A nutrition investigation of Negro tenants in the Yazoo Mississippi Delta

Dorothy Dickins

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A NUTRITION INVESTIGATION OF NEGRO TENANTS IN THE YAZOO MISSISSIPPI DELTA
BY DOROTHY DICKINS

Mississippi Agricultural Experiment Station
A. & M. COLLEGE, MISSISSIPPI
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A NUTRITION INVESTIGATION
OF
NEGRO TENANTS IN THE YAZOO-MISSISSIPPI DELTA

BY DOROTHY DICKINS

INTRODUCTION

The question of food consumption is receiving more attention today than ever before. This is, of course, due to the fact that each year brings more evidence of the very close relation of food to health. In Mississippi negroes make up about 58 per cent of the farm population. Therefore, a knowledge of the amount, kind, and quality of food consumed by these people is of vital importance.

Since the question of food consumption is so closely allied to that of health, in it, perhaps, lies one explanation at least, for the high death rate and lack of endurance found among negroes.

Popular ideas about the diet of the negro are usually made up of a combination of fact and fancy. Only by accurate observations and studies of food actually used in typical homes is it possible to say whether or not a people are adequately fed. From time to time such studies have been conducted among whites. Very few have been conducted among negroes. In fact, it is impossible to find an account of any recent food consumption studies made among them.

Among the few studies which have been conducted are those of Dr. W. O. Atwater. Descriptions found in his Alabama study would apply as far as a few points are concerned to negroes of to-day. However, such statements as, "In the country practically all negroes live in cabins, generally built of logs, with only one or at the most two rooms. Cooking is nearly always done over the open fire. Only two of the families visited had stoves," do not picture conditions as they now exist. In fact, many changes have been made since the Atwater studies.

A general improvement in diet is not the least of these changes. The negroes of today certainly have more to eat than the combination of salt pork, cornmeal, and molasses described by Atwater in his Alabama study.

In the light of these facts, it seems that a knowledge of dietary conditions as they now exist among negroes of Mississippi is needed. Such was the objective of the project which is discussed in this bulletin.

1 Miss Ernestine Frazier, an assistant in the department, made the calculations in this study.
DESCRIPTION
OF AREA SELECTED

In the area, known as the Yazoo-Mississippi Delta, the negro constitutes about 85 per cent of the farm population. For this reason, it is often called the "black belt" of Mississippi.

The Yazoo-Mississippi Delta is a strip of territory about one hundred and fifty miles in length. Its entire western border is washed by the Mississippi river and most of its eastern border by the Yazoo river. Nine counties lie wholly within its area.

One has well written that, "Nature knows not how to compound a richer soil. It can no more lie idle than the sea can keep still. Every square foot of it riots in vegetable life."

The plantations in this section vary from a few hundred acres to several thousand. On some of these the proportion of negroes to whites runs as high as 100 to 1. The great staple crop of this area is cotton. In the cultivation of cotton the Delta has nearly every system of land tenure to be found in the South, though cropper labor is most common.

Fig. 1.—The Delta produces cotton in such abundance that a tenant with only a few acres of land must have the help of his entire family in gathering the crop.

In the usual agreement, the cropper furnishes his labor in planting, cultivating, and gathering the crop; the land owner furnishes the
land, the team, the implements, and the seed. The cost of the fertilizer is shared equally. The planter advances to the cropper such supplies or cash as are needed during the year, to be paid for out of the latter's half of the crop.

OF SUPERVISORS SELECTED

Four typical counties, Bolivar, Coahoma, Quitman, and Sharkey, were selected. Two intelligent negro women in each of these four counties were employed to supervise the food consumption studies. These studies were then located on the plantation on which these women lived. Emphasis was placed on the selection of the supervisor, for in her hands largely rests the success or failure of a study of this nature.

This method not only gave good supervisors but as varied types of plantations, as far as size, methods of operation, and settlement are concerned, as could be obtained.

OF METHODS USED IN ENROLLING FAMILIES

Before taking any steps to enroll families the plans and purposes of the study were explained to the planter who in no case objected to a study taking place on his plantation.

Instead of the usual house to house canvass used in enrolling white families, the newly appointed supervisor was asked to call together all the housewives living on the plantation. At this meeting the purpose of the study was explained.

The study was presented to this group in the form of a health project. It was approached from two angles: (1) the needs and benefits of such a study, and (2) what was expected of the families who enroll.

Through a talk built around these two points and based on negro psychology, it was possible to create a desire to enroll in the minds of every housewife present. Only those families who had at least one member who could read and write were enrolled. This was not necessarily the housewife. In some cases it was the husband, in other cases a fifteen year old boy or a married daughter.

Only ten families were enrolled on each plantation. This number was about all one woman could carefully supervise.

Eight food consumption studies located on two plantations in each of four counties, including eighty typical negro families, were started in February of 1927. This time was thought to be best as it came after the cotton picking season and at the beginning of the cultivating season. A study of one month's duration was planned rather than four shorter periods distributed throughout the year. The transitory habits of negro tenants would make a study distributed throughout the year very impracticable.

OF FAMILIES SELECTED

There are two busy seasons on the Delta plantation, the time of planting and cultivating the cotton, which begins in March and ends in July, and cotton picking time which begins in August and usually ends in November. Men and women, old and young, even the little
children, are pressed into work during these rush seasons. The rest of the time is largely devoted to visiting, social life, revivals, or even absolute idleness. A negro home demonstration agent writes, "there are two classes of rural women, one an idle set who fish and visit neighbors; another, a thrifty set who piece quilts, sew, and improve their homes."

Even during rush seasons the women manage to get to town about once a month. The men usually go more often. In every Delta town there are a number of stores that cater to this trade, that sell everything from fried fish sandwiches and bottled drinks to blue jean shirts.

Fig. 2.—A well constructed and neatly kept home of the two-room type.

**COMPOSITION**

Table 1—Comparison of size of negro families enrolled in this study with white families in a similar study. 1

<table>
<thead>
<tr>
<th>Size of Families</th>
<th>Number of Families</th>
<th>Number of Members included in these families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Negro</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

1 Data from this study is to be compared throughout this bulletin with data obtained from a similar study conducted in 1926 among white people living in the Brown Loam and Short Leaf Pine areas of Mississippi [9]. The terms negro and white although not strictly comparable will be used. This is the usual terminology observed in the South.

8
White families were on the whole, larger than negro families. Higher death rate among negroes would partly account for this difference. The average negro family was composed of 4.5 members. This corresponds closely with average found by Kirkpatrick [30] that of 4.7 members.

Table 1 includes parents, sons, and daughters who were at home. The dietary studies also include twenty-six relatives sheltered in these homes. Twelve of this number were orphaned children or children with only one parent. The majority of negro homemakers will usually find a place for another child, will accept him, and treat him as one of their own.

This makes a total of 386 people included in the study.

Table 2.—Ages of husbands, wives, and children.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Husbands</th>
<th>Wives</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>Number</td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>under 5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5-9</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10-14</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>15-19</td>
<td>—</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>20-29</td>
<td>10</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>30-39</td>
<td>20</td>
<td>28</td>
<td>—</td>
</tr>
<tr>
<td>40-49</td>
<td>22</td>
<td>20</td>
<td>—</td>
</tr>
<tr>
<td>50-59</td>
<td>12</td>
<td>6</td>
<td>—</td>
</tr>
<tr>
<td>60-69</td>
<td>6</td>
<td>1</td>
<td>—</td>
</tr>
</tbody>
</table>

There were more children in the 5-9 year group. This was the case in the study of whites. More wives were 40 years of age and over in the study among white people than in the study among negroes. This is perhaps due to early marriage among negroes. Colored girls usually marry before the age of twenty years. Ten of the eighty homes studied had no husband. In some cases he was dead, in others he had deserted his family.

FINANCIAL STATUS AND LIVING CONDITIONS

THE HOME

On the Delta plantation the one-room cabin is not in evidence. It disappeared many years ago. Where it once stood, rests a house containing, usually three rooms, two bedrooms and a kitchen. A number of homes are painted, but the majority are white-washed. Practically every home has a few flowers, though often, only castor plants or sunflowers. In the competition for labor, the laborer’s homes are being constantly improved.
Fig. 3—A glimpse into the bedroom of a negro farmer's home. The phonograph is often found here for negroes are music lovers as well as musical.

As to the interior, one of the negro home demonstration agents writes, "The average home has only the furniture they cannot do without, such as beds, chairs (usually not more than four), possibly a dresser and wash-stand, more often a dresser than a wash-stand. It is a rare case to find books. Few take a monthly paper. Most of the houses are papered with newspapers which are bought by solicitor. Magazines are used for pictures only. Many of these are pasted on the walls of the homes. The women have learned through club work to make inexpensive rugs from discarded stockings and clothing. Aside from these, there are no rugs. Nine out of every ten have no window shades. All have some kind of curtains."

The food is prepared and eaten in the kitchen. Here one generally finds a stove, a table, a few chairs, and several shelves on which dishes and utensils are kept. A number of homes under the influence of extension workers have home-made kitchen cabinets. Three meals: breakfast, dinner, and supper are served during work seasons. At other times only two meals, breakfast and dinner are served in the majority of homes.

On the whole, the average negro does not keep his home as clean as the average white person. One of the negro home demonstration agents states, "about two-thirds of our people keep their homes as clean as they know how to." Of course, many have low standards of
cleanliness. In making any statements, one should take into consideration the poor facilities for keeping clean in the average negro home. Running water and sewerage connections are unknown luxuries.

**THE TENANT SYSTEM**

Before the late war, every planter had his commissary from which certain staple supplies were issued at stated intervals. Money was earned to purchase articles not carried by the commissary by doing odd jobs for some white man or through sale of home raised products and wild fruits and nuts.

Right after the late war, there was a general exodus to the northern states. In order to hold old labor and get new labor many changes were made in pre-war methods of management. The old commissary system as formerly operated was entirely done away with. Many advanced cash altogether. A number made little changes in their commissary but advanced some cash for purchasing articles not handled by the commissary. Others continued their commissary as formerly operated but added additional supplies to their stock. Three plantations included in this study operate on the first plan, one on the second, and four on the third.

If the negro makes more than his expenses, it is generally spent by February. Therefore, February finds him without money or help from the landlord, for supplies or cash are usually cut off between working seasons 1. Supplies or their equivalent in cash are issued March 1, which generally begins the working season. Therefore, the food studies conducted partly in February and partly in March, show conditions as they exist during both periods.

Table 3.—Acreage operated, production of cotton and corn, value of home raised products sold, and gross income—averages per family.

<table>
<thead>
<tr>
<th>Plantation Number</th>
<th>Acreage Operated</th>
<th>Cotton Produced</th>
<th>Corn Produced</th>
<th>Value of Products Sold</th>
<th>Gross Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acres</td>
<td>Bales</td>
<td>Bushels</td>
<td>Dollars</td>
<td>Dollars</td>
</tr>
<tr>
<td>1</td>
<td>23.37</td>
<td>18.4</td>
<td>147.6</td>
<td>$7.60</td>
<td>$45.61</td>
</tr>
<tr>
<td>2</td>
<td>23.90</td>
<td>9.7</td>
<td>42.0</td>
<td>$6.70</td>
<td>$43.16</td>
</tr>
<tr>
<td>3</td>
<td>13.30</td>
<td>9.0</td>
<td>13.5</td>
<td>$.50</td>
<td>$45.81</td>
</tr>
<tr>
<td>4</td>
<td>21.90</td>
<td>13.3</td>
<td>58.7</td>
<td>$2.80</td>
<td>$58.79</td>
</tr>
<tr>
<td>52</td>
<td>27.90</td>
<td>17.6</td>
<td>148.0</td>
<td>$5.00</td>
<td>$82.18</td>
</tr>
<tr>
<td>6</td>
<td>28.45</td>
<td>12.0</td>
<td>187.5</td>
<td>0</td>
<td>$582.37</td>
</tr>
<tr>
<td>7</td>
<td>26.00</td>
<td>9.8</td>
<td>140.5</td>
<td>$30.89</td>
<td>$518.24</td>
</tr>
<tr>
<td>8</td>
<td>26.80</td>
<td>7.9</td>
<td>117.5</td>
<td>$4.10</td>
<td>$382.11</td>
</tr>
<tr>
<td>Average</td>
<td>24.06</td>
<td>12.21</td>
<td>106.91</td>
<td>$7.20</td>
<td>$579.21</td>
</tr>
</tbody>
</table>

The income figures were obtained by taking half of the value of the previous year's crop after one half of the cost of the fertilizer had been deducted. This method, of course, gives more or less approximate

---

2 Two renters included on this plantation.
1 There are a few planters who do not stop advancing supplies the year around but carry all credits and charges on the books until the date of settlement at the end of the year.
figures, for in many cases extra money was earned by day labor; in a few cases money was deducted to pay for additional help during rush seasons. Yet, these figures probably serve their purpose, that of giving a fairly accurate picture of the financial status of eighty negro families: 78 croppers and 2 renters.

One may then sum up the financial status of the average negro family as a family of four, with a home, twenty-four acres of land, the privilege of raising a large part of their food stuff on this farm, fuel to be had for the cutting, and around fifty dollars a month from sale of crops. From this fifty dollars interest on money or supplies advanced and a half of the marketing expense of the crop must be paid. That this condition is not better is usually attributed to two facts: (1) the negro as a rule is not an efficient farmer, (2) he does not remain long enough in one place "to gather moss."

**OF TIME SELECTED**

This study was conducted in February and March for these months would (1) show diets of negroes when they were being supplied as well as when supplies were cut off, (2) would bring out the typical winter diet as well as the early spring diet.

A few of the families had gardens at the time of the study, for February and March were unusually warm. Fortunately, the study was over before the Mississippi levee broke, for five of the eight plantations were either flooded or surrounded by water.

At this transition period, from one season to another, one should get a fairly good picture of average dietary conditions.

**METHODS**

**FOR CONDUCTING STUDY**

The supervisor visited the housewife, placed a pair of hanging spring scales in her kitchen, and weighed all foods on hand, both solids and liquids. She, then, recorded food with quantity on Inventory Blank.

The housewife or person who had agreed to keep the records was given a note book with pencil attached for keeping a daily record of additions made to the food supply for a period of one month. Each page of the note book contained the following blank form to be filled out:-
FIG. 4—DAILY RECORD

<table>
<thead>
<tr>
<th>Amount</th>
<th>Cost</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornmeal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cane syrup (kind)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn syrup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt pork</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh pork</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sausage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mustard greens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Peas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irish Potatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canned Tomatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnip greens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other foods:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Quantity</td>
<td>Cost</td>
</tr>
</tbody>
</table>
On her daily visits to the family, the supervisor checked over these note books and copied contents to the "Daily Food Record" and "Meals Served" blanks. The note book was used because: (1) one note book seemed less formidable than a stack of blanks, (2) there was less danger of a note book being misplaced.

During the third week of the study a record of menus served was kept. At the end of the study, the supervisor took another inventory. At this time, she filled out the "Family Record" and "General Information" (as to number of hens, cows, etc.) forms.

This simplified method of record keeping and the daily visits of the supervisors were probably the two factors that made possible such a study. The fact that all families enrolled in this study completed it, shows the interest felt.

**FOR CALCULATING ENERGY AND NUTRITIVE VALUES**

The long method based on Sherman figures [56] was used for calculating the energy and nutritive values of dietaries. The value of cooked foods was obtained by preparing with methods most generally used by the Delta negro and then calculating value of a pound of the cooked products. In figuring the records, 10 per cent was deducted for plate scraps.

A double scale [19] was used in estimating the food requirements of each family. In this scale provision is made for the relatively greater need for protein and mineral of the growing child.

Table 4.—Double scale 1] for calculating the energy, the protein, and the mineral needs of a family 2].

<table>
<thead>
<tr>
<th>Age of Ind.</th>
<th>Degree Of Activity</th>
<th>Energy scale 3</th>
<th>Protein and Mineral Scale 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Over 60</td>
<td>Active</td>
<td>1.0</td>
<td>.7</td>
</tr>
<tr>
<td>18-60</td>
<td>Active</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>15-18</td>
<td>mod. active</td>
<td>1.2</td>
<td>.9</td>
</tr>
<tr>
<td>11-14</td>
<td>mod. active</td>
<td>.9</td>
<td>.9</td>
</tr>
<tr>
<td>6-10</td>
<td>mod. active</td>
<td>.7</td>
<td>.7</td>
</tr>
<tr>
<td>Under 6</td>
<td>mod. active</td>
<td>.4</td>
<td>.4</td>
</tr>
</tbody>
</table>

1. This scale has been changed since this bulletin was written. See [22].
2. The standard is based on the energy, protein, and mineral requirements of a moderately active man weighing 150 pounds.
3. 1.0 equals 3,000 calories.
4. 1.0 equals 75 grams protein; 0.69 grams calcium; 1.3 grams phosphorus; and 0.015 grams of iron.
5. Female over 60 counted as moderately active.

By the use of the double scale it was found that the average family's energy need was equivalent to 4.319 adult male units, and its protein and mineral need to that of 4.712 adult male units. The persons included in this calculation differ somewhat from those included in the number per average family.
FOR VALUING FOOD

A record of the cost of all foods purchased was kept. Home raised products were priced at average retail selling cost found in the stores of the nearest town where these families shopped. For those foods not offered for sale by these stores, the average selling cost found in mail order catalogues was used. This method was used as it gave a good basis for comparison of the value of foods purchased with those furnished by the farm.

No record was kept of those products without food value, such as salt, coffee, tea, soda, flavoring, etc. Thus, the cost figures per man per day obtained for this study are slightly lower than is actually the case.

RESULTS

Records of food consumption for one month were obtained from eighty families, as was planned.

ENERGY AND NUTRITIVE VALUE OF DIETARIES

Table 5.—Value of the average diet in food consumption studies conducted among negro and white families in terms of energy, protein, calcium, phosphorus, and iron compared with a standard of optimum requirements.

<table>
<thead>
<tr>
<th>Study</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Phosphorus</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calories</td>
<td>% of Standard</td>
<td>Grams</td>
<td>% of Standard</td>
<td>Grams</td>
</tr>
<tr>
<td>Standard</td>
<td>3000</td>
<td>100</td>
<td>75</td>
<td>100</td>
<td>0.69</td>
</tr>
<tr>
<td>Negro Study</td>
<td>2803</td>
<td>95</td>
<td>64</td>
<td>85</td>
<td>0.53</td>
</tr>
<tr>
<td>White Study</td>
<td>3223</td>
<td>107</td>
<td>79</td>
<td>105</td>
<td>1.12</td>
</tr>
</tbody>
</table>

1. This was only resorted to in case of two or three foods, for the small variety of food raised by the negroes was generally carried by the stores of the nearest town.
Fig. 5.—Percent of the total number of records from negro and white families which were 10 per cent or more below standard in energy, in protein, in calcium, in phosphorus, and in iron.
The dietaries of negro tenants in the Yazoo-Mississippi Delta were much lower in energy value and in the 4 nutritive factors than those of white people from the Brown Loam and Short Leaf Pine Areas of Mississippi. This was especially true in respect to calcium.

How can the marked difference in dietaries of these two groups be accounted for? Money value of food consumed amounted to fifteen cents more per man per day for the whites. 74 per cent of the food in the white dietaries came from the farm, whereas only 44 per cent of the food in the negro dietaries came from the farm. This means that the negro spent more in actual cash for food than did the white man. Thus, the poor diet of the negro does not seem to be altogether due to lack of supplies or cash for purchasing food. An explanation for this difference seems to lie, rather, in the fact that the white man raises more food on the farm. This means that if the negro had raised as much food as the white man, and if he had used the same amount in cash for supplementing this food supply, that he would have been as well if not better fed than the white man.

The majority of negroes plant, at least, three or four vegetables during the year. However, few produce even half of the needed supply. Many planters state that they have had the gardens of their tenants moved into the field because: (1) a garden in the field is more likely to be worked, (2) a garden spot around the house calls for a fence which is soon torn down to supply wood for the family. A partly torn down fence gives a neglected air to the otherwise carefully laid out plantation. On the other hand, a number of negroes claim that planters discourage the planting of a garden, for they desire this land for raising cotton.

These two explanations are also offered for the small number of milk cows owned by Delta negroes. Perhaps both groups are right. In some cases the small amount of food raised on the farm is doubtless due to negligence of the negro, in other cases, it is doubtless due to lack of vision on part of the planter.
Fig. 6.—Frequency distribution of energy in diets of negro and white families.
<table>
<thead>
<tr>
<th>Grams</th>
<th>Frequency Distribution of Protein in Diets Among Negroes and Whites</th>
</tr>
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<tbody>
<tr>
<td>30-40</td>
<td>10.0</td>
</tr>
<tr>
<td>40-50</td>
<td>13.8</td>
</tr>
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<td>50-60</td>
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<td>60-70</td>
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<td>80-90</td>
<td>10.0</td>
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<td>90-100</td>
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<tr>
<td>100-110</td>
<td>7.5</td>
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<tr>
<td>110-120</td>
<td>5.3</td>
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<tr>
<td>120 and Over</td>
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</table>

Fig. 7—Frequency distribution of protein in diets of negro and white families.
### FREQUENCY DISTRIBUTION OF CALCIUM IN DIETS AMONG NEGBOES AND WHITES

<table>
<thead>
<tr>
<th>Grams</th>
<th>Percent</th>
<th>Negroid Study</th>
<th>White Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>32.5%</td>
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<td></td>
</tr>
<tr>
<td>3-5</td>
<td>13.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7</td>
<td>4.0%</td>
<td></td>
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</tr>
<tr>
<td>7-9</td>
<td>6.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-11</td>
<td>2.4%</td>
<td></td>
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</tr>
<tr>
<td>11-13</td>
<td>6.2%</td>
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<td></td>
</tr>
<tr>
<td>13-15</td>
<td>3.8%</td>
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</tr>
<tr>
<td>15-17</td>
<td>3.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 and Over</td>
<td>8.7%</td>
<td>8.0%</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 8.—Frequency distribution of calcium in diets of negro and white families.
Fig. 9.—Frequency distribution of phosphorus in diets of negro and white families.
### Frequency Distribution of Iron in Diets Among Negroes and Whites

<table>
<thead>
<tr>
<th>Grams</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005-0.007</td>
<td>0.1</td>
</tr>
<tr>
<td>0.007-0.009</td>
<td>9.3</td>
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<td>0.009-0.011</td>
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<td>0.011-0.013</td>
<td>22.7</td>
</tr>
<tr>
<td>0.013-0.015</td>
<td>16.7</td>
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<tr>
<td>0.015-0.017</td>
<td>13.8</td>
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<tr>
<td>0.017-0.019</td>
<td>7.5</td>
</tr>
<tr>
<td>0.019 and Over</td>
<td>1.3</td>
</tr>
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</table>

**Fig. 10.**—Frequency distribution of iron in diets of negro and white families.
COMPARISON OF RESULTS WITH A SIMILAR STUDY CONDUCTED IN ALABAMA

In the latter part of the Nineteenth century a food consumption study was conducted among negroes living in Alabama. This was under the general direction of Dr. W. O. Atwater. Some of the families in this study were plantation laborers as were the Mississippi families. Therefore data from the Alabama study will be used for comparative purposes.

Only general comparisons can, however, be made, for the dietary scale used in the Atwater Study is from 5 per cent to 10 per cent below that of the scale used in this study. This is, however, offset by the fact that 10 per cent was deducted for plate scraps in this study whereas the figures reported in the Atwater study represented both food purchased and eaten. Therefore average figures as they now stand will be used in making some general comparisons of food consumption between these two groups.

The Alabama study included families who had been under the influence of Tuskegee as well as families in regions remote from such an influence. The energy in their daily food averaged 3,270 calories per man per day. Whereas the energy value of the Mississippi dietaries averaged 3046 calories 1 per man per day. The protein of the Alabama negroes averaged 62 grams per man per day. The protein of the Mississippi negroes averaged 66 grams per man per day. This means that they showed the same marked peculiarity that the Alabama dietaries showed—low protein.

One should not hastily conclude from these figures that the negro diet today is no better than it was in 1895. The fact that these figures tally so closely is due to the fact that a number of the families included in the Alabama study were thrifty land-owners and renters whose living conditions as far as food consumption was concerned, were as good as any negro of today. For instance, the father in one of the families included was a carpenter living near Tuskegee Institute. This family during a period of two weeks used the following foods: beef, mutton, chicken, bacon, lard, eggs, butter, milk, sugar, wheat flour, cornmeal, rolled oats, molasses, evaporated apples, and strawberries. Dietaries from people with better advantages would naturally raise the general average.

What of those families living in regions remote from the influence of Tuskegee? What of those families laboring on cotton plantations, that is, in a position similar to negroes included in the Mississippi study? An extract from a letter from one of the investigators of the Alabama study states, "Cornmeal is mixed with water and baked on the flat surface of a hoe or griddle. The salt pork is sliced thin and fried until very brown and much of the grease fried out. Molasses from cane or sorghum is added to the fat, making what is known as "sap," which is eaten with the cornbread. Hot water sweetened with molasses is

1| Figured on same basis as were the Alabama Dietaries.
Fig. 11.—Percentage distribution of energy and the four nutrients among the various food groups in food consumption studies conducted among negro and white families of Mississippi.
used as a beverage. This bill of fare is used in most of the cabins on the plantations of the “Black Belt” three times a day during the year.” In no case was the food supply of the Mississippi negro so limited.

Table 6.—The distribution of energy 1 among the various food groups in food consumption studies among negro and white families compared with standard of good nutrition suggested by Rose [52] for very economical dietaries.

<table>
<thead>
<tr>
<th>Study</th>
<th>Meat, eggs cheese</th>
<th>Milk</th>
<th>Cream</th>
<th>Fatty Foods</th>
<th>Sweets</th>
<th>Cereals and Bread</th>
<th>Fruits</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td>Percent of total calories</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>5.10</td>
<td>20-25</td>
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<td>10.12</td>
<td>10.12</td>
<td>30-40</td>
<td>12.15</td>
<td></td>
</tr>
<tr>
<td>Negro Families</td>
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<td>8.7</td>
<td></td>
<td>20.6</td>
<td>11.5</td>
<td>41.2</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>White Families</td>
<td>7.0</td>
<td>19.4</td>
<td></td>
<td>18.5</td>
<td>12.0</td>
<td>33.5</td>
<td>7.2</td>
<td></td>
</tr>
</tbody>
</table>

1] A record of the amount of milk brought in each day and the amount of whole milk, buttermilk, skim-milk, butter, and cream sold, given away, or fed to animals was kept. The milk group therefore contains milk products as well as milk. Large quantities of cornbread made with buttermilk, and often eggs were fed to animals in study among white people. This was deducted from the cereal group.

As will be noticed later in this report 47 1/2 per cent of the families owned milk cows. Twice this number of white families owned them. Milk did not appear on 12 1/2 per cent of the negro records. This means that not even an ounce of milk was used in ten of these homes during the month of the study. In a number of cases only a pint, quart, or half gallon given by a neighbor was used. With such a condition, is there any wonder that milk furnished only 8.7 per cent of the calories? Is there any wonder that these dietaries were found deficient in so many of the necessary factors?

As the study was conducted during egg season, egg consumption was undoubtedly higher than usual. In fact, the use of eggs was nearly as great as that of meat, fish, and poultry combined. At that, it averaged only 2 1/2 eggs per family per day.
Meat consumption in the home of the average tenant is doubtless low at all times. Yet, planters say, "Our negroes eat too much meat." The negroes themselves say, "We eat too much meat." How can these, seemingly, conflicting statements be explained? When using the word meat, the planter or negro means, salt pork. What they should say is, "Negroes eat too much fat." This would better state the case.

Meat need not necessarily furnish a high proportion of the calories to give an adequate dietary. Indeed, an adequate dietary can be built around extremely small quantities of food from this group, in which case care must be taken to provide right proportions of the other food groups. Such provision was not made by these families.

Diets, as low in milk and meat as these, will perhaps explain the prevalence of pellagra in the Delta and among negroes in particular. Those advocating the Goldberger theory would say because of small quantities of fresh milk and meat these diets had very little of the P-P factor, whereas, those advocating the infection theory would say that organisms group and multiply in the intestines of people on such carbohydrate diets as these.

It is interesting to note that white people and negroes used about the same amount of flour and cornmeal per family per week. The higher proportion of calories furnished by cereals in the negro study is due to two facts: (1) the white people had a greater variety and amount of other foods; (2) the white people fed large quantities of biscuit and cornbread to animals.

As with white people, flour consumption was higher than cornmeal consumption. Mississippi people, whether they be white or black like biscuit. Flour is one of the staples issued by every commissary.
Fig. 13.—A pellagra patient from the Mississippi Delta. Notice the "gloved" hands, "neckless," and ulcerated mouth. She had been under treatment one week when picture was taken.
An average of .075 pounds of baker's bread per family per month was used. This means that it is not yet a common food in the diet of the negro tenant.

The use of whole grained cereals is important in a dietary where more than one fourth of the calories come from the cereal group. Yet, whole wheat flour was not used by a single family. An average of about one ounce of oatmeal per family per week was used. A part, at least, of the large quantity of refined cereals should be replaced by whole grained cereals, as whole grained cereals are richer in minerals and vitamins.

Only 5.3 per cent of the calories came from the fruit and vegetable group, which was less than half the minimum recommended by Rose for low cost dietaries. At the time of the study, many of these negro families had used up their supply of sweet potatoes. This was not true in the February Study among white families of the Brown Loam and Short Leaf Pine Areas. The rural whites of these two areas usually raise enough sweet potatoes to last well into spring. Chiefly, because of the difference in the use of potatoes; and sweet potatoes in particular a lower proportion of calories were furnished by fruits and vegetables than in the food consumption study among white people.

The large proportion of calories furnished by sweets was due to the amounts of cane syrup used. Negroes like molasses and eat a great deal of it especially in fall, winter, and early spring.

Negro dietaries seem to have two distinct characteristics, low protein content and high fat content. Fats furnished over one-fourth of the calories in these negro dietaries. A diet so largely made up of lard and salt pork would explain a number of the deficiencies.

The results of this dietary study conducted among negro tenants were similar in a number of respects to the results of the dietary study conducted among white people in Mississippi. For instance, meats, fruits, and vegetables were low in both studies, whereas fats and cereals were fairly high in both studies. The main difference in these dietaries was in the use of milk. The large amount of milk used by the white man resulted in a much better diet for the white man, a diet containing more protein, calcium, and phosphorus than that of the negro.
Table 7.—Average quantity of some common foodstuffs consumed during one month by 80 negro families and 100 white families.

<table>
<thead>
<tr>
<th>Kind of Food</th>
<th>Average amount per Adult—male unit</th>
<th>Kind of Food</th>
<th>Average Amount per Adult—male unit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Negro families</td>
<td>White families</td>
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</tr>
<tr>
<td></td>
<td>Pounds</td>
<td>Pounds</td>
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<tr>
<td>Flour</td>
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<tr>
<td>Rice</td>
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<tr>
<td>Oatmeal</td>
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<tr>
<td>Bread</td>
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<tr>
<td>Cornmeal</td>
<td>9.52</td>
<td>8.08</td>
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<tr>
<td>Sugar</td>
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<tr>
<td>Cane Syrup</td>
<td>4.90</td>
<td>3.89</td>
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<tr>
<td>Jelly and Preserves</td>
<td>.16</td>
<td>.96</td>
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<tr>
<td>Lard</td>
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<td>Salt Pork</td>
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</table>

Because of difference in the amount of edible food fed to animals, such a list serves mainly as a basis for general comparisons.

Only nine foods—flour, rice, cornmeal, cane syrup, lard, salt pork, fresh fish, dry peas, and cabbage, of the thirty-two listed, were used in more generous quantities by negroes. Rabbit appeared on ten out of the eighty negro records. The negroes in one study used more rabbit and fresh fish that were used by the white people during the entire year of their study. O'possum appeared on one negro record. This meat was not used by white people.

As practically all foods which build muscle, promote growth, and regulate body processes were used in greater quantities by the white people a discussion of the use of any of these foods would be favorable to the whites.

The greatest difference found in the use of any food, was that found in the use of milk. White families used about three times as much milk as negro families.

**DISCUSSION OF VITAMIN CONTENT OF DIETARIES**

The human body requires more than protein, fats, carbohydrates, and mineral elements. A generous supply of vitamins is essential as well. Within the next few years quantitative figures on vitamin content of food-stuffs will probably be made available. At the present time, it is possible to draw only a few general conclusions as to vitamin content in a dietary.

A diet composed as largely of cereals and fats, as are the diets of these negro tenants, is very apt to be deficient in vitamins.

These dietaries furnished on the average per man per day basis.
around one cup of milk (part of which was buttermilk), one half an egg, and one ounce of leafy vegetable. This, of course, meant that a great number were deficient in vitamin A. Is this by any chance, one reason why negroes are so susceptible to tuberculosis?

Vitamin B is very widely distributed in nature and yet in dietary so largely composed of refined cereals and fats, it seems probable that a number were deficient in this vitamin.

As has been previously stated, these studies were conducted in February and March. There are seasons in Mississippi in which a generous milk, vegetable, and fruit supply is more easily obtained. Thus, the vitamin content of these dietary was perhaps lower than it would have been two or three months later. The February and March season did not show dietary conditions at their best nor at their worst. At the time of the study a few of the families had a spring garden containing turnip greens and onions, and a number had hens that were laying ten or twelve eggs a day. The majority were using large quantities of pure cane syrup.

A liberal supply of milk, whole grained cereals, fruits, and vegetables, foods containing generous amounts of vitamin B, are essential for best growth and health. These negroes were certainly not getting this supply.

Sherman [56] states that, "It has been estimated that the daily amount of vitamin C that a man must have to protect him from scurvy is about the amount contained in one ounce of orange or lemon juice or canned tomato or raw cabbage or onion, or in about one pound of cooked cabbage or potato, or in a pint of milk. But, it is now becoming plain that the amount of vitamin C which we must have to protect us from scurvy is only a fraction of the amount which is really needed for full health and vigor; and instead of reliance upon any one of the items just mentioned as possible minimum sources of vitamin C, the equivalent of several of them should be supplied in each day's food."

Such small amounts of foods rich in this vitamin were used during the study. Averages such as: .06 pounds of fresh apples per man per month; .09 pounds of onions per man per month; .01 pounds of lettuce per man per month; .31 pounds of tomatoes per man per month, cannot be counted on to furnish sufficient amounts of this important vitamin.

Of the sickness records sent in by planters, on whose plantations these studies were conducted, about four times more negroes were treated for infectious diseases than for any other type. Perhaps lessened resistance caused by vitamin deficiencies was one of the factors bringing about this condition.

Howe[25] states that, "Although one cannot say that dental caries is not due, in part to an external process, still, according to experiment on guinea pigs, extensive decalcification of teeth and of some parts of the bones is brought about by a disturbance of metabolism induced by scorbutic feeding." This means that a sufficient quantity of vitamin C is one of the factors in the formation of good teeth.

From figures obtained from county health officers, it seems that
negro children of Mississippi have superior teeth to those of white children. This indicates that good teeth are not wholly dependent on good diet. Perhaps soundness of teeth is an hereditary characteristic of the negro as is thick cranium.

There are three factors which are to be considered in rickets: (1) the proportion of calcium and phosphorus supplied through the blood, (2) antirachitic vitamin, (3) ultra violet irradiation. This diet of ce-
Eggs and fats did not adequately provide the first two factors. One would then expect rickets to be prevalent in such a group.

It was impossible to secure records pertaining to the frequency of rickets among negroes. One county health officer from a Delta county stated, "We do not give physical examinations to colored children as it is not possible with our limited personnel. However, from experience in clinics and with the colored race in general, I have no hesitancy in giving as my opinion that rickets is at least twice as prevalent among colored children as among whites." Another health officer from one of the southern counties writes, "We do not give physical examinations to colored children and thus cannot furnish any figures on prevalence of rickets in this county. Rickets is not one of our problems. Nutrition on the other hand is one of the greatest problems we have to meet." Whereas, a child specialist from Jackson writes, "It is my observation borne out by case records that rickets is more prevalent among white children than among black."

That rickets is not more widely spread among negro children in Mississippi is due to abundance of sunny weather. The majority of negro mothers work in the field. The negro child is generally scantily clad and spends a great deal of time out of doors. A ride through a plantation in the early afternoon of a warm August day, would find negro men and women as well as negro children fast asleep in the glaring sun. By this means vitamin D can be produced in abundance so that even without mineral additions, a rachitic condition can be much improved. Diet is of fundamental importance but sunlight is often the determining factor.

**Energy and Nutritive Value of Edible Food Fed to Animals, Sold and Given Away**

Edible food fed to animals was composed largely of cornbread. Only 18 pounds of vegetables were fed to animals during the month of study. The value of the food fed to animals, sold, and given away 1| was enough to meet the daily requirements for: energy—179 men; protein—338 men; calcium—103 men; phosphorus—56 men; iron—161 men.

From this data, it would seem that a number of housewives were selling or feeding to animals food which was needed by their families. This was true in only a few cases. The housewife who fed cornbread to chickens usually had plenty of cornbread for her family. The negroes, unlike the whites, fed very little milk to animals. The majority of housewives sold their surplus milk to neighbors. In this way, a number of families without milk cows, were given a regular milk supply.

**PROBABLE EFFECTS OF SUCH DIETARIES ON HEALTH AND EFFICIENCY**

Long continued use of inadequate diets results in defective physical condition, lessened capacity for work, increased amount of illness,

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1| Eggs sold not included in this tabulation.
higher death rate, lower resistance to epidemic diseases. Underfeeding is indeed an important factor in arrested physical and mental development.

If these diets are typical of the plantation negro, they explain, at least, in part the high death rate, the frequent illnesses, and the lack of energy of negroes as compared to whites. Of course, family sanitation and other factors have a bearing on this question, but diet has an influence which is certainly not less than the other factors.

In one year, twenty families included in the study spent $77.75 for drugs and had 61 doctor visits. Making allowance for difference in size of family, these negroes spent more for drugs than did white people included in the study made in the Short Leaf Pine Area and the Brown Loam Area of Mississippi. There were, however, a greater number of doctor visits paid the white people. This was doubtless due to the fact that many could not afford to pay for doctor visits. Some may not have realized the need of a doctor.

The death rate is higher in Mississippi among negroes than it is among whites.

Lack of proper food, as is evident from this study, is bound to have a bad effect on the children as well as the adults. The child probably suffers more from these deficiencies for he has less resistance than the adult. He must have food for growth as well as for maintenance. On the other hand, this poor diet is perhaps one explanation for the reduced efficiency of the negro adult as compared to that of the white adult.

**GENERAL FOOD FACTS**

**METHODS OF COOKING USED**

A record of menus served for one week during the study was kept in each home. This record served: (1) as further check on accuracy of food record, (2) as a means of obtaining a better idea of combination of foods made than a list of amounts used over a period of time could give.

The foods used were simply prepared. Frying and boiling were the methods of preparation in general use. Salad was not used in a single one of the menus. Few desserts were used, the most common of these being sweet potato pie, rice pudding, and cake.

One of the home demonstration agents writes, "Eggs are generally well done even for children. Vegetables are over cooked in fat. Corn-bread is usually made of cornmeal, salt, and water, and that, too, is fried. Most of the meat is fried done and hard."

Mississippi people, both negro and white, consume more fats than do their northern friends. It has been suggested that climatic conditions are a factor. On the other hand perhaps high consumption is

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1 Records obtained from planters.
due to habit or custom in preparation of food.

Negroes are not "natural born cooks" as some seem to think. It is due to careful training that they have won this reputation. Cookery as done in the average home is poor. Food, whether it be a meat or a vegetable, is usually over-done as well as greasy.

Yet, there is a brighter side to this question. A number of housewives, under the influence of home demonstration agents are learning new and better methods of food preparation. One home demonstration agent writes, "My club members are learning to make good yeast bread and they enjoy it."

**USE OF CONDIMENTS AND BEVERAGES**

The food records did not include those products without food value such as beverages and condiments. It was possible though, through personal interview and a study of the menus sent in to obtain a fairly good idea of the use of these articles.

Coffee is used in a number of homes, though its use is not as great as among white people. There were a number of menus sent in, in which neither milk nor coffee was used. In few cases is this true in homes of white people. One negro recorded serving hot water for breakfast, which may have been the case in several instances. Coffee is the only beverage of this class which was used to any extent. Tea is seldom used.

The use of pepper, spices, catsup, pickles, that is, highly seasoned foods, was not as great among negroes as whites. Negroes, as a general rule, do not care for sour pickles. An explanation for this difference seems to lie in the fact that the white man has had more opportunity to develop tastes for these abnormal flavors, rather than that there is any distinct difference in sense of taste between these two people. The use of condiments among rural people, whether they be black or white, is certainly not great enough to cause alarm.

**FOOD LIKES AND DISLIKES**

If the negro was given $1.00 to buy meat, he would purchase fish, or pork, whereas the white man would purchase beef. Mississippi people both colored and white like chicken. The reason it is not served more often is because, "one must not eat up in a week or two the few chickens one has."

Of all food classes, there were more dislikes in the vegetable group than in any other. There were a number who disliked almost every vegetable but potatoes. Fewer negroes dislike strongly flavored vegetables than do whites. In fact, the majority of negro families would serve turnip greens, cabbage or collards daily if they had a convenient supply on hand. Many vegetables commonly used among the whites are unknown to negroes. There are a number who have never tasted such vegetables as egg plant, peppers, asparagus, spinach, and carrots. There are a number who have eaten these only once or twice, that is, not often enough to acquire a taste for them. Negroes are very fond of butter milk. A number of the women in
the study stated that their children preferred buttermilk to sweet milk. This was not often true of the white children. Many negroes make their supper meal off of cornbread and buttermilk. The question of increasing milk consumption among them seems to involve making the supply accessible rather than making it popular.

The white child wants Santa to put an orange in his stocking, whereas the negro child asks for a banana. Candy or drinks with a banana flavor find a ready sale among negroes. Both people are fond of apples. Negroes as well as whites are very fond of sweets in practically all forms. Negroes prefer colored sugar candy, whereas whites like chocolate.

"The reason negroes use such a small variety of food," states a negro home demonstration agent, "is because they don’t know about a number of foods commonly used among white people. There are negroes who haven't even tasted ice-cream." Mary, a rather industrious negro woman, told her neighbor, Susan, about how well her family liked macaroni and cheese. Susan, who had never served or tasted this dish, purchased the materials and cooked it for her family. Her family would not eat it because it was too "starchy and gummy." The majority feel that they have too little cash to spend on something which they perhaps cannot properly prepare or which, if they can, the family probably will not like.

Through agricultural extension work, the negro housewife is gradually increasing the variety and improving the methods of preparation and cookery of foods. Much has already been done, but much remains to be done in this field.

**FOOD COMBINATIONS**

Skill is combining as well as in preparing foods is an important point in getting them eaten. The menus served in the homes of these tenants have been divided into three groups and a typical one selected from each group.

**ONE OF THE BETTER MENUS**

**Monday**

<table>
<thead>
<tr>
<th>BREAKFAST</th>
<th>DINNTER</th>
<th>SUPPER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fried Eggs</td>
<td>Rabbit</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Salt Pork</td>
<td>Cornbread</td>
<td>Biscuit</td>
</tr>
<tr>
<td>Biscuit</td>
<td>Rice pudding</td>
<td>Tea cakes</td>
</tr>
<tr>
<td>Molasses</td>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tuesday**

<table>
<thead>
<tr>
<th>Fried Eggs</th>
<th>Chitlings</th>
<th>Chitlings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biscuit</td>
<td>Cornbread</td>
<td>Baker's Bread</td>
</tr>
<tr>
<td>Molasses</td>
<td>Molasses</td>
<td>Milk</td>
</tr>
<tr>
<td>Rice pudding</td>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td>Breakfast</td>
<td>Dinner</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Monday</td>
<td>Fried Eggs</td>
<td>Peas</td>
</tr>
<tr>
<td></td>
<td>Biscuit</td>
<td>Cornbread</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Salt pork</td>
<td>Turnip greens</td>
</tr>
<tr>
<td></td>
<td>Biscuit</td>
<td>Biscuit</td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>Salt pork</td>
<td>Fried potatoes</td>
</tr>
<tr>
<td></td>
<td>Cornbread</td>
<td>Biscuit</td>
</tr>
<tr>
<td></td>
<td>Biscuit pudding</td>
<td>Sorghum</td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>Fried Eggs</td>
<td>Fried Eggs</td>
</tr>
<tr>
<td></td>
<td>Biscuit</td>
<td>Biscuit</td>
</tr>
<tr>
<td></td>
<td>Milk</td>
<td>Sorghum</td>
</tr>
</tbody>
</table>
### Friday
- Pears (canned)
- Biscuit
- Milk
- Rice
- gravy
- Cornbread
- Salt pork
- Biscuit
- Sorghum

### Saturday
- Rice
- Milk
- Biscuit
- Cornbread
- Tomato pie
- Fried Steak
- Rice
- Gravy
- Biscuit

### Sunday
- Salt pork
- Boiled Cabbage
- Sorghum
- Sausage
- Rice
- Cornbread

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**One of the Most Inadequate Menus**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Dinner</td>
<td>Supper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>Peas</td>
<td>Cornbread</td>
<td>Cornbread</td>
<td>Peas</td>
<td>Cornbread</td>
<td>Peas</td>
</tr>
<tr>
<td>Cornbread</td>
<td>Coffee</td>
<td>Cornbread</td>
<td>Cornbread</td>
<td>Coffee</td>
<td>Cornbread</td>
<td>Coffee</td>
</tr>
</tbody>
</table>

---

1. Menus of a family during “laying off” season. Dinner served at 4:00 p.m., no supper served.

Cake or pie is more likely to be served in rural homes of Mississippi than is salad. Salad was seldom used by the white housewife,
never used by the negro housewife.

In many cases the negro housewife could not have improved food combinations without increasing variety of foods used. This was seldom true of the white housewife. After reading over the menus served in these eighty negro homes, one concludes that a change should be made, even if only to break monotony. The negro woman needs to be taught how to serve attractive as well as adequate meals.

**EFFECT OF HOME GROWN PRODUCTS ON ENERGY AND NUTRITIVE VALUE OF DIETARIES**

Table 8.—A comparison of the calcium content of the average diet of families with no milk cows with one milk and with more than one milk cow.

<table>
<thead>
<tr>
<th>Milk Cows</th>
<th>Percent of Total Cases</th>
<th>Calcium Per Man Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td></td>
<td>Grams</td>
</tr>
<tr>
<td>No Cows</td>
<td>52.5</td>
<td>.358</td>
</tr>
<tr>
<td>One Cow</td>
<td>32.5</td>
<td>.928</td>
</tr>
<tr>
<td>More than one</td>
<td>15.0</td>
<td>.789</td>
</tr>
</tbody>
</table>

Table 9.—Comparison of the energy and nutritive value of average diet of the group with no milk cows and group with one or more milk cows.

<table>
<thead>
<tr>
<th>Type of Record</th>
<th>Records</th>
<th>Energy and nutritive value per man per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families with no milk cows</td>
<td>42</td>
<td>Calories: 3064</td>
</tr>
<tr>
<td>Families with one or more milk cows</td>
<td>38</td>
<td>Calories: 3026</td>
</tr>
</tbody>
</table>

One cow seems to be the best provision as far as the calcium supply is concerned. Negro families owning more than one cow usually sell milk or milk products. Consequently, the calcium content of their dietaries is not quite as high as the dietaries of those having only one cow.

The average energy and nutritive value of dietaries from the group of Delta negroes owning cows is somewhat similar to the average found among 100 white families living in the Short Leaf Pine and Brown Loam areas. The dietaries of negroes with no milk cows were more often deficient in protein, calcium, and phosphorus than were the dietaries of negroes with milk cows.

Table 10.—Average iron content in diets of families with no garden, with no fruit trees, preserving less than five galions of food each year and having less than one dozen hens compared with iron content in diets of families well provided with these.
47.5 per cent of the families enrolled did not have a garden during the study but only 6.25 per cent record not having a garden sometime during the year. The average family has a garden which provides at least one vegetable during six months in the year. That means that during twenty-six weeks they must depend entirely on preserved or purchased foods. The average family preserved 47½ quarts of fruit, vegetables, and meat per year. This means less than 2 quarts of food per family per week during the time in which the garden is not bearing. Herein, lies one explanation, for the deficient dietaries of these negro tenants.

An average per family of 3.8 fruit trees (including those bearing and not bearing) was found. There were fewer families without poultry than any other home raised product. The average family owned 26.3 hens.

The above tables show that there is a relation between consumption and production. That is, if the farm does not provide milk, if the farm does not provide vegetables, if the farm does not provide poultry, then the diet suffers.

**THE EFFECT OF SALE OF FOOD RAISED ON THE FARM ON ENERGY AND NUTRITIVE VALUE OF DIETARY**

Just what effect does a yearly income of twenty-five dollars or more from sale of these products have on the energy and nutritive value of a dietary? The value of dietaries of the twelve families coming in this group was as follows: energy 2,661 calories per man per day; protein 58.99 grams per man per day; calcium .638 grams per man per day; phosphorus .921 grams per man per day; iron .0127 grams per man per day. This average was below the per man per day value for the entire study in energy, in protein, and in phosphorus. On the other hand the average dietary of white families, selling quantities of food raised at home, was above that found for their entire study in energy, in protein, in calcium, in phosphorus, and in iron. Thus, it can be said that negro families are more likely to sell food raised at home than are white families. The fact that milk consumption was highest with two milk cows for whites, with one milk cow for negroes seems to support this assumption also.

Table 11—Value of the Average Diet on the Three Types of Plantations in Terms of Energy, Protein, Calcium, Phosphorus, and Iron
### Form of Settlement 1

<table>
<thead>
<tr>
<th>Supplies</th>
<th>Number</th>
<th>Calories</th>
<th>Protein</th>
<th>Calcium</th>
<th>Phosphorus</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>39</td>
<td>2998</td>
<td>63.95</td>
<td>.66</td>
<td>1.02</td>
<td>.0117</td>
</tr>
<tr>
<td>Part Cash</td>
<td>31</td>
<td>2967</td>
<td>67.74</td>
<td>.73</td>
<td>1.11</td>
<td>.0126</td>
</tr>
<tr>
<td>Part Supplies</td>
<td>10</td>
<td>3483</td>
<td>69.59</td>
<td>.61</td>
<td>1.08</td>
<td>.0119</td>
</tr>
</tbody>
</table>

1| The term settlement is understood to be business relation of tenant and operator throughout the season.

There seems to be very little difference in the dietary of families living on these different types of plantations. Yet, a number of planters refuse to adopt the cash settlement plan for they believe the negro will spend his cash immediately on trifles, thus putting himself in no condition to work for the greater part of the month. These averages suggest a more thrifty class of negro on the cash settlement type of plantation. However, records from this study are probably too few to draw any definite conclusions.

### MONEY VALUE OF FOODS USED

The average money value of food consumed per man per day was 21 cents; per week, $1.47; per year $76.44. The average value of food consumed per family per year was $330.14. This is slightly above the average of $284.30 found by Kirkpatrick [30] for 72 negro coppers from Kentucky, Tennessee, and Texas.

Cash expenditure for food amounted to 32 per cent of the negroes' income, only 11 per cent of the whites' income.

In dietary studies conducted among negroes of Alabama [2], Virginia [13], food was valued at current retail prices as in this study. Raising the cost per man per day to the price level of 1927, the average for the Alabama study would be 19 cents; for the Virginia study, 26 cents. One would naturally expect the somewhat poorer diets of Alabama to have a lower money value, the high protein diets of Virginia to have a higher money value than those of Mississippi.

In the study made by U. S. Bureau of Labor Statistics in 1918, $153.00 per man per year was spent. When adjustments are made to provide for difference in price level, we find that the same food would have cost the working man about $141.00 at the time of this study. This means that the laboring man's food was worth about $65.00 a year more than was that of the negro tenant. Then, it is not surprising that the average working man's diet provided more protein and minerals than did that of the negro tenant.
Figure 15—Frequency distribution of money value in diets of negro and white families.
Fig. 16—Percentage distribution of money value among the various food groups in food consumption studies conducted among negro and white families of Mississippi.

The white people from the two soil areas of Mississippi spent a greater portion of their money for meat, vegetables, and milk than did the negroes.
FOOD PURCHASED AND FOOD FURNISHED

44 per cent of food consumed by negro families was raised on the farm—74 per cent by white families. This means that white people raised nearly twice as much of their food as did negroes. Perhaps, this comparison of the figures of the Negro Study conducted in February and March with the figures of the White Study conducted during the four seasons is unfair. Yet, a comparison of amounts furnished by the farm at the same season is scarcely much more favorable to the negro. This poor record of food raised on the farm offers one explanation for the poor diets of these negroes.

The 44 per cent found in this study comes below the average, of 55 per cent, found by Kirkpatrick [30] for negro farmers from Kentucky, Tennessee, and Texas. One rather expects such a difference, for in the Delta cotton often grows up to the very door step.

Table 12—Percent of the different food classes purchased and percent furnished by the farm.

<table>
<thead>
<tr>
<th>Food</th>
<th>Negro Study</th>
<th>White Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Purchased</td>
<td>Furnished</td>
</tr>
<tr>
<td>Meat and Fish</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>Fruits</td>
<td>44</td>
<td>56</td>
</tr>
<tr>
<td>Vegetables</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>18</td>
<td>82</td>
</tr>
<tr>
<td>Poultry Products</td>
<td>3</td>
<td>97</td>
</tr>
</tbody>
</table>

These figures seem to indicate that the negro housewife is more likely to spend her money for vegetables, meat, or fish than for milk and eggs.

The proportion of the farm diet grown at home [1, p. 482], has been estimated as follows: meat 75 per cent; fruit, 60 per cent; vegetable, 80 per cent; milk and products, 85 per cent; poultry and products, 100 per cent. The Delta negro has much to do as far as food raised on the farm is concerned, before his record comes up to that of the white man living in the Brown Loam and Short Leaf Pine areas of Mississippi.

RELATION OF MONEY VALUE TO ENERGY AND NUTRITIVE VALUE

Table 13—Energy and nutritive value of dietaries from low cost groups per man per day.

<table>
<thead>
<tr>
<th>Cost per man per day</th>
<th>Records</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Phosphorus</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Calories</td>
<td>Grams</td>
<td>Grams</td>
<td>Grams</td>
<td>Grams</td>
</tr>
<tr>
<td>Cents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>1955</td>
<td>40.36</td>
<td>.22</td>
<td>.58</td>
<td>.0092</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>2229</td>
<td>32.25</td>
<td>.16</td>
<td>.45</td>
<td>.0070</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>2187</td>
<td>38.09</td>
<td>.23</td>
<td>.51</td>
<td>.0077</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>3348</td>
<td>49.99</td>
<td>.37</td>
<td>.88</td>
<td>.0082</td>
</tr>
<tr>
<td>14</td>
<td>6</td>
<td>2176</td>
<td>49.26</td>
<td>.25</td>
<td>.66</td>
<td>.0094</td>
</tr>
</tbody>
</table>

1 | On money value basis.
Table 14—Energy and nutritive value of dietaries from high cost groups per man per day.

<table>
<thead>
<tr>
<th>Cost per man per day</th>
<th>Records</th>
<th>Energy</th>
<th>Protein</th>
<th>Calcium</th>
<th>Phosphorus</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cents</td>
<td>Number</td>
<td>Calories</td>
<td>Grams</td>
<td>Grams</td>
<td>Grams</td>
<td>Grams</td>
</tr>
<tr>
<td>30</td>
<td>1</td>
<td>3343</td>
<td>65.15</td>
<td>1.16</td>
<td>1.15</td>
<td>.0183</td>
</tr>
<tr>
<td>31</td>
<td>3</td>
<td>3818</td>
<td>81.94</td>
<td>1.14</td>
<td>1.32</td>
<td>.0146</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>4060</td>
<td>104.49</td>
<td>1.76</td>
<td>2.14</td>
<td>.0154</td>
</tr>
<tr>
<td>33</td>
<td>4</td>
<td>3928</td>
<td>105.97</td>
<td>1.74</td>
<td>2.02</td>
<td>.0202</td>
</tr>
<tr>
<td>44</td>
<td>1</td>
<td>5248</td>
<td>93.05</td>
<td>1.51</td>
<td>1.76</td>
<td>.0157</td>
</tr>
</tbody>
</table>

33 cents per man per day was the average amount for which an adequate dietary was provided. A food expert might be able to provide adequate food at less than this average. The negro housewife, however, not having a clear knowledge of food values must needs spend more to take care of errors.

It is of vital importance that a people with such a small food allowance, as these tenants, learn how to select cheap foods to make a balanced and attractive dietary. Low expenditure should not imply low food value, but as long as the the housewife has an inadequate knowledge this will be true. Of course, there is a cost limit with which even knowledge is not able to provide an adequate dietary. The Delta negro with land and time at his disposal does not come in this class.

**RELATION OF INCOME TO FOOD EXPENDITURES**

Table 15—Cost per man per day of dietaries from families in high and low income groups.

<table>
<thead>
<tr>
<th>Cost per man per day</th>
<th>Income per Man per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>cents</td>
<td>$175 and above</td>
</tr>
<tr>
<td></td>
<td>Number of cases</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
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<tr>
<td>16</td>
<td>0</td>
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<tr>
<td>17</td>
<td>1</td>
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<tr>
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<td>0</td>
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<tr>
<td>19</td>
<td>1</td>
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<tr>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
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<tr>
<td>23</td>
<td>1</td>
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<tr>
<td>24</td>
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<td>25</td>
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<tr>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>4</td>
</tr>
</tbody>
</table>

The money value of dietaries per man per day of families in the low income group averaged 19 cents, in the high income group 24 cents. It is then evident that inadequate income is at least partly responsible for low cost diets, which are in turn partly responsible for poor diets.

Higher incomes would not entirely solve these dietary problems but higher incomes would provide a "defense by which the effects of ignorance could be evaded."
Table 16—The distribution of money value among the various food groups for negro families on high and low incomes.

<table>
<thead>
<tr>
<th>Income Groups</th>
<th>Fats</th>
<th>Salt pk</th>
<th>Milk</th>
<th>Meat</th>
<th>Misc.</th>
<th>Sweets</th>
<th>Fr. and Veg.</th>
<th>Bread</th>
<th>Cereals</th>
</tr>
</thead>
<tbody>
<tr>
<td>$175 and over</td>
<td>Per ct.</td>
<td>8</td>
<td>Per ct.</td>
<td>13</td>
<td>Per ct.</td>
<td>24</td>
<td>Per ct.</td>
<td>14</td>
<td>Per ct.</td>
</tr>
<tr>
<td>$100 and under</td>
<td>9</td>
<td>16</td>
<td>17</td>
<td>15</td>
<td>1</td>
<td>8</td>
<td>12</td>
<td>0</td>
<td>23</td>
</tr>
</tbody>
</table>

1 | Foods groups the same as provided in the Short Cut method for calculating nutritive value of a dietary [19]. Fats include—lard, butter, substitute; salt pork includes—salt pork, bacon, sausage; milk includes—milk as well as milk products; meat includes—meat, fish, poultry, eggs; miscellaneous includes—cocoa, cheese, nuts, cocoanuts; sweets include—sugar molasses, jam, etc.; fruits and vegetables include all fruits and vegetables; bread includes—bread, cake; cereals include—flour, cornmeal, rice, etc.

The percentages of the $175 and over income group were higher for the milk group and lower for the cereal group. This indicates that negro families on higher incomes were more likely to use larger quantities of milk than were those on lower incomes.

The average family used about 19 varieties of foods, including 4 vegetables and one fruit, during the study. This is less than the variety used by the average white family. As previously stated, there are a number of foods commonly used among whites which are seldom used among negroes. Practically, no difference was found in the variety of foods used by negroes in the low and high income groups. This means that an increase in income does not necessarily mean an increase in variety. When the white man’s income increases, he increases variety, the negro increases quantity.

Environment and intelligence of the negro would account for this difference. O’Shea [43] has shown mental ability of negro pupils from large communities to be greater than mental ability of pupils in rural districts. It was observed that as environment and intelligence were improved, variety of food used increased. Menus of food served on the previous day were collected from all girls enrolled in the negro high schools of two large Delta towns 1. Many of these students came from well-to-do and intelligent homes. Such menus compare favorably with those served in homes of intelligent white people.

1 | Menus collected from Delta towns in which O’Shea conducted his study [43].
Menu served in the home of a carpenter’s family

Breakfast
Apple
Biscuit
Hot tea
Fried Sausage

Dinner
Boiled Cabbage
Potato Salad
Cornbread
Peaches
Milk

Supper
Candied sweet potatoes
Mashed Turnips
Cornbread
Peach Pie
Milk

Menu served in the home of a farmer’s family

Breakfast
Grapefruit
Oatmeal
Fried Eggs
Toasted Bread
Milk

Dinner
Fried Corn
Baked Sweet Potatoes
Cornbread
Butter Milk

Supper
Fried Ham
Fried Eggs
Baker’s bread
Milk

Lack of variety is not altogether the result of poor financial condition, but is more the result of ignorance. Therefore, it behooves those interested in improving the diet of the rural negro to teach him how to prepare all available foods in a wholesome and palatable manner. If he can once acquire a taste for these foods, then it will not be a difficult matter to get him to produce them.

MONEY VALUE OF EDIBLE FOOD WASTED

Edible food fed to animals was usually cheap food, such as buttermilk, skim-milk, cornbread, and biscuit. The value of this waste averaged about $2.00 a day, that is, less than 3 cents per family per day. This was much less than the value of waste in the study among white people.

SUMMARY

A summary of the data obtained from food consumption records for a period of one month from 80 negro families, 78 tenants and 2 renters, living in the Yazoo-Mississippi Delta follows:

(1) The average energy and nutritive value per man per day was low in all factors including the vitamins. Over 50 per cent of the families were 10 per cent or more below standard in protein, calcium, phosphorus, and iron. The dietaries were largely composed of cereals, fats, and sweets. Dietaries from the cash settlement type of plantation were somewhat more adequate than those from the supply settlement or the part cash and part supply settlement types.

(2) These dietaries offer one explanation for the high death rate, frequent illnesses, lack of energy, lowered resistance to infectious and contagious diseases, of negroes in Mississippi. They explain, at least in part, why pellagra occurs so frequently in the Delta counties and among negroes in particular.

(3) The menus submitted showed the need of an increased food

Father is a renter. He moved to the city five years previous in order to give his children the advantages of a good education.
supply and a knowledge of how to combine and cook foods.

(4) Greatest food consumption was not always from families with greatest production, though families raising and selling large quantities of food consumed more than did families who neither raised nor sold food to any extent. Negroes are more apt to sell food raised on the farm than are white people.

(5) The average money value per man per day of the negro dietaries was 21 cents. 44 per cent of this money value was furnished by the farm.

(6) Inadequate income was partly responsible for low cost diets which were in turn partly responsible for poor diets. Increase in income of an ignorant negro generally means an increase in quantity but not necessarily an increase in variety of food. As environment and intelligence improve, variety of food used increases.

**CONCLUSIONS AND RECOMMENDATIONS**

Why should a people show signs of ailments that come from the need of a balanced ration, when facilities are so easily obtainable for producing this ration? Evidently, the majority have not yet adopted the slogan coined by Negro Extension Workers, “Take what you have and make what you can out of it.”

It is, the school, the agricultural extension department, the public health department, and yes, even the church, that must teach and encourage these people, mothers and fathers, boys and girls to increase their food supply. This involves an increase in amount and quality of milk; improving the garden; raising, canning, and drying more vegetables; greater utilization of wild fruit; the development of fruit culture; increase in yield of eggs until the supply is great enough for family consumption and selling.

After they are taught to increase their food supply, they must be taught to combine and prepare this supply in a wholesome and time-saving manner.

Every effort should be furthered which will in any way bring about better physical and economic condition of the negro for unless this is done the average standard of public health for whites as well as for negroes will remain unsatisfactory.

All forces must combine in training the negro. Some one has well said, “The trained negro lives in better homes, wears better clothes, eats better food, does more efficient work, creates more wealth, rears his children more decently, makes a more decent citizen, and in time of race friction is always to be found on the side of law and order.”

The Delta Home Demonstration agents, one of the main sources for this training, were asked the following question, “Do you think that there have been any changes in the food habits of the average negro family within the last few years?” One replied, “I can only speak for communities where Home Demonstration work is well established. There has been a wonderful change. More and better gardens are
grown, giving a greater supply of fresh vegetables. More chickens are raised. Instead of selling most of the chickens and eggs, these are used at home. Where cows can be kept on plantations, many families have them. Milk and butter are sold in exchange for vegetables to those who have no cows. A greater variety of vegetables is being produced. More care is being given to childrens' meals and school lunches."

Any educational work is slow at its very best. Let us hope that all forces will join hands and speed up this process of training so necessary to the physical and economic future of the colored race. Such united effort will result not only in improved conditions among the colored race, but improved conditions among the white race, Surely, this is a goal worth working for.

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