | ..            | 115         | 3                                   | 4 $\frac{1}{2}$          | 136        | 9                 |
| 6..           | 123         | 3             | 30          | ..                                  | 1-                       | 168        | 5                 |
| 7..           | 253         | 1             | 31          | 3                                   | 3.5                      | 245        | 11                |
| 8..           | 89          | 1             | 64          | 2                                   | ..                       | 150        | 16                |
| 9..           | 179         | ..            | 49          | ..                                  | ..                       | 313        | 9                 |
| 10..          | 104         | 1             | 47          | ..                                  | 1                        | 63         | 12                |
| 11..          | 242         | 1             | 37          | ..                                  | 3.5                      | 75         | 13                |
| 12..          | 65          | 3             | 40          | ..                                  | 1 $\frac{1}{2}$          | 60         | 10                |
| 13..          | 89          | ..            | 29          | ..                                  | ..                       | 113        | 16                |
| 14..          | ..          | ..            | ..          | ..                                  | ..                       | ..         | ..                |
| 15..          | 191         | ..            | 35          | ..                                  | ..                       | 205        | 6                 |
| 16..          | 230         | 1             | 40          | ..                                  | 2                        | 139        | 10                |
| 17..          | 193         | 3             | 37          | ..                                  | ..                       | 216        | 9                 |
| 18..          | 174         | ..            | 33          | ..                                  | ..                       | 183        | 7                 |
| 19..          | 255         | ..            | 44          | ..                                  | ..                       | 40         | 7                 |
| 20..          | 222         | 1             | 29          | ..                                  | 2 $\frac{1}{2}$          | 123        | 9                 |
| Av. f...      | 159         | 1-            | 40          | 1-                                  | 1 $\frac{1}{2}$          | 140        | 10                |

<sup>a</sup>The weights of glandular meats are included in the "meat" column.

<sup>b</sup>Weights for fish are included in the "meat" column.

<sup>c</sup>The "fruit" column includes varieties of fresh, canned, and dried fruits.

<sup>d</sup>Varities of dried fruits are included in the "fruit" column.

<sup>e</sup>Fifteen families, consisting of 55 persons, reported on butter.

<sup>f</sup>Averages are given per family.

TABLE XIV -- CONTINUED

| Potatoes<br>(Lbs.) |     | Fruit <sup>c</sup><br>(Var.) | Dried<br>Fruit <sup>d</sup> | Whole<br>Cereal<br>(Lbs.) | Corn Meal,<br>Hominy,<br>and Grits<br>(Lbs.) | Butter<br>(Lbs.) | Sugar<br>(Lbs.) |
|--------------------|-----|------------------------------|-----------------------------|---------------------------|----------------------------------------------|------------------|-----------------|
| Ir.                | Sw. |                              |                             |                           |                                              |                  |                 |
| 5                  | ..  | 8                            | 2                           | 20                        | 2                                            | 2                | 19              |
| 15                 | 8   | 7                            | ..                          | 3                         | 3                                            | 5                | 13              |
| 7                  | ..  | 5                            | ..                          | ..                        | ..                                           | 7                | 19              |
| 51                 | 57  | 4                            | 2                           | ..                        | 14                                           | 4                | 72              |
| 82                 | ..  | 5                            | 1                           | 3                         | ..                                           | 19               | 49              |
| 9                  | ..  | 5                            | 1                           | 4                         | 4                                            | 10               | 32              |
| 18                 | 3   | 7                            | 2                           | 10                        | 2                                            | 6                | 21              |
| 24                 | 30  | 11                           | 1                           | 6                         | 12                                           | ..               | 42              |
| 24                 | 72  | 11                           | 1                           | 7                         | 25                                           | 7                | 32              |
| 8                  | 30  | 9                            | 3                           | 6                         | 14                                           | 8                | 39              |
| 13                 | 11  | 7                            | 2                           | 1                         | 2                                            | 4                | 22              |
| 25                 | 2   | 5                            | 2                           | 1                         | 9                                            | 3                | 10              |
| 23                 | 4   | 4                            | ..                          | 1                         | 19                                           | 3                | 20              |
| ..                 | ..  | ..                           | ..                          | ..                        | ..                                           | ..               | ..              |
| 14                 | ..  | 4                            | ..                          | 3                         | 6                                            | ..               | 27              |
| 15                 | 2   | 5                            | ..                          | 1                         | 15                                           | 9                | 11              |
| 28                 | 3   | 7                            | 2                           | 2                         | 9                                            | 18               | 29              |
| 36                 | 4   | 4                            | ..                          | 9                         | 17                                           | ..               | 47              |
| 37                 | ..  | 3                            | 1                           | 15                        | 53                                           | ..               | 67              |
| 33                 | 4   | 9                            | 4                           | 2                         | 3                                            | 7                | 24              |
| 37                 |     | 8                            | 1-                          | 7                         | 11                                           | 6 <sup>e</sup>   | 31              |

pounds of liver and brains.

Eggs. -- The non-club group excelled the club group in egg consumption during the 30-day period. A total of 2,350 eggs were used by the club families, which was an average of 30 eggs per person, or one egg per person per day. A total of 2,661 eggs were used by the non-club group, which was an average of 36 eggs per person, or one and one-sixth eggs per person per day.

Vegetables. -- The greatest variety of vegetables other than potatoes used during the month was 22 and the smallest was five, which consisted of lettuce, greens, pinto beans, navy beans, and nuts. The club families had an average of 15 varieties and the non-club families had an average of 10 varieties. Twenty club families used 466 pounds of Irish and nineteen club families used 508 pounds of sweet potatoes, which gave an average of 13 pounds of Irish and sweet potatoes per person per month. In the non-club families, nineteen had 467 pounds of Irish and fourteen had 230 pounds of sweet potatoes, which gave an average of 9 pounds of Irish and sweet potatoes per person per month.

Fruit. -- All the families in both groups had fresh and canned fruits, and thirteen families in both groups had dried fruit during the month. The club group averaged nine varieties and the non-club group, eight varieties, for the 30-day period.

Whole cereals. -- The whole cereals or coarse cereals

used, other than corn meal, were whole wheat, malt-o-meal, oats, buckwheat, pop-corn, shredded wheat biscuits, canned wheat, and cracked wheat. All of the club families and all of the non-club families except two used corn meal, and sixteen club families and seventeen non-club families used one or more of the above-mentioned coarse cereals during the 30-day period. For the club group, the total was 167 pounds of corn meal and 86 pounds of other coarse cereals; and for the non-club group, the total was 209 pounds of corn meal and 130 pounds of other coarse cereals.

Sugar. -- The sweets consumed by both groups were mostly in the form of granulated sugar. Six hundred twenty-one pounds of sugar, preserves, jelly, corn syrup, and molasses were used by the club group, and 595 pounds by the non-club group, which gave an average of approximately eight and one-fourth and eight pounds, respectively.

## CHAPTER V

### DISCUSSION OF RESULTS

Several factors have been considered in this study, and the results show that there were more families in the club group with adequate diets than there were in the non-club group; but the non-club group exceeded the club group in the average per cent of home production of foods. There was very little difference in the per cent of total calories derived from carbohydrates, fat and protein in the two groups. The money value per man unit was five cents less in the non-club group than in the club group; this difference may be due to the larger use of fruits and vegetables by the latter. The families without children in both groups had better diets as a whole than the families with children.

For purposes of comparison and contrast, certain of the findings of this study will be presented, along with data concerning the diets of farm families in Denton County who have low incomes and who receive aid from the Farm Security Administration.<sup>1</sup> In a few instances, comparisons are made with data in Stiebeling and Phipard's study of diets of families of employed wage-earners and clerical workers in

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<sup>1</sup>Charlotte Kyle Clark, "A Dietary Study of Farm Families in Denton County on Low Income," Unpublished Master's Thesis, Graduate School, Department of Home Economics, Texas State College for Women, 1938.

cities.<sup>2</sup>

Percentage Distribution of Money Value  
Among Classes of Food

Among the club families, the highest per cent of the total money represented by the diet was allotted to vegetables and fruits; these items comprised approximately one-fourth of the total. The second highest class of foods with respect to money value was meat, which accounted for 15.4 per cent of the whole. Other classes of food listed in the order of their rank were milk, fats, cereals, sweets, accessories, and eggs. Among the non-club families, vegetables and fruits, and meats likewise ranked first and second; the percentage distribution for these items was 23.4 and 21.1, respectively. With the non-club families, however, fats ranked third, milk fourth, cereals fifth, sugar sixth, eggs seventh, and accessories eighth. In the diets of farm families of the Farm Security Administration, milk ranked first, vegetables and fruits second, cereals third, fats fourth, meat fifth, eggs and sweets sixth, and accessories seventh.<sup>3</sup>

Sherman recommends that the family food budget be divided into fifths, according to the following plan:

One-fifth, more or less, for vegetables and fruits.

One-fifth, more or less, for milk and cheese.

<sup>2</sup>Hazel K. Stiebeling and Esther F. Phipard, Diets of Families of Employed Wage Earners and Clerical Workers in Cities, Circular No. 507, United States Department of Agriculture, January, 1931.

<sup>3</sup>Clark, op. cit., p. 41.

One-fifth, or less, for meat, fish, and eggs.

One-fifth, or more, for bread and cereals.

One-fifth, or less, for fats, sugars, and other groceries and food adjuncts.<sup>4</sup>

Table XV presents a comparison of allocation of money among the classes of foods as observed in several studies, and also a comparison with the standard suggested by Sherman.

TABLE XV  
ALLOCATION OF MONEY VALUE FOR DIFFERENT TYPES OF FOOD

| Food                                                  | Club | Non-club | Farm<br>Security<br>Families | Stiebeling<br>and<br>Phipard | Sherman               |
|-------------------------------------------------------|------|----------|------------------------------|------------------------------|-----------------------|
| Eggs, lean<br>meat, poul-<br>try, fish...             | 1/5  | 1/3-     | 1/6-                         | 1/4-1/3                      | 1/5 or less           |
| Vegetables<br>and fruits..                            | 1/3  | 1/4-     | 1/5 <del>/</del>             | 1/5-1/4                      | 1/5 <del>/</del> or - |
| Milk and<br>cheese.....                               | 1/7- | 1/8      | 1/5 <del>/</del>             | 1/8-1/6                      | 1/5 <del>/</del> or - |
| Bread and<br>cereals.....                             | 1/11 | 1/10-    | 1/6 <del>/</del>             | ..                           | 1/5 or more           |
| All others<br>(fats, sug-<br>ars, and<br>accessories) | 1/5- | 1/4-     | 1/5-                         | ..                           | 1/5 or less           |

Of all groups represented, perhaps the Farm Security group followed the Sherman plan most closely. The greatest deviation of the group was in cereals, which had less than the

<sup>4</sup>Henry C. Sherman, Chemistry of Food and Nutrition (New York: Macmillan Company, 1937), p. 535.

suggested allotment. Club families followed the plan more closely than non-club families. The most striking variations were in vegetables and fruits, and milk. The first mentioned occupied a place of greater importance, and the two latter of less importance than indicated by the Sherman plan. There was a striking similarity in the money distribution of the non-club group and of the families studied by Stiebeling and Phipard with reference to eggs, lean meat, poultry, and fish; to vegetables and fruits; and to cheese.<sup>5</sup>

This study was made in the winter months when the cost of vegetables was high and when the production of vegetables was low. This fact affected the money value of vegetables contained in the diets of the families participating in this study. As shown in the table, milk and cheese ranked low in both groups. There are possibly two reasons for this fact: first, neither group had a sufficient amount of milk and cheese; and, second, the cost of the home-produced milk was calculated at 20 cents per gallon, which was probably lower than the cost computed by Sherman and by Stiebeling and Phipard. Bread and cereals were low in both groups, and here again the computed money value was lower than the retail price for these items; for home-ground meal, as used by most of the families, the cost was one cent a pound.

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<sup>5</sup>Stiebeling and Phipard, op. cit., p. 100.

Money Value and Comparison of the Per  
Cent of Food Produced

The money value of the diets of the club families was greater than that of the non-club families. For thirty days the average was \$35.97 for the club, \$32.44 for the non-club group, and \$31.54 for the Farm Security group.<sup>6</sup> The difference was also evident on the man unit basis. In club families, the average value of food per man unit per month was \$10.69, or \$0.35 per day; in the non-club families, \$8.92, or \$0.30 per day; and in Farm Security families, \$6.47, or \$0.21 per day.<sup>7</sup> The money value of food per person per day in Carpenter and Stiebeling's plan for a moderate-cost diet was \$0.44,<sup>8</sup> whereas in Stiebeling and Phipard's study of urban wage-earners and clerical workers in the East South Central group, the money value of the diet per person per day was found to vary from \$0.25 to \$0.38.<sup>9</sup> In the present study, the average per person per day was \$0.31 for the club group, and for the non-club group, \$0.27. According to Camp, a good diet could be secured in 1936 for a minimum cost of \$7.05 per person per month, or \$0.24 per day.<sup>10</sup> Perhaps the location of the various studies influenced the cost of the diets. Living costs in the South are possibly lower than in other sections of the country.<sup>11</sup>

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<sup>6</sup>Clark, op. cit., p. 39.

<sup>7</sup>Ibid., p. 43.

<sup>8</sup>Carpenter and Stiebeling, op. cit., p. 8.

<sup>9</sup>Stiebeling and Phipard, op. cit., p. 78.

<sup>10</sup>Camp, "Greater Rural People....,"

<sup>11</sup>Stiebeling and Phipard, op. cit., p. 81.

The per cent of home production in club, non-club, and Farm Security groups was strikingly similar; it varied from 54 to 59 per cent. The per cent for the non-club groups was greater than for the club, and almost the same as for the Farm Security group.

The reason for the smaller per cent of home production on the part of the club group is not readily apparent. Home production is probably given more emphasis in the Farm Security Administration than in the Extension Service program. A possible reason for the non-club group's having a higher per cent of production than the club group is that the non-club families living in Lampasas County had an average of 64.1 per cent, whereas the non-club families in Rockwall County had an average of 58.1 per cent, and those in Denton County had an average of 56.1 per cent. This higher per cent in Rockwall and Lampasas Counties raised the average for the non-club group in Denton County by 3 per cent. These differences in the per cent of home production may have been influenced by geographic conditions, climatic conditions, or the type of soil cultivated. Table XVI shows the per cent of food produced by the club group, the non-club group, and the Farm Security families.

TABLE XVI

## PER CENT OF FOOD PRODUCED

|                               |      |
|-------------------------------|------|
| Club group . . . . .          | 54.2 |
| Non-club group . . . . .      | 59.1 |
| Farm Security group . . . . . | 58.3 |

The average amount of home production was much less than might be desired in rural homes. Lola Blair states that "nearly 90 per cent of the family's food can be provided direct from the farm by following the 4-H pantry demonstration plan. The average family of five need spend less than \$100 yearly for food."<sup>12</sup> In the club group, family No. 18 produced 87.4 per cent of the food used, and was the only family in this group producing as much as 80 per cent of the food consumed. In this respect, non-club family No. 18 was likewise the highest in rank, with 84.6 per cent of the food produced at home. However, family No. 13 produced 80.8 per cent of the food at home. The smallest amount produced by a club family was 13.1 per cent of the food used, while the lowest per cent of food produced by a non-club family was 31.9. The limited amount of home production as evidenced in this study is probably very typical of the state as a whole, since,

According to the 1935 census, 24.2 per cent of Texas farmers have no milk cows; 15 per cent have no poultry; 42.9 per cent reported no gardens; and 83.5 per cent reported no orchards. Annual reports submitted by county home demonstration agents in 1937 from 39,000 farm women show that less than half of them reported having adequate home-produced supplies of milk, vegetables, eggs, lean meat; and less than one-fifth have adequate supplies of fruit.<sup>13</sup>

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<sup>12</sup>Blair, op. cit., p. 2.

<sup>13</sup>Jennie Camp, "Greater Rural People..."

### Comparison of Average Daily Nutrients

In calories, protein, calcium, phosphorus, and iron per man unit per day, the averages of the club group exceeded those of the non-club group. The averages of both groups were above the daily standards. The averages of the non-club group were remarkably similar to those of the families in Clark's study. All three groups of Texas farm families had diets superior in each of the five nutrients to the diets of the 400 families in the Stiebeling and Phipard investigations. A comparison of average daily nutrients per man unit in Table XVII shows that there was a difference of 988 calories between the daily averages per man unit of the club group and the non-club group, and a difference of only 26 calories between the non-club group and the Farm Security group. The protein value of the club group exceeded that of the non-club group by 12 grams;

TABLE XVII

#### COMPARISON OF AVERAGE DAILY NUTRIENTS PER MAN UNIT

| Nutrients       | Club     | Non-club | Farm Security Families <sup>a</sup> | Stiebeling and Phipard <sup>b</sup> |
|-----------------|----------|----------|-------------------------------------|-------------------------------------|
| Calories.....   | 4,436    | 3,448    | 3,422                               | 2,530                               |
| Protein.....    | 117 g.   | 105 g.   | 93 g.                               | 64 g.                               |
| Calcium.....    | 1.45 g.  | .95 g.   | .93 g.                              | .44 g.                              |
| Phosphorus..... | 2.39 g.  | 1.87 g.  | 1.75 g.                             | 1.07 g.                             |
| Iron.....       | 0.023 g. | 0.022 g. | 0.017 g.                            | 0.011 g.                            |

<sup>a</sup>Clark, op. cit., p. 43.

<sup>b</sup>Stiebeling and Phipard, op. cit., p. 98.

exactly the same difference existed between the non-club and the Farm Security families. There was a difference of .6 gram of calcium between the club and non-club group, and a difference of only .02 gram between the non-club and Farm Security group. A difference of .52 gram of phosphorus was shown between the club and non-club groups, and a difference of .12 gram between the non-club and Farm Security group. There is a very striking similarity between the average daily nutrients per man unit of the non-club and the Farm Security group, although records were kept in 1939 for the non-club group, and in 1938 for the Farm Security group. This fact indicates the possibility that the similarity may repeat itself from year to year.

#### Percentage Deviation from Standard

The percentage deviations from standard for the club and non-club groups and for the families under the guidance of the Farm Security Administration are given in Table XVIII on the following page.

Although the averages for all groups were above the standard, four club families had seven deficiencies, eight non-club families had eighteen deficiencies, and fifteen families from Clark's study had twenty-seven deficiencies. The greatest number of deficiencies in the present study was in calories; two families in the club group and seven in the non-club group were deficient in calories. The diets of six of

the 39 families included in the club and non-club groups were deficient in calcium, whereas Clark reported that the diets of six of the 26 families she studied were deficient in calcium. The diets of four of the 39 families studied were deficient in iron, whereas 10 of the 26 studied by Clark were deficient in this nutrient. This was the greatest deficiency in Clark's study, and may be due to the fact that the diets of the Farm Security families contained more milk and less vegetables and fruits than the diets of the other two groups. However, she states that the families who had the fewest nutrients below standard were the families who consumed the largest quantities of milk.<sup>14</sup> And six of the ten deficient in iron were deficient in nutrients other than iron.<sup>15</sup> Another possible

TABLE XVIII

## PER CENT DEVIATIONS OF NUTRIENTS FROM STANDARD

| Nutrients       | Club   | Non-club | Farm Security Families <sup>a</sup> |
|-----------------|--------|----------|-------------------------------------|
| Calories.....   | /47.7  | /14.8    | /17.6                               |
| Protein.....    | /67.1  | /49.5    | /68.2                               |
| Calcium.....    | /142.1 | /40.7    | /32.2                               |
| Phosphorus..... | /78.5  | /42.1    | /34.4                               |
| Iron.....       | /63.6  | /50.4    | /13.7                               |

<sup>a</sup>Clark, op. cit., p. 73.

<sup>14</sup>Clark, op. cit., p. 73.

<sup>15</sup>Ibid., p. 44.

explanation of the deficiency of iron in the diets of the Farm Security group is that 17.9 per cent of the total calories were derived from fats and oils, 11 per cent from sugar, and only 8 per cent from meats, fish, and eggs.<sup>16</sup> Three of the 39 families included in the present study were deficient in both protein and phosphorus, while Clark reported two out of 26 families deficient in both protein and phosphorus.<sup>17</sup>

#### A Comparison of Sources of Calories

Table XIX shows the per cent of calories derived from carbohydrates, fats, and proteins for the club, the non-club, and the Farm Security groups.

TABLE XIX  
COMPARISON OF SOURCES OF CALORIES

| Nutrients          | Club | Non-club | Farm<br>Security<br>Families <sup>a</sup> |
|--------------------|------|----------|-------------------------------------------|
| Carbohydrates..... | 49.7 | 51.0     | 52.3                                      |
| Fats.....          | 39.1 | 37.2     | 36.3                                      |
| Protein.....       | 11.1 | 11.6     | 11.4                                      |

<sup>a</sup>Clark, op. cit., p. 53.

The distribution of calories among carbohydrates, fats, and protein was remarkably similar in the diets, not only of

<sup>16</sup>Clark, op. cit., p. 66.

<sup>17</sup>Ibid., p. 44.

club and non-club families, but also of the Farm Security group. Approximately 50 to 52 per cent of the calories for all groups came from carbohydrates, 36 to 39 per cent came from fats, and 11.1 per cent from protein.

Comparison of the Adequacy of Diets of  
Families With and Without Children

Of the thirteen club families with children, the diets of two were inadequate in calories, two in calcium, and one each in protein, phosphorus, and iron -- a total of seven inadequacies. The diets of all seven club families without children were adequate in each of the nutrients. In the non-club group, eleven families had children. Among these, the diets of five were inadequate in calories, two each in protein and phosphorus, and three each in calcium and iron -- a total of fifteen inadequacies. Of the eight non-club families without children, only three showed any indication of inadequacies in diets -- two in calories and one in calcium. In club families with children the consumption of milk, meat, eggs, potatoes, and sugar decreased when compared with families without children, while the consumption of butter and whole cereals remained the same. Non-club families with children consumed more milk and butter than did those without children; likewise, club families with children consumed more meat and potatoes, and non-club families with children had more eggs and coarse cereals.

Taken as a whole, the families without children in both

groups had the best diets from a nutritive standpoint; and, of this group, the club families were shown to have diets more adequate in nutrients than those of non-club families.

Stiebeling and Phipard say that the composition of the family in their study did not determine any clear-cut differences in all food groups, but they reported that milk, meat, and fats definitely showed the influence of the family life. The amount of milk and grain products consumed was greater in families with children, while that of meat and fats was greater in families without children. Families with children reported lower consumption of sugar and potatoes.<sup>18</sup>

#### Standards of Extension Service

Table XX on the following page compares the amount of some specific foods used in the diets of the club and non-club groups with the amounts recommended by the Extension Service<sup>19</sup> and also with Stiebeling and Phipard's East South Central group.<sup>20</sup> A study of this table shows that the club and non-club groups followed the Extension plan more closely than did Stiebeling and Phipard's group. The club and the non-club groups met or exceeded the standard in eggs, butter, and sugar, but failed to meet the standard in milk, meat, potatoes, corn meal and possibly whole cereals used. Stiebeling and Phipard's group met or exceeded the standard in sugar only.

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<sup>18</sup>Stiebeling and Phipard, op. cit., p. 38.

<sup>19</sup>Jennie Camp, "Texas Food Standard."

<sup>20</sup>Stiebeling and Phipard, op. cit., p. 32.

An examination of the food selection practices of both groups included in this study showed that the club families selected a greater variety of fruits, vegetables, and cereals than did the non-club families. Club families were more conservative in the use of eggs and corn meal, but used larger quantities of the other classes of foods, together with more varieties of each. More milk and whole grain cereal and less sweets would have improved the quality of these diets in both groups.

TABLE XX  
COMPARISON OF AMOUNTS OF FOODS USED

| Foods                 | Club             | Non-club        | Extension<br>Service<br>Standards | Stiebeling<br>and<br>Phipard <sup>a</sup> |
|-----------------------|------------------|-----------------|-----------------------------------|-------------------------------------------|
| Milk (lbs.).....      | 51               | 40              | 86                                | 23.8                                      |
| Meat (lbs.).....      | 10 $\frac{1}{2}$ | 10              | 14                                | 7.4                                       |
| Eggs (no.).....       | 30               | 36              | 30                                | 34                                        |
| Potatoes (lbs.).....  | 13               | 9               | 14                                | 9.8                                       |
| Corn meal (lbs.)..... | 2                | 3               | 4.5                               | ..                                        |
| Butter (lbs.).....    | 2 $\frac{1}{2}$  | 2 $\frac{1}{2}$ | 1.33                              | 0.5                                       |
| Sugar (lbs.).....     | 8                | 8               | 5.8                               | 6.3                                       |
| Whole cereals (lbs.)  | 1                | 2               | 30 serv. <sup>b</sup>             | ..                                        |

<sup>a</sup>Stiebeling and Phipard, op. cit., p. 32.

<sup>b</sup>An average serving is about one-half cup.

Camp asserts: "Two big reasons why diets are poor are that many families haven't enough money to spend for food to buy a good diet; and that many families lack the ability to choose a good diet no matter how much money is available."<sup>21</sup>

<sup>21</sup>Camp, "Greater Rural People..."

The homemaker, in selecting food for the family diet, should remember that

The nutritive value of a food may lie chiefly in its quality as a builder of body structure or tissue, because of the protein or the minerals it contains. Or a food may be especially useful because it supplies vitamins or minerals needed for proper functioning of certain body processes. Or because of the fat, sugar, or starch a food contains, it may be valuable as a source of energy, expressed in calories. Some foods are outstanding for only one of these nutritive qualities, while others have a combination of them to offer.<sup>22</sup>

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<sup>22</sup>Carpenter and Stiebeling, op. cit., p. 5.

## CHAPTER VI

### SUMMARY

Calculations of the money value of the diets of the club and the non-club groups, made from records of food consumed in thirty days, showed that on the average the money value of the diets was ample for an adequate diet. The average cost of the diet in the club group exceeded that of the non-club group. Both the club and the non-club groups had a higher average money value for their diets than did the families included in the Farm Security group studied by Clark. The estimated value per man unit per day was \$0.35, \$0.30, and \$0.21, respectively, for the club, non-club, and Farm Security groups.

The average money distribution among the eight classes of foods was similar in the club and non-club groups in that vegetables and fruits ranked first and meats second. Legumes represented the smallest amount of the average total money value in the diets of both groups. The non-club group produced five per cent more of the food their families consumed than did the club group. The average per cent of home production was 35 to 30 per cent below the standard recommended by the Extension Service.

Although the average food consumption was more than

enough to meet the standard requirements for good nutrition, only 80 per cent in the club group and 56 per cent in the non-club group had diets in which all the nutrients studied were supplied in a sufficient amount. The most frequent deficiencies were in calories and calcium in both the non-club and the club groups. The families with children had more inadequacies in their diet than did families without children.

In the selection of food for the diets, the club families gave more emphasis to milk, meats, and vegetables and fruits than did the non-club families, whereas the non-club families used more whole cereals and eggs than did the club families.

Sixteen of the twenty diets of club families were adequate in all the nutrients studied. Three of the four inadequate diets studied were below the standard in only one nutrient, and the other was not inadequate in all nutrients. An average of more than one-fifth of the total money value of the diets was used for vegetables and fruits in the club group. This group used, on the average, fifteen different kinds of vegetables other than potatoes, and nine kinds of fresh, canned, or dried fruits during the month. Nineteen of the twenty club families had yellow or sweet potatoes during the month. The average milk consumption for this group was more than one pint per adult and one quart per child per day. These families had a greater average of fish, glandular meats, cheese, and potatoes than did the other families studied. The diets of the

club families without children were 100 per cent adequate in all the nutrients studied. The findings of this study indicate that families under the guidance of the Extension Service followed better practices and had a more adequate diet than those not under the guidance of the Extension Service.

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## APPENDIX

FRONT PAGE OF KITCHEN MEMORANDUM

Family No. \_\_\_\_\_

Name \_\_\_\_\_

Persons in family:

| Name | Age | Sex | Occupation |
|------|-----|-----|------------|
|      |     |     |            |

## MEMORANDUM, PAGES 1 TO 30

Day No. \_\_\_\_\_ Date \_\_\_\_\_

| Name of Food          | Amount | Cost |
|-----------------------|--------|------|
| Foods bought:         |        |      |
| Foods from pantry:    |        |      |
| Foods from garden:    |        |      |
| Other foods produced: |        |      |
| Gifts of food:        |        |      |

[illegible]

FORM FOR CALCULATING AMOUNT  
AND VALUE OF FOOD USED  
(Continued)

[illegible]

FORM FOR CALCULATING NUTRIENTS OF  
FOOD USED

Family No. \_\_\_\_\_

[illegible]

BUREAU OF HOME ECONOMICS SCALE EQUIVALENT  
NUTRITIVE REQUIREMENTS

1 = 3,000 calories, 70 grams protein, 0.68 gram calcium, 1.32 grams phosphorus, 0.015 gram iron, 6,000 units Vitamin A, 600 units Vitamin B, 150 units Vitamin C, and 600 units Vitamin G. (All vitamin units are Sherman units).

| Individuals by Age, Sex, and<br>Activity Groups | Energy | Protein | Calcium |
|-------------------------------------------------|--------|---------|---------|
| Child under 4 years.....                        | 0.40   | 0.70    | 1.50    |
| Boy, 4-6; girls, 4-7 years.....                 | 0.50   | 0.80    | 1.50    |
| Boy, 7-8; girl, 8-10 years.....                 | 0.70   | 1.00    | 1.50    |
| Boy, 9-10; girl, 11-13 years.....               | 0.80   | 1.10    | 1.50    |
| Boy, 11-12; girl, 14-19 years.....              | 0.83   | 1.10    | 1.50    |
| Boy, 13-15 years.....                           | 1.00   | 1.10    | 1.30    |
| Boy, 16-19 years.....                           | 1.20   | 1.10    | 1.30    |
| Woman, 20-60 years: City, village....           | 0.83   | 1.00    | 1.30    |
| Farm.....                                       | 0.90   |         |         |
| Woman, 60-74 years: City, village....           | 0.75   | 1.00    | 1.00    |
| Farm.....                                       | 0.80   |         |         |
| Woman, 75 years and over.....                   | 0.70   | 1.00    | 1.00    |
| Man, 20-60 years: City, village.....            | 1.00   | 1.00    | 1.00    |
| Farm.....                                       | 1.30   |         |         |
| Man, 60-74 years: City, village.....            | 0.83   | 1.00    | 1.00    |
| Farm.....                                       | 0.90   |         |         |
| Man, 75 years and over.....                     | 0.75   | 1.00    | 1.00    |

[illegible]