

of a certain standard. So it is with apples, onions, pork, beef, poultry, and all the other foods raised on the farm and many prepared in factories. They may differ widely in the food elements they contain.

These differences may count just as much in food value as the change in butterfat in milk does in dollars and cents. It is not possible to say that a pound of beef or of cheese or other food contains so many calories, so much protein, and all the rest without knowing more about that particular piece of beef or cheese.

#### Variations in Meats

Meat is one of the hardest foods on which to make general statements about composition. It is not difficult to see why the carcass of a very thin steer, for example, that would have sold as "common" must be entirely different in its make-up from one that came from a well-fattened animal that would have been graded "good" or "choice." Compared on a percentage basis with the fat one, the thin carcass might have nearly twice as much bone and its edible portion only about one-third as much fat. One might have a fuel value of 850 calories per pound and the other 1,900 calories. Even wider extremes than these can be found on the retail market. Plainly, the steaks, roasts, and stews from two such animals will not be much alike in food value.

Moreover, the cuts even in one carcass vary almost as widely. Some cuts are bony, others are almost entirely lean meat, and others are marbled with fat or have borders or sections of fat. But in studies of diet it is necessary to know, approximately at least, the composition of some particular cut of beef. Some kind of a classification is needed that will take into account round steaks with only 5 per cent fat as well as rib roasts with as much as 50 per cent. To this end new figures have been derived for beef which are believed to be typical of the market grades and of the standard wholesale cuts. Bone, "visible fat," water, protein, "chemical" fat (ether extract), and ash are given in percentages and the number of calories per pound are stated. Such figures are given for chuck, flank, loin, rib, round, and other wholesale cuts from thin, medium, fat, and very fat carcasses, which correspond to common, medium, good, and choice and prime grades of beef.

Pork, mutton, and other meats, dairy products, fruits, vegetables, cereals, sugars, and all the other food materials commonly used in the United States will be studied in this same way. The results will be published as rapidly as possible for the benefit of persons "counting the calories" in their own meals or studying food problems with a view to fitting the supply to the demand and insuring a well-balanced diet for everybody.

CHARLOTTE CHATFIELD.

#### FOOD Habits of Farm Families

Suppose you were asked how much food your family consumed last year. Could you tell? You probably could in general. Thousands of farm housewives have answered that question for the United States Department of Agriculture during the last five years. But suppose you were asked what your food is giving you

in the way of food value, whether the quantity and kind of food consumed are suitable for the health and physical development of your family, and whether you are getting the best food values for the money and time expended. Could you answer that? Probably not, for such questions can be answered only after food-consumption figures have been carefully analyzed and studied, and the work usually has to be done by someone specially trained in that field. The Bureau of Home Economics is making a study of food habits in which the figures that have been collected from the farm families are being studied to find answers to all these questions.

In this study not only the value of the food consumed by the average farm family is calculated, but also the amount of nutrients, such as energy, protein, minerals, and vitamins, in each family's food. By the use of standards for measuring the amount of each nutrient needed by the family one is then able to judge whether the food that has been consumed is adequate to promote growth in the children, to furnish energy for work and heat, and to maintain the health and well-being of each member of the family.

Almost 2,000 of these farm records have been studied for the purpose of learning two things. It was desirable to know first what the average farm family is eating. Then the diets of individual families were analyzed to see how many of them differed from the average diet. According to these records it was found that the average farm family probably consumes quite as much if not more than it actually needs. But when the food used by individual families was analyzed it was discovered that a large proportion of them do not get enough minerals, such as calcium, phosphorus, and iron, to insure the best growth and development in the children and good health in the adults. In every case this deficiency was caused by the fact that milk, fruit, and vegetables were not provided in sufficient quantities by these families.

#### Food from Farms

The families spent on the average in time and money about \$650 per year for food and of this amount two-thirds was furnished by the farm. Since energy is the simplest measurement for comparing the food value of different foods it is used in studying food expenditures.

Of the total diet the animal foods furnished on the whole 50 per cent of the energy at 60 per cent of the cost. When a comparison of food value and cost was made of the different food groups it was found that meat, fish, and eggs furnished 16 per cent of the total energy at 28 per cent of the cost. Milk and cream made a better showing than meat, fish, and eggs. They furnished 15 per cent of the energy at only 19 per cent of the cost. Fruit and vegetables gave figures much like milk, furnishing, as they did, 13 per cent of the energy at 19 per cent of the cost. Fatty foods, cereals, and sweets, which yielded 56 per cent of the total energy of the average farm diet at only 29 per cent of the cost, are the least expensive.

Animal foods, as these figures show, are on the whole more expensive than vegetable foods. This is due especially to the high cost of meat, fish, eggs, and cheese, and the low cost of cereals and sweets. Milk, fruit, and vegetables, which are especially good sources of minerals and vitamins, furnish in addition almost twice as much

of the energy of the farm diet as do meat, fish, and eggs. Since these are the foods commonly furnished by the farm it will doubtless interest you to know that if you are consuming the average farm diet you can improve the quality of your food supply with less expenditure of time and money by furnishing for your table more milk, fruit, and vegetables and less meat, fish, and eggs. The cereals and sweets are usually purchased by the farm family. Although they are cheap sources of energy they are lacking in many of the minerals and vitamins. It is therefore safe to increase their use only when a large quantity of milk, fruit, and vegetables is also used.

EDITH HAWLEY.

**F**OOD Spoilage in Distribution Heavy If all of the food produced upon the farms could reach the consumer without loss from leakage, souring, rot, the attacks of rodents or insects, or just plain waste through carelessness or ignorance, the farmer's crop would increase in value and the unit price of many commodities to the consumer could be reduced. However unattainable this ideal may be as a generality, in a single commodity—sweet potatoes (The Plant Disease Reporter Supplement 45, May 1, 1926, p. 55)—losses totaling 30 per cent of the crop, or 40,000,000 bushels, in 1918, have been progressively reduced to 6.9 per cent, or roughly 5,000,000 bushels, in 1925. Not all losses are so conspicuous or so preventable, but the changes introduced by the sweet-potato grower followed lines already clearly marked out by meat packers, the citrus-fruit industry, and many other organized groups.

Spoilage for the purposes of this discussion takes two general forms, (1) the total destruction of food values, and (2) such injury to appearance, odor, taste, or texture as renders the product unsalable for human food. In the first case the entire investment may be and commonly is lost, as, for example, the rotting of ripe berries, peaches, apples, or spinach, or the freezing of potatoes in transit. In the second case, products ordinarily sold for human food may frequently be used for stock, for example, damaged flour and heated grain.

The annual reports of Federal, State, and city regulatory agencies summarize the quantities of food condemned and destroyed. These totals mount into many millions of pounds, which under proper handling would have been distributed for human consumption, while other millions of pounds are released only for animal feeding or for technical purposes. Besides the products eliminated from human use, a vast amount of material actually consumed is lowered in quality and acceptability by the same destructive agencies without having reached the stage of deterioration at which it might be condemned. It therefore becomes desirable to define the causes of the wastes encountered, the nature and extent of the loss involved in food spoilage, the dangers to health involved in the consumption of spoiled and mishandled food, and the measures necessary to cut such wastage to the minimum.