

FOOD AND HOW TO SAVE IT

BY

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2nd edition, including the new Voluntary Rations.

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BY THE KING.

A PROCLAMATION.—GEORGE R.I.

We, being persuaded that the abstention from all unnecessary consumption of grain will furnish the surest and most effectual means of defeating the devices of Our enemies, and thereby of bringing the war to a speedy and successful termination, and out of Our resolve to leave nothing undone which can contribute to these ends or to the welfare of Our people in these times of grave stress and anxiety, have thought fit by and with the advice of Our Privy Council to issue this Our Royal Proclamation, most earnestly exhorting and charging all those of Our loving subjects, the men and women of Our Realm who have the means of procuring articles of food other than wheat and corn, as they tender their own immediate interests, and feel for the wants of others, especially to practice the greatest economy and frugality in the use of every species of grain :

And we do for this purpose more particularly exhort and charge all heads of households to reduce the consumption of bread in their respective families by at least one-fourth of the quantity consumed in ordinary times; to abstain from the use of flour in pastry, and, moreover, carefully to restrict, or wherever possible to abandon, the use thereof in all other articles than bread :

And We do also, in like manner, exhort and charge all persons who keep horses to abandon the practice of feeding the same on oats or other grain, unless they shall have received from Our Food Controller a licence to feed horses on oats or other grain to be given only in cases where it is necessary to do so with a view to maintain the breed of horses in the national interest :

And We do hereby further charge and enjoin all Ministers of Religion in their respective churches and chapels within Our United Kingdom of Great Britain and Ireland to read, or cause to be read, this Our Proclamation on the Lord's Day for four successive weeks after the issue thereof.

Given at Our Court at Buckingham Palace this Second day of May in the year of Our Lord One thousand nine hundred and seventeen, and in the Seventh year of Our Reign.

GOD SAVE THE KING.

NOTE.

The food situation has rapidly changed during the last few months, and will doubtless continue to do so in the future. Compulsory rationing is about to take the place of the Voluntary system, at least in part. Most of the contents of this booklet will still hold good, however much the situation may alter in the future, though already certain parts must be read in the light of changed conditions; *e.g.*, since the present edition was prepared the situation as regards the available supplies of fats and meat has altered considerably.

It cannot be too strongly emphasized that extreme care in the use of food and in the avoidance of all waste will be even more necessary in the future than in the past.

February, 1918.

2012

The first of the three papers in this volume is by the late Professor J. H. Poincaré, and is entitled "Sur la courbe d'Arnold". It is a paper of great interest, and one which has been the subject of much discussion. The second paper is by the same author, and is entitled "Sur la courbe d'Arnold". It is also a paper of great interest, and one which has been the subject of much discussion. The third paper is by the same author, and is entitled "Sur la courbe d'Arnold". It is also a paper of great interest, and one which has been the subject of much discussion.

1912

PREFACE TO FIRST EDITION.

This little book is made up, with some alterations, of articles which were published by the Ministry of Food between February and May.

The writer is indebted to the staff of the Ministry for advice and help; also to Mr. A. B. Weir, B.Sc., who has made many analyses of foods; and especially to Miss Margaret Ledingham, who has prepared every diet and dish mentioned.

In most cases Professor Atwater's figures for the composition of foods are used, as given in the report of the Committee of the Royal Society on the Food Supply of the United Kingdom, or in Bulletin 28 of the U.S. Department of Agriculture. The allowances for waste in the preparation of certain foods are those in Appendix Ib of the Committee's report. For other foods the waste was determined separately. The coloured diagram of food values is adapted and enlarged from a plate in Dr. Hutchison's "Food and Dietetics."

July, 1917.

E. I. S.

PREFACE TO SECOND EDITION.

The chapters have been revised and rearranged and new diet schemes drawn up, in accordance with changes in the food supply, particularly the increase in the amount of potatoes available, and with the issue by the Director of Food Economy of a new scale of voluntary rations.

January, 1918.

E. I. S.

FOOD AND HOW TO SAVE IT.

I.

Ever since the war began all British people have been asking—What can I do to help? To our young men the answer was clear. They have added new and glorious pages to the history of our nation, and are protecting us against the greatest peril of this age. To many millions of men and women came the call to work; night and day they labour to equip our Army and Navy; or they take the places of those who have gone out, and do a thousand things they never did before. And now comes a call to every man and woman in these islands to save the food. Here at last is the chance for all. Women and men, fit and unfit, gentle and simple, can do their bit, and may at length forgive themselves a little that they are not in khaki or in blue.

We have suffered no privations in this country yet which can be compared with those of our enemies, or indeed of our gallant Allies. But the time has come to tighten our belts and take a larger share in the food economy of the nations which are fighting for the freedom of the world. For we have to see to it that the soldiers and workers have food for their needs, and that our allies are not starved.

Every piece of food unwisely bought, wastefully cooked, or carelessly eaten is a loss to our nation and a gain to our enemies.

There is no one who would wilfully harm his country at this time, but we have lived so long in plenty that we have not learned as a nation how to avoid waste, or how to make the best use of our food materials.

It is clear that we ought all to know what food is made of and how much is required, so that we may arrange our diets wisely. We must discuss a very little simple science. But let no one be afraid of that. Science is just knowledge, and knowledge is for all; the day when it was limited to a few people is gone by. It is by knowledge and care in the home that we can all have enough food to keep well and do good work.

There are three scientific words in this little book—namely, calories, protein and carbohydrate. These are used whenever there is much speaking or writing about food. Their meaning is explained on pages 5, 7 and 8.

The food we eat warms us and supplies the power for everything we do. It also gives material to make good the wear and tear of our bodies. The more work is done the more food is needed.

If all foods were equal we should just have to supply a given weight of any one to satisfy the needs of the body. But foods are not equal. Some are much more valuable than others. For example, a pound of bacon has ten times the nourishment of a pound of bananas.

We must, therefore, enquire what food is, and then we shall learn what foods are best worth buying, and how one food can be replaced by another.

II.

WHAT FOOD IS.

When coal burns heat is given out, and if the heat is used in a suitable engine it can be turned into power. The engine will not work without the coal. With more coal it will do more work. It will also do more work with good coal than with bad coal, because good coal gives out more heat, or, as we say, it has a higher fuel value. Everything which can be burnt has its own fuel or energy value; that is to say, a definite weight of the substance gives out a fixed quantity of heat when it is completely burnt. It does not matter whether it is burnt quickly or slowly. In the end the same amount of heat, or other form of energy, is set free.

The heat which is yielded when coal burns can be measured in a suitable instrument by finding out how warm it can make a given quantity of cold water. The amount of heat which is needed to make a pint and three-quarters of water one degree hotter is called a Calorie.*

Heat can be changed into other forms of energy. When the kettle boils the original force of the coal, which was chemical force, is first turned into heat, then used to convert water into steam, and, lastly, made to do work in lifting the lid. The same coal in a suitable engine can be made to do almost any kind of work, and the amount of work which it does can be reckoned in calories.

Just as the coal is burnt on the fire so food is burnt in our bodies. It is burnt more slowly, of course, and there is no severe heat, but the same process is going on in each case, with the same result, warmth. Further, the food produces power for all our actions, and the amount of power at our command depends upon the energy or fuel value which our meals give.

The fuel value of our food can be measured in calories by the analytical chemist just as surely as the weight of food can be measured in pounds.

The number of calories (or food units) in a pound of food tells us the amount of nourishment it contains.

Heat value, energy value, caloric value, and food value all mean the same as fuel value.

In ordinary circumstances, the greater part of our food goes to keep us warm, three-quarters of it or more. Most of the rest is used for work. The heart muscle and the breathing muscles are always moving, but they do not use a great deal of food; it is when hard work such as lifting heavy weights or digging for long hours is done that the muscles need a large supply of power. Energy is also needed, though much less, for the chemical changes which go on in the body, such as the digestion of food.

Whatever kinds of food a man eats he needs on the average about 3,000

* A Calorie is the amount of heat required to raise a kilogramme of water through one degree Centigrade. For example: if a kilogramme of water, that is a pint and three-quarters, at the temperature of the room, say 15° Centigrade, is put on the fire and raised to the boil, that is to 100° C., the energy of the burning coal has raised the water through 85 degrees; therefore, 85 calories of energy have been used. The amount of heat which was needed to boil the kettle, namely, 85 calories, would be produced in our bodies by an ounce of meat or a third of an ounce of butter, or a little more than an ounce of bread. Strictly speaking the word Calorie should be spelt with a capital C, as when spelt with a small c it denotes, in physical science, a small calorie, one thousand of which make up one large calorie, kilocalorie, or Calorie. In modern writings on food, however, the word calorie is understood to mean a large calorie whether spelt with a small or a large initial letter.

of these food units or calories in a day. To get this, it is sometimes necessary to buy food of a greater value, because there is a loss in preparing the food, and there are parts of it which cannot be chewed or digested. Good housekeeping and cooking should, however, make this loss very small. 3,400 calories is a full quantity, as bought, for a man doing muscular work. Very hard workers need more, but those of us whose occupations are not laborious need much less. Indeed, always excluding those doing heavy muscular work and certain others, to be mentioned later, there is a very large number of people for whom 2,500 calories or less is enough.

III.

FOOD VALUES.

The following list gives the food value in calories in a pound and in an ounce of ordinary foods.

Those which come first contain the most nourishment.

	Calories in a pound.	Calories in an ounce.		Calories in a pound.	Calories in an ounce.
Dripping	4,186	262	Cream	1,094	68
Lard	4,006	250	Lamb, no bone	1,080	68
Butter	3,604	225	Syrup	1,072	67
Margarine... ..	3,566	223	Beef, average, 18% bone	1,000	62
Suet	3,425	214	Mutton, 24% bone ...	993	62
Chocolate	2,853	178	Sardines	952	59
Bacon, no bone ...	2,708	169	Jam and marmalade ...	945	59
Bacon, 16% bone ...	2,275	142	Tinned and salted fish ...	794	50
Sausage	2,130	133	Salmon (fresh)	732	46
Pork	1,873	117	Poultry, game	701	44
Sugar	1,823	114	Salmon (tinned)	680	42
Arrowroot	1,815	113	Eggs	624	39
Biscuit (Army) ...	1,810	113	Liver	585	37
Cheese	1,777	111	Rabbit	557	35
Oatmeal	1,732	108	Grapes	450	28
Ham	1,670	104	Herrings	438	27
Macaroni	1,665	104	Potatoes	400	25
Flour (wheat)	1,651	103	Plums	371	23
Corn ^{fl} our (maize) ...	1,645	103	Milk (400 cal. 1 pint) ...	325	20
Tapioca, sago	1,642	103	Green peas and broad beans	314	20
Barleymeal	1,642	103	Bananas	298	19
Rice	1,631	102	Fruit (fresh)	296	18
Beans, peas and lentils	1,626	102	Tripe	270	17
Rye	1,625	102	Parsnips	242	15
Fat beef, no bone ...	1,620	101	Artichokes	241	15
Maizemeal	1,544	96	Fish—cod, hake, &c. ...	228	14
Currants and raisins	1,536	96	Apples	219	14
Honey	1,520	95	Strawberries	180	11
Figs (dried)	1,475	92	Beetroot	174	11
Dates (dried)	1,421	89	Skim milk (212 cal. 1 pint)	170	11
Apples (dried)	1,350	84	Carrots	159	10
Mutton, no bone ...	1,306	82	Oranges	158	10
Tinned beef	1,280	80	Turnips	127	8
Fruit, preserved (no sugar)	1,237	77	Greens	124	8
Beef, average, no bone ...	1,219	76	Onions	116	7
Bread	1,200	75	Pickles	110	7
Nuts	1,165	73	Tomato	106	7
Prunes (dried)	1,134	71	Rhubarb	105	7

This is the most important list in the book. It should be studied carefully and referred to again and again. See also the coloured diagram inset, between pages 16 and 17.

The figures give the food value of foods as they are bought. Full allowance has been made for waste matter such as the peelings of carrots and turnips, the stones of dates and plums, the skin and bones of fish, and the bones of butcher's meat, rabbits and fowls. The allowance for the bone in meat is an average as the proportion varies so greatly. The amounts of bone in some representative joints will be found on page 21. There are also differences in the digestibility of foods. With careful preparation and cooking these are small in most cases. No allowance has been made on their account.

It is easy to see from the figures how much more valuable some foods are than others. Especially nourishing are butter, margarine, bacon, cheese, oatmeal, wheaten flour, barley flour or meal, and beans.

Milk is also a most valuable food, though, because of the water it contains, it comes low down in the list. It is, indeed, hardly fair to compare a liquid food with solids. Half a pint of milk gives 200 calories—that is as much heat value as two ounces of fat beef, nearly three ounces of bread, over five ounces of rabbit, or two large eggs.

An average egg weighs two ounces and gives about 80 calories.

An average herring weighs six to eight ounces. Its food value is about 160 calories. A kipper or bloater has the same value.

With the aid of the table a simple addition sum will tell how much energy is being bought with a given quantity of food. The housewife should not be afraid of the word calorie. If the value of purchases is added up roughly in calories, the arithmetic will be found to be easier than that which is needed to balance the weekly books. There is no one so experienced that a knowledge of food values will not help her to buy to greater advantage.

IV.

FLESH-FORMING FOOD.

The first need of our daily diet is that it shall contain enough food. But this is not all. It would be easy, for instance, if we only had to consider quantity, to suppose that a pound of margarine, or two pounds of cornflour, each of which has a food value of over 3,000 food units or calories, would feed a man for a day. But no one could live on such a diet. The reason for this is that there are three kinds of foodstuff and a proper diet must contain some of each of them.

The three foodstuffs are flesh-forming food, called protein, starches and sugars, called carbohydrate, and fat.

In times of plenty there is enough of each of these in any ordinary mixed diet. We do not have to think of them until it becomes necessary to arrange the diet, either of an individual or of a nation.

Flesh-forming food or protein.—The living part of our bodies, and of all animals and plants, is made of protein. Protein differs from other foodstuffs in containing nitrogen. Nitrogen is part of all live matter. There is plenty of it in the air and in the earth, but in forms which we cannot use. It is the plant which takes it from the earth and the air, and builds it up into protein. The animal eats the protein of the plant, and

builds it into his own flesh. As living bodies are always changing, protein is always being broken down, and its nitrogen passed out of the body and lost.

We see then that protein is essential. We must have it. We die if we do not get it. It is needed for repair and for growth. It is the flesh-forming body-building food.

Many foods contain protein. Those which contain enough of it to be of value in the diet are:—

<i>Food</i>	<i>Percentage of protein.</i>	<i>Food</i>	<i>Percentage of protein.</i>
Cheese	25	Eggs	12
Beans, peas and lentils (dried)	24	Wheat flour	11
Meat	15 to 20	Barleymeal	10
Oatmeal	15	Bread	9
Nuts (shelled)	15	Peas and beans (fresh, shelled)	7
Fish	10 to 17	Milk	3

The most important flesh-forming foods in daily life are meat, fish, cheese, eggs, bread and milk. Other foods which contain a good deal of protein are peas and beans, nuts, oatmeal, wheaten flour and barleymeal. It is easy to see that there are several foods which can replace meat in the diet. We can, indeed, do without meat, though we are not asked to do so. There is, however, no need for a healthy person to eat meat more than once a day.

The amount of protein which a man should have in his daily food is about 3 to 4 ounces.

So many of the foods we eat contain it that if a man gets enough food of sufficient variety he generally gets enough protein. It is only when he is obliged to live almost entirely on foods containing very little protein, such as potatoes or rice, that he is likely to go short of body-building food.

V.

STARCH, SUGAR AND FAT.

Starch and sugar, called carbohydrates, form more than half of our food, and supply most of the heat and power of our bodies. We get them, with the exception of milk sugar, from the vegetable kingdom. As with protein so with carbohydrate, plants make it for themselves from the air and the earth. Their green leaves are silent engines, and the light of the sun is the force they use. Animals cannot do this. They depend upon plants for their food. We may, it is true, eat other animals, but these in their turn had eaten plants. So that, in the end, the only way man can produce food, animal or vegetable, is by tilling the earth.

Hence, there is an eternal procession of matter from the earth and air to the plant, from the plant to the animal, and from the animal to the earth and the air again.

Here is a list of the foods which can supply carbohydrate, those containing most being put first:—

	<i>Percentage of Carbohydrate.</i>		<i>Percentage of Carbohydrate.</i>
Sugar	98	Syrup	57
Arrowroot	97	Bread	53
Tapioca, sago	83	Potatoes	19
Rice	79	Peas and beans (fresh, shelled)	17
Flour	75	Bananas	14
Barley flour or meal ...	73	Nuts (shelled)	13
Maize meal	66	Fresh fruit	12
Dried fruits	65	Milk	5
Oatmeal	60		
Beans, peas and lentils (dried)	60		

Bread, flour, oatmeal, potatoes and sugar are the chief foods in this list. But there are several others of great value, especially rice, dried peas and beans, fruits and milk.

It is especially urgent for those in comfortable circumstances and of sedentary occupation to save bread, flour and all kinds of corn. The workers require a good supply of carbohydrate if they are to work with vigour. Much of the world's work in the past has been done by the underfed, whose want of go has often been due to want of food. But to-day we want energetic labour in every branch of national work. Now the extra food which labourers need is mainly supplied in the form of bread, because bread is the cheapest food. Hence the well-to-do should use as little of it as possible.

If oatmeal or barley meal porridge is on every breakfast table, the amount of bread eaten at that meal will be much lessened. Potatoes must be eaten at least twice a day; at dinner they should replace bread entirely. Oatcake should also be eaten at tea-time. It is a very nourishing food. Puddings made with flour, rice or the corn flour of maize, and preserved fruits are other good foods which owe their value mainly to starch and sugar. Sugar may be saved by taking none in tea or coffee, so that the whole allowance can be used in cooking to make other foods nice.

Fat.—The third kind of foodstuff, fat, is an important source of energy, because its fuel value is more than twice as great as that of protein or starch. An ounce of it gives 264 calories, whereas an ounce of protein or carbohydrate gives 116 calories. On this account, although fat is dear, it is good economy to get a fair amount of it in the diet, so far as supplies allow.

The following are the chief foods which furnish fat:—

	<i>Percentage of Fat.</i>		<i>Percentage of Fat</i>
Dripping	99	Cheese	30
Lard	94	Mutton	27
Butter	85	Beef	20
Margarine	84	Eggs	9
Suet	82	Salmon	9
Bacon	60	Herrings	5
Nuts (shelled)	45-60	Milk	4
Pork	40		

Of these, butter, margarine, dripping, bacon and other meat, cheese and milk supply the bulk of the fat in our food.

Fat can replace starch foods, and here again the well-to-do may help those who are less fortunate by taking their share of butter and of such foods as eggs and salmon, so as to need less bread and margarine. Cheese should be restored to its old place as a staple food for all classes, but must be used sparingly at present, because the supply is limited and the workers need it most.

Children need a good deal of fat, which can be best given to them as margarine and in milk. In schools every effort should be made to balance any saving of flour and meat by an increased amount of other foods, and especially of milk. One pint of milk is equal in food value to four ounces of flour or over five ounces of bread or beef.

The coloured diagram inset between pages 16 and 17 shows at a glance the comparative values of common foods. It shows also how much of the energy of each food is due to flesh-forming food, to starch and sugar or to fat.

VI.

A BALANCED DIET.

An ordinary diet should contain per day 3 to 4 ounces of protein, 2 to 3 ounces of fat, and a pound of carbohydrate. A diet which gives such proportions is a properly balanced diet.

These quantities can be supplied by very simple foods. Bread and meat alone, for example. This was the food of Hercules. "His dinner was roast meat and a great Dorian loaf in a basket, a meal to satisfy a delving hind. At the close of day he would take a meagre supper that needed no fire to the cooking."* It is the main food of our soldiers to-day, except that biscuit, which contains the same foodstuffs, sometimes takes the place of bread.

It is our part to eat bread with care, so as to leave the more for those who fight and delve for us.

A pound and a half of bread and 3 pints of milk is also a balanced diet for a man; or a pound of bread, 3 oz. of margarine, and 3 pints of milk.

Oatmeal and milk, the food of the Scottish labourer, gives a well-balanced diet in the proportions of a pound of meal and 3 pints of milk.

With potatoes and milk, the staple foods of Ireland, it is difficult to get a full diet for a grown man, because the potato is poor in food value and in flesh-forming material as compared with oatmeal or bread. Even three pounds of potatoes and 3 pints of milk require the addition of half a pound of bread and two or three herrings to give full value for a man.

Milk contains a good share of all the three foodstuffs. It is a perfect food for infants, but not for grown-ups, because the amount which a man would have to take to satisfy his daily needs without other food is too large, over 7 pints. He would also be getting a larger proportion of protein and fat than is needed for anyone who is not growing.

We see, therefore, that we need a mixed diet because foods differ not only in their food values, but also in the foodstuffs they contain.

The greater variety there is in the diet, the more certain we are to get the different materials which the body needs.

Some fresh foods such as fresh vegetables, fruit, fresh milk or meat should form part of the diet. They contain substances necessary for growth

* Theocritus. Idyll XXIV. A. Lang.

and health, which have been called vitamins. With an ordinary mixed diet there is no fear of lack of these substances. It is only when babies are fed entirely on prepared foods, or adults entirely on preserved foods or polished rice, that harm results from their absence.

Here are two examples of a day's food, each containing enough food value and body-building material, but not exceeding the Food Controller's allowance.

Diet 1. The first is a very simple diet of a value of 3,000 calories, sufficient for a man doing ordinary work. His allowances (Class 2—Men on ordinary industrial or other manual work) would be per week:—Bread, 7 lb.; other cereals, 12 oz.; meat, 2 lb.; margarine, 4 oz.; lard or dripping, 1 oz.; sugar, 8 oz. To this we add potatoes, 7 lb.; fish, 1 lb.; jam or syrup, 1 lb.; apples, 2 lb.; milk, $3\frac{1}{2}$ pints (if obtainable); cheese, 7 oz.; greens and other vegetables, 4 lb.

This yields 3,020 calories per day, with $3\frac{1}{4}$ oz. of flesh-forming food, $2\frac{1}{2}$ oz. of fat, and 1 lb. of starch and sugar.

It may be distributed among the meals as follows:—

Breakfast.—Porridge (1 oz. oatmeal); milk, $2\frac{1}{2}$ oz.*; bread, 6 oz.; bacon, 2 oz. (on 3 days a week); on the other days fish, 4 oz.; sugar, $\frac{1}{4}$ oz.; tea.

Dinner.—Meat $3\frac{1}{2}$ oz.; potato, 12 oz.; milk pudding (rice, or sago, &c., $\frac{1}{2}$ oz.; milk, 5 oz.; sugar, $\frac{1}{4}$ oz.); apple, 4 oz.; greens, $\frac{1}{2}$ lb.

Tea.—Bread 4 oz.; margarine, $\frac{1}{2}$ oz.; jam or syrup, 1 oz.; tea; milk, 1 oz.; sugar, $\frac{1}{4}$ oz.

Supper.—Bread, 6 oz.; cheese, 1 oz.; jam or syrup, 1 oz.; potato, roast, 4 oz.; cocoa; milk, $1\frac{1}{2}$ oz.; sugar, $\frac{1}{4}$ oz.

Diet 2. The following diet of 2,500 calories is ample for most business men. It contains the Controller's allowance for Class 3 (men unoccupied or on sedentary work) of $4\frac{1}{2}$ lb. of bread per week. The amount of the other cereals, meat, fat and sugar is the same as in Diet 1.

It may be distributed among the meals as follows:—

Breakfast.—Porridge (1 oz. oatmeal); milk, $2\frac{1}{2}$ oz.; bread, 4 oz.; bacon, 2 oz. (on 3 days a week; on the other days 2 herrings at 3 to the pound); sugar, $\frac{1}{4}$ oz.; tea.

Dinner.—Meat, $3\frac{1}{2}$ oz.; potato, 12 oz.; greens, 8 oz.; milk pudding (rice or sago, &c., $\frac{1}{2}$ oz.; milk, 5 oz.; sugar, $\frac{1}{4}$ oz.); apple, 4 oz.

Tea.—Bread, 2 oz.; jam or syrup, 1 oz.; tea; milk, 1 oz.; sugar, $\frac{1}{4}$ oz.

Supper.—Bread, 4 oz.; margarine, $\frac{1}{2}$ oz.; jam or syrup, 1 oz.; potato, roast, 4 oz.; cocoa; milk, $1\frac{1}{2}$ oz.; sugar, $\frac{1}{4}$ oz.

A woman on ordinary industrial work or in domestic service would receive $\frac{1}{2}$ lb. less bread per week than the above. She will also, in many other cases, eat rather less of the other foods.

It need hardly be said that variety in the preparation of dishes is of much importance, and that the taste and attractiveness of these or any meals will depend chiefly upon the way they are cooked and served.

* Two tablespoonfuls measure one ounce.

VII.

WHO NEEDS MORE FOOD AND WHO LESS.

In chapter I. it was stated that our food warms us, supplies the power for all we do, and gives material to make good the wear and tear of our bodies. It follows that the amount of food needed will differ greatly in different persons, according to the warmth needed, the work done, and the material required to replace losses. It is, therefore, important to show what the conditions are which decide how much food any one of us ought to have.

Work and activity are of prime importance. If a man is working hard with his muscles he needs a great deal more food than when he is resting. There are no exceptions to this rule. A man may by grit or pluck work hard for a little while on a low ration, but he is living on himself and very soon his work will fail. A man lying down all day only uses half the energy, measured in calories, of a man working. It follows that workers save energy by resting as much as they can in their spare time.

Large people need more food than small.

Build is even of more importance than actual weight. People who are well covered need much less food than thin people. The greater part of our food is used up in keeping the body warm. Now the more our outline is like that of a sphere, the smaller our surface becomes as compared with our weight, and the less heat we lose from it. To be fairly plump is, therefore, an economy in food. Those who have too large a store of fat can save food by living upon it. They need the same amount of meat as other people, but very little fat or starchy foods.

Everyone needs more food in cold weather. Soldiers exposed to cold, workers in cold countries and Arctic explorers, commonly eat half as much again as ordinary folk. The best way of increasing the food in severe cold is by adding fat. Food is saved by wearing warm clothes.

Careful experiment has failed to show that those doing continuous mental work need more food than other sedentary workers. The energy used in thought cannot be represented at present in terms of food.

Children need plentiful food for three reasons; their surface is large compared to their weight, they are growing, and they are generally very active. A child of six may need two-thirds as much as a grown-up. A girl of thirteen needs as much as her mother and a boy of thirteen may eat as much as his father.

Women take four-fifths as much as men because they are smaller. Mothers nursing their babies must have much more food than they would otherwise eat, as the milk which the baby takes may be of the value of 500 to 1000 calories in the day. Expecting mothers also need rather more, though nothing like so much as when they are nursing.

We may now sum up in figures the amounts of food which different people need according to age, sex and occupation.

	Food Units or Calories per day, (rough average),
Children, aged 6	1,600
" " 8	1,800
Women, including those engaged in business, and girls over 13	2,000 to 2,500
Women, continuous light work, munition workers, 'bus conductors	2,400

*Food Units or
Calories per day
(rough average).*

Men, including those in sedentary businesses, and boys over 13	2,300 to 2,800
Women, gardening and farm workers, heavier munition work	2,800
Men, light continuous work, shop assistants, plumbers	3,000
Men, muscular work	3,500
Men doing continuous heavy work, iron workers, soldiers on active service	4,000 or more.

By looking at this list a fair idea will be obtained as to who ought to have more food and who can do with less, especially if the build of the person concerned is allowed for. Thus a tall thin person will need 200 or 300 calories more than is set forth, whilst a plump person will need less.

VIII.

LITTLE SAVINGS.

“MONEY LITTLES MAK’ A MUCKLE.”

There are various small economies, already practised in many households, which, if extended to the whole nation, will make our supply of food go much further.

The first step towards the saving of food in the home is that the housewife should attend herself to every detail. If any part of the household management be left to others, whether shopping, the arrangement of meals, or the methods of cooking, there will, as a rule, be waste. Every penny spent should, of course, be put down and week compared with week. It always costs more not to keep accounts.

Three meals a day are enough for healthy people. It is a good thing to get hungry before a meal, because we produce better digestive juices if we have an appetite. When a good meal is taken, the active part of its digestion is not over for four or five hours. Hence, if more food is eaten before the end of that time, the digestion of the new meal and of the remains of the former one must go on together. Healthy folk should, therefore, give up all intermediate food, such as bread and butter with early tea, and mid-morning lunches. Many people would also be the better for not taking food at afternoon tea. If any extra little meals are needed, as for old people, or for children’s supper, they should not contain any of the protein foods such as meat, potted meat, cheese or egg. Tea should not be drunk more than twice a day. Workers ought always to have a good breakfast.

Meals should not be hurried and all food must be carefully chewed. If food is swallowed before it is properly broken up by the teeth, the digestive juices may not be able to dissolve it, and in that case it will be wasted. Further, the actual digestion of starchy foods begins in the mouth.

It is generally better to drink after all the solid food has been eaten. If we keep drinking during a meal we are apt to eat more than we need.

Meat should be carefully carved and served. Whenever possible the carver should separate the meat from the bone, so that no bones remain on the plate to be thrown away. No one should accept a larger portion of meat or of any food than will be eaten. This applies not only to the home, but to hotels, restaurants, canteens, camps and ships.

There is no excuse at the present time for any food whatever being left on the table.

Except for an occasional roast joint, the best way of cooking meat is to stew it, especially if the meat is fried first; or a rabbit, for example, may be baked in the oven before putting it in the stewpot. Both the flavour and the nourishment are then preserved, and the less digestible kinds of meat are softened. Vegetables can be cooked separately and then added to the stew before it is taken off the fire.

If bread is made at home it should not be eaten until two days after the baking, or more, if kept well covered in a bread pan or crock. Bread or cake should not in these days be cut up beforehand, but should be cut on the table according to the needs of each person. No pieces of bread ought to be left over. Breadcrumbs must not be thrown away but dried in the oven, and passed through the mincing machine or crushed with the roller. They may then be used for frying, for puddings, or served in minced meat, or mixed with a little milk and parsley to make a stuffing for boned joints.

If the two-ounce rolls are used it may be noted that five of them in the day are within the Controller's allowance of bread for a man, and four for a woman, if the occupation is sedentary in each case, provided, of course, that no toast, pastry, or other bread or flour food is taken. Each roll that is not eaten saves an ounce and a-half of flour which may be used, if needed, for cooking.

Everything left over from the meal should be carefully covered and used.

Fat is a valuable food and none of it ought to be allowed to go down the sink. Any pieces of suet or fat bacon can be used for dumplings, suet pudding or oatcake. All fat left upon dishes, with bacon rinds, should be collected and melted in a jar in the oven, passed hot through muslin or a sieve and put in the oven again in a jar with a little water. The clarified fat rises to the top and may be used for pastry, puddings or frying.

Greens and potato left over make an excellent dish if fried together in dripping. So do potatoes, turnips and parsnips when boiled in stock.

All bones should be boiled at least twice for stock, to which any gravy left from meals should be added. Cereals such as pot barley, rice, sago, tapioca and lentils should be soaked for 12 hours in water. The water contains nourishment, and should be used for the cooking or saved for making soup. Grittiness in a pudding can often be avoided by boiling the steeped cereal for a little before mixing it into the pudding dish. Greens should be boiled for a minute or two and then the water thrown away: it contains the unpleasant taste of cabbage water. The greens are then put in a little fresh water and cooked. The second water contains salts and other matter from the greens and should not be thrown away but used for making soup.

BREAD AND CEREALS.

The various kinds of corn are known as cereals. The chief of them is wheat. We have become accustomed to eat bread made from the inner two-thirds of the wheat grain, the outer third having been given to animals. But at the present time it is important to use as much as possible of the grain for human food, so that wheat flour is ground to contain four-fifths or more of the whole grain. This is an advantage, not only because we get more food, but because the part of the grain which was formerly rejected contains valuable flesh-forming material and salts. Further, it is necessary to use the flour of other cereals as well as wheat in making bread. If properly mixed and baked the bread made from wheaten flour mixed with the flour of other kinds of corn, such as oats, barley, rice and maize, though darker in colour, is as nutritious and healthy as bread made entirely from white wheaten flour.

No one must eat more bread than he needs, and no bread whatever must be wasted, thrown away, or given to animals. All cereals, including oatmeal, barley meal, rice, cornflour, maize meal, and macaroni must be used with great care, as must also tapioca, sago, dried peas, beans and lentils.

The various kinds of corn can be used also in making bread at home, so that the same amount of bread contains less wheat. This is an advantage so long as other cereals are available and can be diverted from less essential uses. The cost is greater, but if adopted by those who can afford it, more of the cheaper wheat flour will be left for the needy.

Oatmeal is scarce and the price has risen greatly. It is, however, to be had more freely where oats are grown, and at less than the market price. Oatmeal is the most nutritious corn we have. One pound gives 1,732 calories, whereas a pound of flour gives 1,651 calories. Further, oatmeal contains 15 per cent. of the flesh-forming protein and 8 per cent. of fat, against wheat flour 11 per cent. of protein and only 1 per cent. of fat.

A horse eating 10 lb. of oats a day consumes food which would supply a man for five days.

The disadvantage of oatmeal is that it does not, alone, make good bread. The reason why wheat flour gives the best bread is that when it is mixed with water a sticky substance called gluten is made. The dough rises because small bubbles of gas are formed all through it; when it is baked the sticky gluten holds these little cavities open, so that they do not collapse as the bread cools, but keep it spongy. Flours which do not contain gluten will make biscuits, but not spongy bread.

If, however, oatmeal is mixed with wheat flour, we get the double advantage of the gluten in the wheat and the protein in the oatmeal. Half oatmeal and half flour will make bread, but one-third oatmeal is recommended for daily use, as flour already contains a proportion of other meals. The ordinary method of baking gives excellent loaves, as follows:—

Recipe for making bread with flour and oatmeal.—

9 lb. of flour, 4½ lb. of oatmeal, and 3 oz. of salt are put in a bowl. Make a hole in the middle and add water. Sprinkle a little sugar upon 4 oz. of yeast and stand it in a pint of water before the fire till it froths to the top of the water. Mix it in with the flour and water. Knead thoroughly for half an hour. Set in front of the fire to rise for one hour. Divide into loaves of 2 lb. each, knead each loaf a little, put into a tin and set before the fire for another half hour. Bake in a fairly brisk oven for an hour.

The $13\frac{1}{2}$ pounds of flour and meal give about $17\frac{1}{2}$ pounds of a nice bread which is of higher food value than ordinary bread and contains more of the body-building protein.

Owing to the scarcity of yeast, it is better at the present time to use $2\frac{1}{2}$ oz. of yeast, in which case the bread takes longer to rise. A convenient way is to make the dough the last thing at night and put it on the rack of the range, care being taken to see that the fire has become low. In the morning the dough should be ready to put into the oven. Or yeast may be replaced by vinegar and soda, as described on the next page.

A rather moister, filling, but palatable loaf may be made as follows:—

Sprinkle 2 lb. of oatmeal into a pan containing 4 quarts of boiling water, and boil, stirring, for half an hour, to make stiff porridge. When the porridge is cool enough mix it into 6 lb. of wheat flour with $1\frac{1}{2}$ oz. of yeast, prepared as above, using more water as required. Knead thoroughly for 20 minutes. Set in front of the fire to rise for half an hour, and again for 20 minutes after dividing into loaves. Bake an hour and a half.

4 lb. of this bread takes $2\frac{1}{4}$ lb. of wheat flour.

Oatmeal porridge and oatcake should be used much more generally. Many people do not like porridge because it is often made badly. If properly cooked it is a delicious jelly.

Recipe for porridge.—Raise 2 quarts of water to the boil. Then sprinkle in gradually through the fingers 5 ounces of oatmeal, stirring so that no lumps can form. Boil an hour, still stirring most of the time. Add $\frac{1}{2}$ oz. salt after the first half hour.

Another plan is to soak the oatmeal for 12 hours first; it will then require to be boiled for half-an-hour only.

This is enough for 5 people if other food such as bacon, egg, or fish is eaten. If the porridge is the main dish twice the quantity or more should be made.

Fuel can be saved by cooking in a hay-box after the first 15 minutes, as described on page 47.

Barley flour or meal also makes excellent porridge which may be used as a pleasant change.

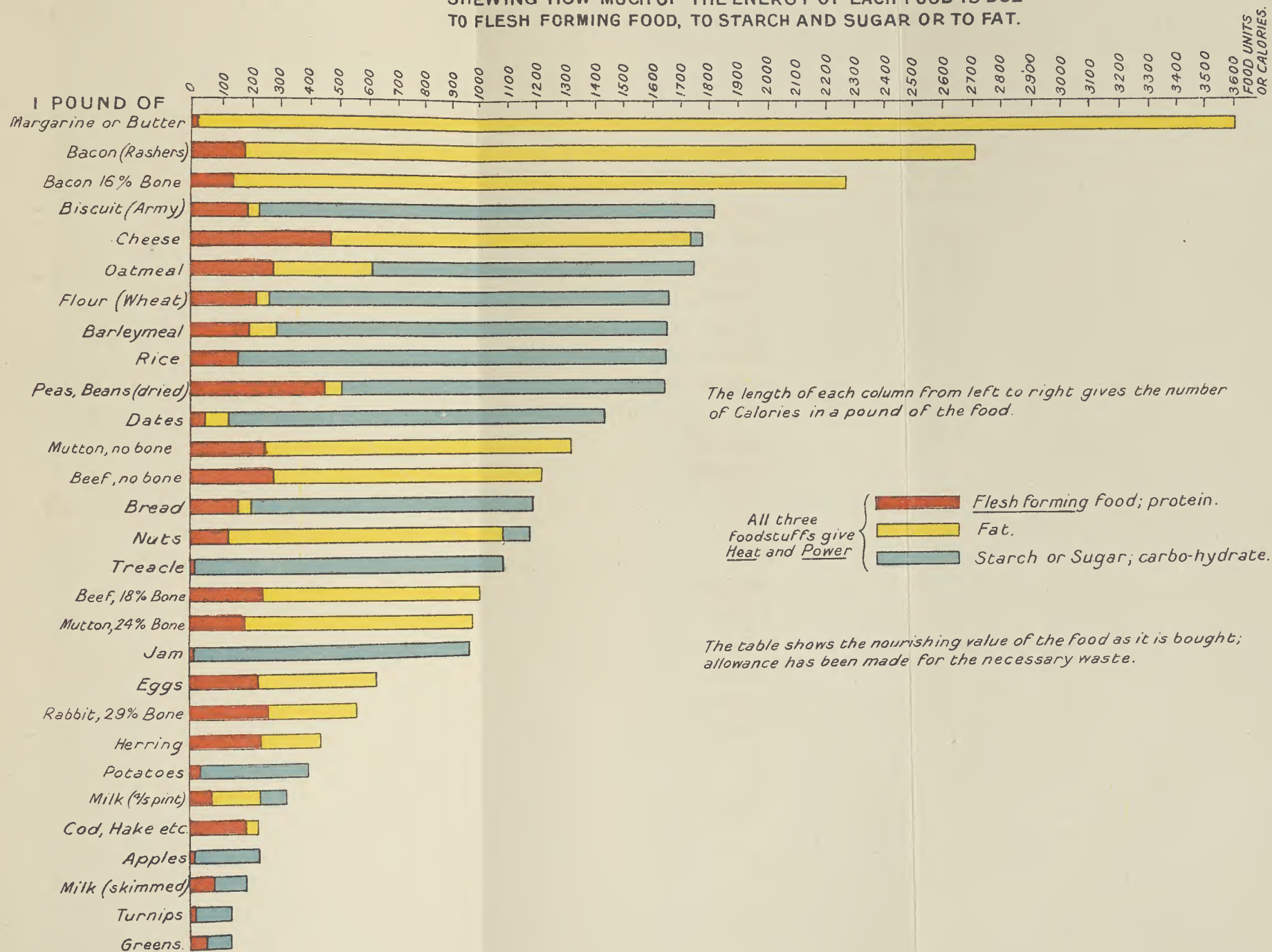
Recipe for oatcake.—Take 3 lb. of oatmeal. To each pound take one tablespoonful of melted dripping or other cooking fat, and pour into the meal, mixing with the hand. Then add gradually 1 pint of warm water in which a dessertspoonful of salt and a dessertspoonful of bicarbonate of soda have been dissolved. Make into a dough. Roll out thin, cut into cakes, and put on the girdle or baking tin which has been warmed. Cook over a red fire for 15 to 20 minutes, turning the cakes once. Near the end of cooking move the girdle a little away from the fire.

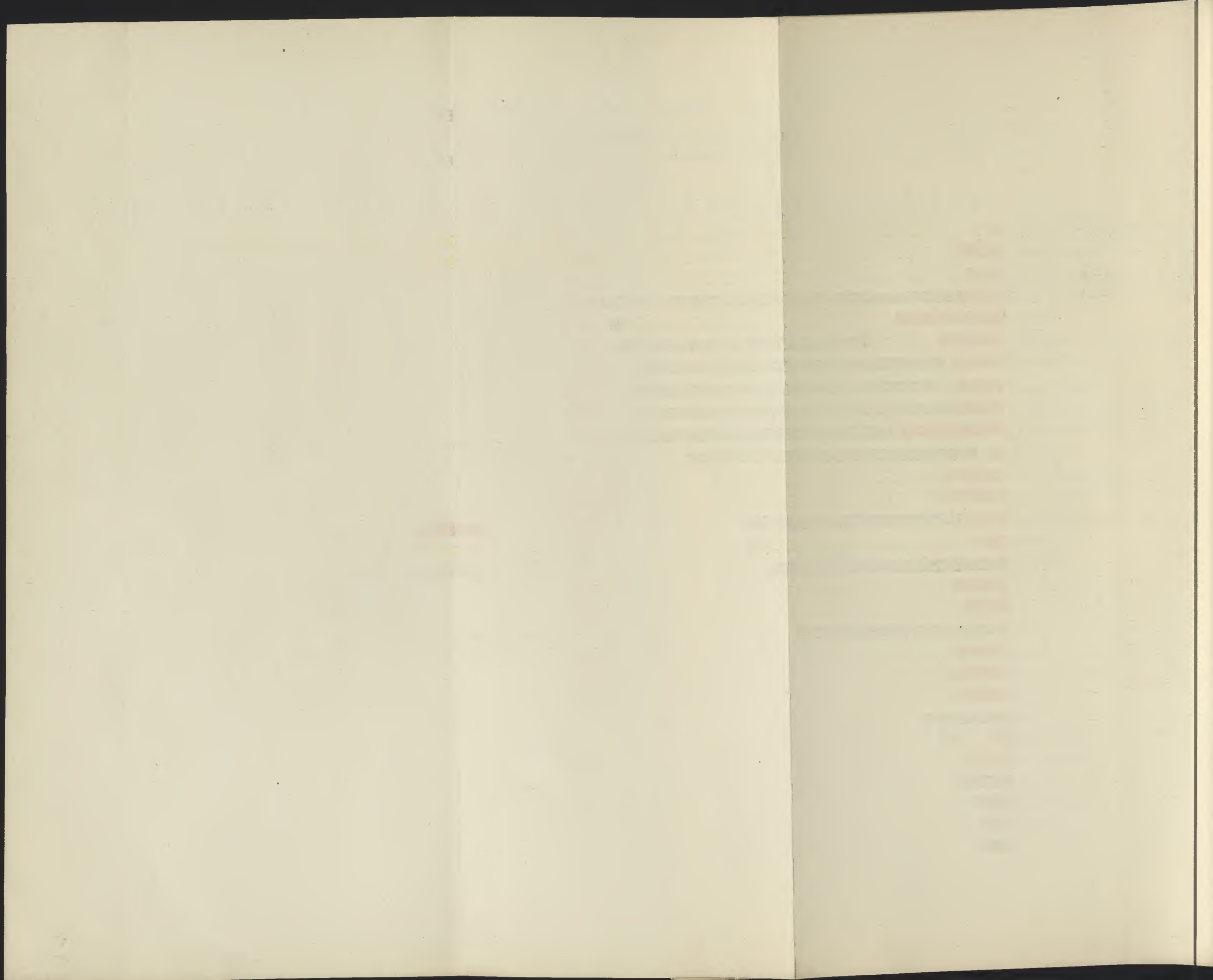
Oatmeal may also replace wheat flour in thickening sauces and gravies.

Barleymeal.—It is an error to suppose that barley is only fit for feeding animals and making beer. It is good human food. Its fuel value is close to that of wheat flour. If the whole grain is ground after the husk has been removed a nutritious barley flour or barleymeal is obtained. At a time of shortage like the present, the grinding of the husk with the meal for the use of pigs is inexcusable. Barley flour is scarce in many parts, but where it can be had it should be used. With one-third barleymeal and two-thirds flour a spongy, nutty-tasting loaf may be obtained. The whole barley grain, known as unpearled or pot barley, makes very good soup and puddings. It is better than pearl barley, in making which the outer part of the grain is ground away.

A TABLE OF FOOD VALUES.

SHEWING HOW MUCH OF THE ENERGY OF EACH FOOD IS DUE TO FLESH FORMING FOOD, TO STARCH AND SUGAR OR TO FAT.





Barley flour makes good porridge which can often be taken by those with whom oatmeal porridge does not agree. Barley scones may be made of half flour and half barleymeal. Pancakes of the same proportion of flour and meal are excellent.

Rice is not grown in this country, but it is imported from other parts of our Empire, and is a most valuable food. It does not save shipping to use rice, but so long as stocks are available it should be eaten. One-third rice and two-thirds flour make good bread. A spongier loaf is made if the whole rice is boiled first, then strained, and mixed in with the flour, using in the mixing the water in which it was boiled. Unpolished rice, such as was formerly given to fowls, should always be used. It is more nutritious and makes nicer food whether in bread or puddings. If rice flour or ground rice is used, it is mixed with the wheat flour in the usual way. The loaves will be closer and whiter than the loaves made with boiled rice, and those who like white bread may prefer them. The food value of the rice loaves is not inferior to the others. They contain, however, much less protein, and on this account are not suitable for needy households, but only for homes where meat, fish, cheese, milk and eggs form a good part of the diet.

All of these breads may be made without yeast by kneading into the dough a teaspoonful of vinegar and a teaspoonful of soda to the pound of flour or meal. The bread is a little closer and shorter than that made with yeast, but quite good.

Maizemeal, also imported, is a nourishing food, though its heat value is a little lower than that of the other meals. It contains more fat than any corn except oats. A third of maize and two-thirds of flour make a nutritious loaf. The taste differs more from that of ordinary bread than is the case with oatmeal, barleymeal or rice. Various flours are prepared from maize, however, which taste well, and are useful in cooking. Flaked maize makes nice puddings. Maizemeal may be mixed with oatmeal to make porridge.

Rye contains some gluten, though less than wheat. It makes a close bread, which was formerly one of our staple foods.

Excellent bread may also be made with flour and potato, as described in the next chapter.

X.

POTATOES.

The potato is one of our most valuable foods. It is easy to grow and gives a very large return of nourishment for each acre cultivated; it keeps well for many months when properly stored; it is easy to cook, and is well digested by healthy folk. It has the disadvantage that it is not a good food for transport because of its weight, as four-fifths of it is water. Methods of slicing and drying potatoes have been used abroad but not to any extent in this country. The manufacture of potato flour on a large scale would give a food which could be carried more conveniently from place to place and stored for long periods, though it could never be such an important food as wheat flour.

The potato contains 15 to 20 per cent. of starch, about $2\frac{1}{2}$ per cent. of nitrogenous matter, of which a part is protein, and some salts; it also contains some of the substances known as vitamins, small quantities of which are needed for proper growth. The rest of its weight is water. The amount of nitrogenous matter, which we need for building and

repairing our flesh, is low in the potato, and there is no fat, or only traces, so that we must look to other foods for these materials. The foodstuff we need most of, however, to give us warmth and power, is starch, and this the potato supplies abundantly. It is, therefore, able to form a very large part of the human diet. Men have, indeed, lived on potatoes alone, eating 6 lb. or more a day, and have kept well. This shows how wonderfully the body can fit itself to circumstances when driven by need, but must not be used as a reason for feeding on potatoes alone; for proper health other foods, such as fish, meat, margarine, and milk, must be eaten with them.

If potatoes are peeled raw some of the food is cut off with the peel; if they are then soaked and boiled a good part of the nitrogenous matter goes into the water. We have seen that there is little enough body-building stuff to begin with and it is clear that it should not be wasted. Potatoes must for these reasons always be boiled, steamed, or baked in their skins, for if cooked in any of these ways none of the food is lost. Boiled potatoes are much more floury if after they are done the water is drained away and the saucepan put by the fire, with the lid partly off to let the steam escape, shaking the pan occasionally to prevent the potatoes from sticking to it. There should also be a small hole in the cover of the serving dish. For frying potatoes fat is needed; if it can be had this is a good way to use it, for chip potatoes are a concentrated food; a good deal of the water has been driven off in the drying and the added fat has a high value.

A pound of raw potato, if waste is kept low by cooking in the skins, yields about 400 food units or calories, the same roughly as a pint of milk, 1 lb. of herring, or 5 oz. of bread or meat. The floury cooked potato has a food value of about 450 calories a pound on an average.

Apart from their use at table as a vegetable, potatoes can be made into bread or scones and used for a large variety of dishes. One part of potato with three parts of flour makes nice bread.

Potato bread.—Put 6 lb. of flour into a bowl and make a hole in the middle. Stand 4 oz. of yeast with a small pinch of sugar in a pint of water before the fire till it froths to the top of the water. Take 2 lb. of cooked and mashed potatoes. Potatoes left over may be used but must be warmed up. Mix the warm mashed potato into the yeast, then pour it into the hole in the flour and work into a dough, adding gradually 2 quarts of water. Knead thoroughly for half an hour. Set in front of the fire to rise for an hour. Divide into eight loaves and bake for an hour and a half.

Yeast will be saved if $2\frac{1}{2}$ oz. only is used, in which case the bread takes longer to rise. It may be made last thing at night and left on the rack of the range after the fire is low. In the morning the dough should be ready to put into the oven.

These loaves have a good taste. It is better to make a small quantity at a time, enough for two or three days only, as potato bread does not keep so well as ordinary bread. Small loaves are better than large ones because they give more of the pleasant tasting crust. Although potato contains much less starch and protein than flour, when the bread is made with these proportions and baked in small loaves rather more water is driven off, so that the loaf contains as much body-building protein as ordinary bread; it yields 1,170 calories to the pound, that is, nearly the same amount of nourishment as ordinary bread.

A good loaf can also be made with more potato, one part to two parts of flour, or even half and half; but the bread tastes of the potato and is not so nice as when it is made with one part of potato to three of flour.

Potato scones.—Take $\frac{1}{2}$ lb. of cooked and mashed potatoes, add a little salt, and knead in as much flour as it will take (about $1\frac{1}{2}$ oz.), using two or three teaspoonfuls of milk to make a stiff dough. Roll out thin on a floured board. Cut into rounds and prick with a fork. Bake on a hot girdle or baking tin for about five minutes, turning when half cooked. When baked, butter the scones with butter, margarine or dripping if available, roll up, and serve hot. The batch gives over 600 calories.

Potatoes may also be used for a great number of dishes, of which the following are a few:—Fish cakes, rissoles, kedgeree, Irish stew, hot pot, shepherd's pie, sea pie, vegetable pie, soufflés, salads, soups, potato sanders, potato rolls, potato cheese, potato fritters, and potato pie.

Potato sanders.—Take 1 lb. of boiled potatoes, and while hot work into them, by mashing, 3 oz. of flour to make a stiff paste. Roll this out and cut in six squares. Soak 2 oz. of breadcrumbs in a little water, squeeze them dry and make into a forcemeat with half an onion, which has been soaked in boiling water, $\frac{1}{2}$ oz. of chopped parsley or herbs, and a little nutmeg; add seasoning. Put some of the forcemeat into each square of potato paste and roll like a sausage roll. Bake in a hot oven for 20 minutes. The batch gives about 770 calories.

Potato cheese.—Mash 1 lb. of boiled potatoes while hot, adding 2 tablespoonfuls of milk, 3 oz. of grated cheese, pepper and salt, and $\frac{1}{2}$ oz. of cooking fat. Grease a pie dish with $\frac{1}{2}$ oz. of cooking fat, and strew it thickly with breadcrumbs; fill with the potato and cheese, and bake for half an hour in a good oven. Turn out and serve very hot. An excellent dish. Food value about 1,050 calories, with over an ounce of protein.

Potato fritters.—Mix 4 oz. of flour and 8 tablespoonfuls of milk to a batter. Dip into it 1 lb. of slices of uncooked potato, and fry in boiling fat. This dish must be served very hot. Food value, 900 calories, with 1 oz. of protein.

Potato rolls.—Make a potato paste with flour as in potato sanders. Cut another pound of potatoes up small and add a small turnip, a small onion, half a stick of celery, all chopped, with parsley, herbs and seasoning to taste, and $\frac{1}{2}$ oz. of cooking fat. Roll out the paste rather thin, and cut it in six squares. On each put as much of the mixture as it will hold, then wet the edges and fold up like a sausage. Bake for about $\frac{3}{4}$ of an hour. Food value about 1,400 calories the batch. Ordinary dough may be used for the paste.

Potato pie.—Slice 1 lb. of potatoes, 2 sticks of celery, and 1 small onion, then mix with 2 oz. of sago, rice or tapioca, seasoning to taste, and 1 oz. of dripping. Put in a pie dish, adding water or stock. Cover with potato paste (made as for potato sanders), or ordinary pastry if desired. Bake in a moderate oven for 1 hour. Food value of dish, with potato paste, 1,640 food units or calories, with $1\frac{1}{4}$ oz. of body-building material.

Potato salad.—This is a good way of using cold potatoes. They are sliced up and served with dressing. A salad dressing without oil may be made with the yolk of an egg (hard-boiled or raw), a tablespoonful of vinegar, and a pinch of pepper, salt, and mustard. If oil is available, use two teaspoonfuls of salad oil and two of vinegar and the raw yolk of an egg. Two teaspoonfuls of dried yolk of egg may be used if no fresh egg can be had.

XI.

OTHER VEGETABLES.

Other vegetables have lower fuel values than the potato. A fair helping of them is half a pound, weighed raw. This is the weight of an average sized carrot, two-thirds of a parsnip or a quarter of a turnip.

The following list shows the number of calories which half a pound of the ordinary vegetables gives. The second column gives the number of calories bought for a shilling at the price named:—

	Calories in a helping of half a pound.	Calories bought for 1s. at the price named per lb.
Potato	200	* 1d. 4800
Parsnip	121	2d. 1452
Artichoke	120	2d. 1446
Beet	87	3d. 696
Carrot	79	1½d. 1272
Turnip	63	1½d. 1016
Greens	62	1d. 1488
Onion	58	6d. 232
Tomato	52	1s. 3d. 85
Rhubarb	52	7d. 180

The parsnip, artichoke and beet are the most nourishing after the potato. Next to them come the carrot and turnip. The potato, of course, gives much the best value for money at the prices named. Next after it come the parsnip, the artichoke, greens and the carrot. The supplies of all vegetables are short in the spring, the least scarce as a rule being carrots, onions and turnips. There are larger stocks of turnips than of the others, because the swede turnip is grown in quantity to feed animals, and usually keeps good to the end of April or longer. Although its food value is less than a third of that of the potato, it is by no means to be despised; and as potatoes get scarce it is a good plan to serve them mashed with an equal part of parsnip or turnip.

When we are obliged to replace nourishing foods by those which are less nourishing, it is clear that every care must be taken to lose none of the food value in preparing them for the table. The cooking of vegetables must be thorough, because if the starch grains are not broken up by heat many of them will escape digestion. But with the usual way of boiling there is a great loss of food. With potatoes the loss can be prevented by boiling or steaming them in their skins. Cabbage, however, loses a third of its food in boiling. If carrots are cut up and boiled in a fair amount of water a quarter of the food they contain passes into the water. A bushel would lose the equivalent of a pound of sugar, that is over 1,800 calories, nearly enough to feed a small person for a day. Other vegetables also lose heavily.

If vegetables are steamed or if they are baked there is no loss. The artichoke, parsnip, and onion are excellent when baked in fat and the fat adds greatly to the food value of the dish.

Failing baking or steaming vegetables should be boiled or stewed in a saucepan, just covered with water, and the water used for making soup; or they may be stewed in stock. Less of the food value passes into the water if the boiling is rapid. Another plan is to use the water in which onions or artichokes have been stewed for making a white sauce in which

* The prices quoted are an average of those in the cheaper shops in the United Kingdom in December, 1917, and January, 1918.

to serve them. Turnips and onions should be scalded first to remove the strongest part of the taste, as already recommended for greens on page 14, by plunging them into boiling water for a couple of minutes.

XII.

MEAT.

The value of meat as a food lies in the fact that it contains much digestible body-building protein. If properly cooked and chewed little or none of it is wasted. Hence meat, though its cost is high, is economical from a digestive point of view.

Although meat is an important food, we can live and work quite well without it, as the material it gives can be supplied by other foods (see Chapter IV.). No healthy person ought to eat meat at the present time more than once a day.

The Controller's allowance of 2 lb. of meat a week, including bacon, gives about two-thirds of an ounce of protein a day. - That in other foods will make up the 3 to 4 oz. a day which an adult needs. At present less than 2 lb. per head is available, but there is no fear of protein shortage, so long as the total amount of food is sufficient.

Lean meat, such as very lean beef or the flesh of the rabbit, is about one-fifth protein, one-tenth fat, and the rest water; it gives 40 calories to the ounce, or 640 to the pound. If there is more fat attached to the meat or lying between the fibres, the food value is much greater. Thus a pound of average mutton gives 1,306 calories, whilst fat bacon gives 2,708 in a pound, that is four times the food value of lean meat. But we need meat most for its body-building material; the energy value of the fat can be supplied in other foods. Now the cheaper kinds of meat contain as much of the flesh-forming protein as the dearer; and they are, if reasonably cooked, quite as digestible.

The amount of meat which can be bought for any sum of money depends partly upon how much bone must be taken with it. This varies with the condition of the animal: the fatter it is the smaller is the proportion of bone. A whole side of beef, as sold by the butcher, will contain about 18 per cent. of bone; half a sheep 24 per cent., and half an average pig 16 per cent. One-fifth of the total weight, or 20 per cent., may be taken as an average for different kinds of meat. There is, of course, much difference between various joints. Here is a list showing the quantity of meat and of bone which was obtained in a number of purchases. The price charged is given and in the last column the actual cost of the meat, after taking away the bone, is estimated. Some pieces which have no bone are included for comparison.

—	Weight.	Bone.	Percentage of bone.	Price. per lb.	Cost of meat without bone.. per lb.
	lbs.	lbs.		s. d.	s. d.
Ox heart... ..	4	0	0	0 10½	0 10½
Flank of mutton ...	1½	¼	17	0 11	1 1
Ox liver	11	0	0	1 2	1 2
Ox tongue (with root)...	7	0	0	1 3	1 3
Shoulder of mutton ...	5	¾	15	1 4	1 6¾
Leg of mutton	7½	1	13	1 6	1 10¾
Ox tail	2½	¾	30	1 2	1 11½
Sirloin of beef	14	2¾	20	1 7½	2 0½
Rabbit	1½-2	½	33-25	1 6	2s 3d.-2s.
Shin of beef	10½	5	49	1 2	2s. 3½d.
Fowl	2½-3½	¾	33-21	1 6	2s. 3d.-1s. 10½d.

* See footnote on page 20.

The meat of large joints costs the most, though it must be remembered that it contains more fat, and that the bones bought with it are useful for soup. The small pieces are the cheapest, like the whole ox tongue with roots, the heart, the flank of mutton, and the ox liver. If rabbits or fowls are bought by the pound, the thin ones are, of course, dearer; because they contain as much bone as the fat ones.

Pieces which contain gristle as well as bone and give good stock on boiling are economical. A shin of beef, for example, of 10 lb., in addition to the cooked meat will give a great deal of stock. A sheep's head, costing 1s. 3d., and giving with the tongue and brain over a pound of meat, gives also stock which with the meat will make two pounds of potted meat. A whole ox head at 7s. or 8s. is a good purchase for large families or institutions. It gives ten pints of good stock, which with the meat upon it makes 16 pounds of excellent potted meat jelly, equal in food value to eight pounds of meat.

Ox heart or any cheap pieces of beef can be used for making sausage roll. This is a good plan for using up material at canteens.

Recipe.—Take $1\frac{1}{2}$ lb. (or proportionately larger quantities) of ox heart or any bits of beef, $\frac{1}{2}$ lb. of odd pieces of bacon or ham, as fat as possible; mince, and mix with a breakfast-cup of crumbs, made from left over crusts of bread, baked and crushed, a teaspoonful of black pepper, a teaspoonful of salt, a pinch of cayenne and a dessertspoonful of vinegar. Take four tablespoonfuls of milk and moisten, mixing well with the hand. Form into rolpolypoly shape, dust with flour, tie into a cloth, and boil for $2\frac{1}{2}$ hours. Serve cold.

Tripe is a very digestible food; a pound and a half contains as much protein as a pound of beef.

Those who can afford it should always buy the ordinary joints, and not the cheaper pieces.

The cooking of meat makes it palatable and destroys any germs or parasites it may contain: it does not make it more digestible. When meat is roasted, baked or fried, there is a loss of weight because a good deal of the water is driven off. The meat served may only weigh a half to two-thirds of what it weighed raw. But there is no loss of food value, unless, of course, it is so charred as to be destroyed, or so tough that it cannot be chewed. The gravy contains hardly any food, though its pleasant taste helps the appetite. The same is true of meat extracts. When meat is stewed or boiled some of the flavour and salts and a little fat and protein pass into the water, which is used as broth. The food value of the broth, however, is small, and if it is to form an important part of a meal, it should be thickened with flour or barley flour, and whole barley, potatoes and other vegetables added. The best way to cook odd pieces of meat is to fry or bake them a little first and then stew them. By this plan the flavour is preserved and all the tougher parts are made more digestible. Another good way is to braise meat with vegetables.

Meat which has been kept for several weeks in cold storage is as nutritious as fresh meat. Tinned meat is rather more nutritious, weight for weight, than fresh meat, because some of the water has been driven off in its preparation. For the same reason dried meats, such as smoked bacon, have a high food value.

XIII.

FISH.

In these days everyone should buy fresh fish so far as means allow. It is a valuable and digestible substitute for meat and eggs, and, as

it will not keep, is wasted if not used directly it is offered for sale. There is always less fresh fish in the spring, quite apart from war conditions, because fish leave their feeding grounds then and do not return till June or later. As summer arrives catches improve and the cost should become lower.

Fish, like meat, is nearly all protein and water with a variable amount of fat. The most nourishing fish are those which contain the most fat, namely, the salmon and turbot. Next come the herring and mackerel. The hake, cod and haddock come last, containing less than 1 per cent. of fat.

The food value of an ounce of lean beef, 50 to 60 calories, is given by an ounce of salmon or turbot, not reckoning bones or skin, or an ounce and a half of herring or mackerel, or three ounces of cod, hake or haddock. As sources of the body-building protein, however, the last named are just as good as more expensive kinds, for the flesh of all fish contains nearly as much protein as meat. In comparing the two, reckoning must be made for the waste in buying. With joints of meat the proportion of bone is not on the average more than a quarter of the whole. With fish, the head, bones, fins and skin often come to nearly half the weight. When this is allowed for it is found that the protein contained in 1 lb. of meat is got by buying $1\frac{3}{4}$ lb. of fish.

The following table is drawn up to show which fish give the best value for money at the prices named. In these purchases the proportion of waste was ascertained. In some cases, as the table mentions, the fish were bought already skinned and headed, and in these the only waste to the buyer was the bone. The third column shows the estimated cost of the eatable part of the fish, and the last column the food value obtained for a shilling:—

	Percentage of waste.	Price per lb.	Cost per lb. of Fish without waste.	Food value for 1s. Calories.
		<i>s. d.</i>	<i>s. d.</i>	
Sprat	0	0 6	0 6	1,320
Herring (salted)	18	0 6	0 7½	1,320
Herring (fresh)	34	0 7½	0 11½	704
Catfish, rock turbot or rock salmon (bought skinned and headed).	22	1 0	1 3½	568
Mackerel	50	0 8	1 4	483
John Dory (bought skinned and headed)	14	1 2	1 4½	480
Salmon	23	2 0	2 7	472
Haddock	45	1 0	1 9½	346
Cod	49	1 3	2 5½	259

The sprat and the salted herring give much the best value, and next comes the fresh herring. Two herrings, or three small ones, give 400 calories, and contain 2 oz. of protein; this, when added to that in the ration of bread, gives nearly all the protein which an adult needs in the day. A great number of salted herrings have usually been exported but should now be eaten at home. They must be soaked in water three days, the water being changed four or five times each day; or, better still, left in a basin in the sink, with the tap dripping slowly, for a day or more; after that they should be raised to the boil two or three times, changing the water. They may then be boiled and are excellent served with potatoes, rice or beans, and margarine or butter. They are nicest cooked with

potatoes as follows:—Take a small ring of skin off each potato, place in a fairly large pot, put the prepared herrings on the top, and boil together until the potatoes are cooked. If the salt has been properly soaked out, the herrings are also quite good baked, grilled, or dipped in oatmeal and fried.

A bloater or a kipper gives the same amount of nourishment as a fresh herring, though weight for weight the food value of dried fish is greater than that of fresh fish because water has been driven off. Thus the dried herring and mackerel can replace the same weight of meat.

The sprat, when it can be had, is especially economical because the whole is eaten, like whitebait.

The other fish are dearer, when the amount of food they give and the price paid for it is taken into account. The least expensive of them is the catfish, also called rock salmon or rock turbot. Many people do not eat the catfish. It is, however, excellent and wholesome. Its ugly head, with large strong jaw, used, we are told, for dislodging limpets and mussels, is perhaps the cause of the prejudice; and the fishmonger often sells it beheaded and skinned, and sometimes by another name.

The more costly salmon and turbot should be bought by those who can afford them. The salmon, indeed, gives better value than the haddock or cod at present prices. The tinned salmon is equal in nourishment to the fresh fish. The sardine has a high food value, into kedgerree, curry, fish cakes or fish custard.

Margarine or butter should, if possible, be eaten with fish, especially with those which are poor in fat, such as the haddock and cod.

The great amount of gristle in the cod's head gives much stock when well boiled, which can be made into a nourishing fish soup, useful for large families and schools. For example, a large cod's head and shoulders gave 7 quarts of stock, of a value of over a thousand calories. To it was added 1 pint of milk, 4 oz. of rice, 1 oz. of barley flour, 4 oz. of onion and $\frac{1}{2}$ oz. of parsley. This made 8 quarts of soup, each pint of which was worth 120 calories.

Great care should be taken that fish remnants are not wasted but made into kedgerree, curry, fish cakes or fish custard.

Kedgerree.—Boil 6 oz. of rice for twenty minutes and strain thoroughly. Melt 2 oz. of cooking fat in a pan and add 12 oz. of pieces of fish broken up small, two hard boiled eggs (if available) chopped up, the rice, and salt and pepper. Cook for ten minutes, stirring all the time. The dish gives over 1,400 calories. If divided between four people, each of whom eats with it 2 oz. of bread and $\frac{1}{2}$ oz. of margarine, everyone will get 620 calories, or two-thirds of a good meal.

Curried fish.—Melt $\frac{1}{2}$ oz. dripping in a pan and add 1 teaspoonful of curry powder. Break up 1 lb. of fish remnants and mix in the pan with 2 oz. of rice, $\frac{1}{2}$ pint of fish stock (or skim milk) and seasoning to taste. Cook for 10 minutes, stirring all the time, and serve with boiled rice. Food value of whole dish, 700 calories.

Fish cakes.—Boil 3 oz. rice for 20 minutes; drain well, and mix with 12 oz. of broken up fish in a basin, adding pepper, salt and parsley. Bind together with 1 egg and $\frac{1}{4}$ pint of milk, and divide into six cakes. Fry in fat till brown. Each cake has a value of 100 calories.

Fish custard.—Put 1 lb. of broken up fish in a greased pie-dish.

Sprinkle with pepper and salt. Beat up 1 egg and $\frac{1}{4}$ pint of skim milk, and pour over the fish. Bake in a moderate oven 20 minutes. Food value of whole dish, 360 calories.

XIV.

CHILDREN'S MEALS.

Children's Meals.—The feeding of babies does not offer any special difficulty in wartime, so long as milk can be had. Perhaps the danger of unwise feeding is as great as that of lack of food. The only right food for an infant is its natural food. Any mother who can feed her baby and does not is using the food of others, and is not doing the best for her child. It is remarkable how seldom babies which are fed by their mothers are brought to doctors or hospitals. The reason is that, compared with other children, they seldom get ill. Cow's milk, even when diluted and modified according to the age of the baby, is inferior to human milk; but it is the only other suitable food. Hence the importance of keeping up the milk supply for the sake of infants and young children.

Children under 18 months should receive a pint and a half of milk a day, except, of course, while they are being fed by their mothers. From 19 months onwards they should get a pint a day. The main foods of children over five years old are milk, bread, porridge (of oatmeal, barley flour, or ground maize and oatmeal mixed), oatcake, puddings, eggs, butter or margarine, dripping, meat, bacon fat, fish, fresh vegetables and fruit.

The most likely foodstuff to be short is the fat, supplied in milk, butter, margarine, dripping, suet puddings and bacon; children should get a fair amount of some of these daily. Margarine should be given with bread in preference to syrup or jam. Bacon should be fried with bread to take up the fat, or a good deal of it will be left in the frying pan or the dish.

A little fruit, fruit juice or well-cooked fresh vegetables must be provided.

Three meals a day are enough for healthy children, with a slice of bread and butter and some milk at bedtime. Meat or fish should be given at the mid-day dinner only. Older children, living the more strenuous school life, may have fish, egg or bacon at breakfast also, but can do quite well without it if porridge, or oatcake, and milk is taken. Children ought always to have a good breakfast. Breakfast and dinner should be their chief meals. The third meal, tea, should not be eaten until four hours after dinnertime, and should not include any meat or protein foods; sleep is better if this meal, however plentiful, is quite plain. A convenient division of the bread allowance is to give some at breakfast, but only after porridge or oatcake has been eaten, little at dinner, or none if there is a nourishing pudding and no soup, and most at tea. Sugar need not form part of every meal. Except for infants, it is not an absolutely necessary food, because we can and do make sugar in our bodies from the starch we eat.

Care must be taken to see that children eat slowly, chewing all food, whether soft or hard. Any decayed, loose or tender teeth must be put right. Every meal should end with a piece of crust, oatcake or a biscuit to cleanse the teeth and prevent decay.

Children should be taught to drink at the end of their meal, after all the solid food is eaten, and, if they are thirsty, between meals. Before the age of five or six years no tea or coffee should be given. After that milk and water may be just flavoured at breakfast and tea. At dinner water only should be drunk, or water flavoured with fruit juices.

Nothing whatever should be eaten between meals.

Both at home and at school, the fare must be varied both as regards the food and the way it is cooked, so that the child cannot tell what is likely to be given on any one day. This uncertainty helps appetite, and good digestion waits on appetite. It is easy to forget in what a great number of ways plain foods may be served. Variety needs care, but does not necessarily mean expense.

The following are some of the plain dishes from which choice may be made to get variety at the three meals of the day :—

Breakfast: Porridge, milk, oatcake, bread, margarine, butter or dripping. One of the following dishes may be added: Eggs, boiled, poached, scrambled, fried, French, curried or scalloped; fish, grilled, fried, baked or boiled; fish cakes, scallops, potted herrings, sardines, bloater paste; occasionally sausage or bacon; nuts, fresh or dried fruits.

Dinner: Two courses, one of them being the chief protein dish of the day of meat or fish, or sometimes eggs, cheese or nut dishes, with potatoes and fresh vegetables, either cooked or as various salads; and the other course a pudding. Soup may be added or on certain days replace the meat course: in the latter case the soup should contain plenty of vegetables and be eaten with bread or dumplings.

Meats: Roast, baked, braised, stewed or boiled, stuffed, salted, minced, curried, potted, jellied; as pies or puddings, shepherd's pie, Irish stew, hot pot, rissoles; liver, minced, fried, stewed or curried; stuffed heart, oxtail.

Fish as mentioned under breakfast, also: boiled cod and egg or parsley sauce, fish pie with curried beans, fish cream with curried shrimps; stuffed haddock; tomatoes stuffed with shredded fish.

Dishes for dinners without meat or fish: Curried eggs, cheese on toast, macaroni cheese, cheese pie, curried nuts, chestnut stew, haricot beans and lentil dishes, pease pudding, savoury pies, vegetable pies, savoury omelettes.

Puddings: Rice, ground rice, flaked rice, semolina, tapioca, maize, corn-flour, sago, farola, bread crust or bread and butter, suet, raisin, currant, ginger, spice, cabinet, college, castle, date, fig, roly with jam, treacle or syrup; fruit puddings, pancakes (half flour and half barley flour or meal) junket, blanc-mange, stewed fruits, roast apples, fritters.

Puddings and fritters usually made with flour are excellent made with part or all barley flour or cornflour.

Soups: Meat, fish, gravy, Scotch broth, oatmeal, pea, lentil, haricot bean, rice, potato, mixed vegetable, leek, spinach, tomato, celery, carrot, turnip, parsnip.

Tea: Bread, oatcake, margarine, dripping toast, currant bread, potato scones, barley scones, rice cakes, gingerbread made with oatmeal, syrup,

jam, sandwiches of cress, tomato, lettuce, radish; green and fruit salads; stewed fruit.

The amount of flour and bread eaten by older children must be controlled but not unduly restricted. The Controller's rations (p. 30) are liberal for most children. But they are not intended to deprive any child of the food needed for proper growth. In many cases parents, if their occupation be not laborious, will be able to take less bread themselves and leave more for the children. If bread can be made at home and barley flour or meal, oatmeal, or maize are obtainable, the mixtures of these with national flour, described on pages 15 to 17, will give wholesome and nourishing bread. Cereals will be used for puddings so far as they can be had and means allow. In some schools the diet contained too much starchy food, such as bread, and in these an increase of the protein foods, such as fish and beans, will be an advantage. The amounts of food needed each week in schools of children mostly over thirteen years old will be similar to those given on pages 44 to 46.

The housekeeping for children both at school and at home calls in these days for much skill and a study of food values. Improvement in cooking and the rigid avoidance of waste can alone save a good deal. The food should not be changed suddenly without making sure that the new diet is sufficient as compared with the old. There is a simple way of finding out whether children are getting enough, and that is by weighing them once a month. The average weight should increase slowly.

Everyone will agree that the greatest care must be taken to give our children the food they need, whoever else goes short. Upon them will lie the duty of holding what has been won by the blood of the brave. They must be fit, in body and mind, to make peace more glorious than war by the right use of our dear bought freedom.

XV.

THE NEW RATIONS.

With the issue of the revised scale of rations a new appeal is made to our patriotism. We are told plainly that the food supply of the whole world is short. The regulations, therefore, call for the close attention of every man and woman who does not want to be a shirker.

Housewives will be glad to find that larger quantities of bread are allowed than was the case last year, the amounts varying according to the work done. The meat allowed is a little less, the sugar the same. The cereals which have been used as bread substitutes are, however, now to be rationed, as are the fats. It goes without saying that all kinds of food, whether rationed or not, must still be used with greatest care.

Particular economy is needed in the use of bread, flour and other cereals, meat, butter, margarine, lard, and sugar.

All grown-ups are asked not to eat more of these foods than is set forth in the table, in the drawing up of which the needs of different people have been considered, especially as regards the amount of muscular work done, and the sex.

Adult rations per head per week.

(The figures per day are given in brackets.)

	Bread.	Other Cereals.	Meat.†	Butter, Margarine, Lard, Oils, Fats.*	Sugar.
	lb. oz.	oz.	lb. oz.	oz.	oz.
1. Men on very heavy industrial work or on agricultural work.	8 0 (1 2½)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)
2. Men on ordinary industrial or other manual work.	7 0 (1 0)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)
3. Men unoccupied or on sedentary work.	4 8 (10½)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)
4. Women on heavy industrial work or on agricultural work.	5 0 (11½)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)
5. Women on ordinary industrial work or in domestic service.	4 0 (9½)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)
6. Women unoccupied or on sedentary work.	3 8 (8)	12 (1½)	2 0 (4½)	5 (⅔)	8 (1⅓)

A point which may cause remark is that sedentary workers are given the same amount of food as those grouped as "unoccupied." If folk who do not have to earn their living lay in bed all day, doing nothing, they would need less food. But the opposite is the case. The great majority of the men and women described as of no occupation, who are not invalids, are doing unpaid work of one kind or another for the good of the country. Further, a large number of the women in this class are really domestic workers.

The shopping of the rationed foods is simple, so far as the grown-up members of the household are concerned. The amounts to be bought for each class are stated.

Here are examples for two different households of adults, including among them members of each class.

Other foods, which are not rationed, will, of course, be eaten. These will be considered on pages 34 to 36.

* The fat ration is reduced at present from a former ration of ten ounces to five ounces, a week, of which four ounces may be butter or margarine and one ounce cooking fat. An extra pound of bread or ¾ lb. of flour or other cereal may be bought by those who need it to make up for the shortage of fat. In the diets in this little book the food is made up to the amount needed without increasing the ration of bread, flour, or other cereals.

† If the full meat ration cannot be obtained, extra bread may be bought instead of meat, weight for weight.

Example of weekly purchases of rationed foods.

1. A family of grown-ups of the occupations shown, the mother looking after the house and all the children employed.

—	Bread.	Other Cereals.	Meat.	Butter. Margarine.	Sugar.
	lb.	oz.	lb.	oz.	oz.
Father (heavy worker), Class 1	8	12	2*	5*	8
Mother (domestic worker), Class 5.	4	12	2†	5	8
Mother's brother (clerk), Class 3.	4½	12	2	5	8
Daughter (heavy munition work), Class 4.	5	12	2	5	8
Son (skilled munition work), Class 2.	7	12	2	5	8
Daughter (Typist), Class 6 ...	3½	12	2	5	8
Total per week ...	32 lb.	4½ lb.	12 lb.	1 lb. 14 oz.	3 lb.

If a domestic servant is employed, the mistress falls into Class 6, although she may do a good deal of supervision and some of the housework.

2. A household of six, including servants.

—	Bread.	Other Cereals.	Meat.	Butter. Margarine.	Sugar.
	lb.	oz.	lb.	oz.	oz.
Father (solicitor), Class 3 ...	4½	12	2*	5*	8
Mother, Class 6 ...	3½	12	2†	5	8
Daughter (canteen worker), Class 5.	4	12	2	5	8
Daughter (secretary), Class 6	3½	12	2	5	8
Housemaid, Class 5 ...	4	12	2	5	8
Cook, Class 5 ...	4	12	2	5	8
Total per week ...	23½ lb.	4½ lb.	12 lb.	1 lb. 14 oz.	3 lb.

Children's rations.

The needs of children vary according to their build and activity. They are to "receive their reasonable rations," that is to say, the Controller wishes every child to have the food for proper nourishment and growth, though all care must be taken to avoid unwise feeding or waste. Children will take more bread, in proportion to their weight, than grown-ups, and the full amount of sugar, but they need less meat and other foods.

The following table has been drawn up at the Ministry of Food as a

*† See footnotes on page 28.

general guide for the voluntary rations of children. Some may eat more than these quantities, but many will eat less.

Age of Child.	Bread.	Other Cereals.	Meat.	Butter. Margarine.	Sugar.
	lb.	oz.	lb. oz.	oz.	oz.
0 to 5	3	6	1 0†	5*	8
6 to 8	3½	8	1 8	5	8
9 to 12	4½	10	2 0	5	8
13 to 18 (Boys) ...	6	12	2 0	5	8
13 to 18 (Girls) ...	About four-fifths of the boys at a corresponding age.				

This list is especially useful for schools. In families, mothers may find it convenient to reckon boys of 13 and over as eating the same food as a man in class 3 with an extra half pound or pound of bread or other cereal, if needed. If they are doing industrial or manual work, or heavy work, they should receive the larger rations of the men in these classes.

In the same way girls of 13 and over will eat the same food as women in class 6, and if they are doing industrial or domestic work, they will eat the larger rations of women in class 5.

For younger children the proportions in the list will be found to be liberal, especially where there are several children in the family, with give and take between one another. If there are only one or two children who are active and growing rapidly, a little more bread or oatmeal may be needed in exceptional cases.

Here are examples of the amounts of the rationed foods which should be bought for families with children.

Examples of weekly purchases of rationed foods for families with children.

1. A family of six, the father doing hard muscular work, say, on a farm or in iron works, the mother looking after her house and children, and four children at home aged 15, 11, 8 and 6.

	Bread	Other Cereals.	Meat.	Butter. Margarine.	Sugar.
	lb.	oz.	lb.	oz.	oz.
Father (heavy worker), Class 1	8	12	2†	5*	8
Mother (domestic worker). Class 5.	4	12	2	5†	8
Boy of 15 (in munition works: same as man of Class 2).	7	12	2	5	8
Girl of 11	4½	10	2	5	8
Boy of 8	3½	8	1½	5	8
Boy of 6	3½	8	1½	5	8
Total per week ...	30½ lb.	3lb. 14 oz.	11 lb.	1 lb. 14 oz.	3 lb.

* Should the supplies of fat increase so that the ration is fixed at its former amount of 10 oz. for an adult, the following quantities of fat should be allowed to children: Age 0-5, 6 oz.; 6-8 8 oz.; 9-18, 10 oz.

† See footnotes on p. 28.

2. A household of nine, including small children :—

	Bread.	Other Cereals.	Meat.	Butter. Margarine.	Sugar.
	lb.	oz.	lb.	oz.	oz.
Father (watchmaker), Class 3	4½	12	2†	5*	8
Mother, Class 6	3½	12	2	5	8
Boy of 16 at school (same as man of Class 3, 4½ lb., with extra 1 lb. bread if needed).	5½	12	2	5	8
Girl of 14 (same as woman of Class 6, 3½ lb., with extra 1 lb. bread if needed).	4½	12	2	5	8
Boy of 10	4½	10	2	5	8
Girl of 6	3½	8	1½	5	8
Boy of 3	3	6	1	5	8
Baby of 6 months	3	6	1	5	8
Servant	4	12	2	5	8
Total per week	36 lb	5lb. 10 oz.	15½ lb.	3 lb. 7 ozs.	4½ lb.

The baby of six months will not, of course, eat the food which is put down as its share, but if it is being fed by its mother she will need most of that extra food for herself. The list allowance for the boy of 3 is also too high for most children of that age, and in such a case the mother should buy less of these foods, but spend as much as she can on milk.

XVI.

THE RATIONED FOODS.

The meat ration.

The ration allows two pounds of meat to be bought for each person, including bone. The bone in meat varies from 13 per cent. in a good leg of mutton to 50 per cent. in a shin of beef. On an average of different joints a fifth of the weight of the joint may be taken as bone. Meat can, of course, be bought without bone, and in such case it is to count for a quarter more of its actual weight. This means that the ration of meat without bone, such as steak, rasher bacon, or suet, is 1 lb. 10 oz. a week for each person.

Poultry and rabbits are to be reckoned as half their actual weight; so that the ration of these is 4 lb. a week for each person. If the fowl or rabbit is bought cleaned, this is a liberal allowance, for the bone does not usually weigh more than a third, and often only a quarter, of the weight. More meat will be obtained thus than in buying butcher's meat, and much more body-building material. It is not all advantage, however, to buy rabbits and fowls, for their flesh is poor in fat, and fat is a valuable food, giving much warmth and power. For example, 4 pounds of fowl or rabbit containing one-third of bone is compared in

†* See footnotes on p. 28.

the following table with 2 lb. of beef, mutton or bacon, containing one-fifth of bone.

	Food Units or Calories which give Warmth and Power.	Body-building Material or Protein.
		oz.
4 lb. rabbit ($\frac{1}{3}$ bone)	1,471	6
4 lb. fowl ($\frac{1}{3}$ bone)	1,851	6 $\frac{1}{2}$
2 lb. beef, ($\frac{1}{3}$ bone)	1,950	3 $\frac{3}{4}$
2 lb. mutton ($\frac{1}{3}$ bone)	2,090	3 $\frac{1}{4}$
2 lb. bacon ($\frac{1}{3}$ bone)	4,333	2 $\frac{1}{2}$

These figures show that the ration of rabbit or fowl gives the most body-building protein, which can make and repair our flesh, and it is protein that we buy meat to supply. Hence, so long as bread is plentiful, to furnish food value, these foods are a better bargain than butcher's meat.

But the figures also show that 2 lb. of medium fat beef, mutton or bacon give a greater food value, that is, more warmth and power, than 4 lb. of rabbit or fowl. In conditions of poverty, therefore, if bread were scarce, it would be better to make sure of the calories and get meat, if possible, or, better still, bacon, rather than rabbit.

Exchange of bread and meat.

Part or even the whole of the meat ration may be exchanged for an equal weight of bread.

The food value of one is about equal to the other on the average when the bone of the meat is allowed for. If lean beef is bought there is more food value in the bread; in fat beef or mutton, after deducting their bone, the values are about the same, while bacon has a greater food value than bread. Beef or mutton contain more flesh-forming material; about 1 $\frac{3}{4}$ oz. in the pound, as against 1 $\frac{1}{4}$ oz. in a pound of bread. Fat bacon might contain less of it than bread, but most of that sold would contain more.

The bread is, of course, cheaper, and the extra bread should be bought in preference to meat in households in which food may be scarce owing to poverty. The extra bread would also naturally be taken in preference to meat for young children. In all other cases it is better to buy the usual quantity of meat, when it can be had, because the rations are not over-rich in the body-building protein.

Other cereals.

The various kinds of corn or flour other than wheat flour, but including dried peas, lentils and beans, sometimes called the pulses, are now to be rationed, and are classed together as "other cereals."

The patent and proprietary brands of cereals are counted in the ration.

The quantity of "other cereals" which may be bought is fixed at 12 oz. a week for each person. This is less than has hitherto been used in many households. It is, however, necessary to save all kinds of corn at the present time, and a great part of the oatmeal, barleymeal, rice and beans which we have been using must be replaced by potatoes and other vegetables.

The following table gives in the first column the food value of 12 oz. of the different cereals; and the other columns show the amounts of starch, fat and body-building material which each contains. The value of 1 lb. bread is shown for comparison:—

Values of 12 oz. of different cereals.

—				Food units or calories.	Starch.	Fat.	Body-building material or protein.
					OZS.	OZS.	OZS.
Oatmeal	...	...	...	1,299	7½	1	1½
Tapioca	...	...	...	1,238	10½	—	—
Cornflour	...	...	...	1,234	9½	—	¾
Barley meal	...	...	...	1,232	8½	¼	1½
Sago	...	...	...	1,226	9½	—	1
Rice	...	...	...	1,223	9½	—	1
Peas, beans, lentils (dried)	...	...	...	1,219	7½	—	3
Maize meal	...	...	...	1,158	8	½	¾
1 lb. bread	...	...	...	1,200	8½	¼	1½

Oatmeal gives the highest food value and contains a good proportion of body-building stuff. Barleymeal is also valuable in both respects. Peas, beans and lentils give the most protein. Oatmeal, barleymeal, peas, beans and lentils are, therefore, the best foods in this group. Another reason for buying oatmeal and barleymeal is that they are grown in this country.

Exchange of flour or "other cereals" and bread.

The Controller allows $\frac{3}{4}$ lb. of flour or of any cereal to be bought instead of 1 lb. bread. Families will certainly take advantage of this. Probably in ordinary households one pound of bread in every five will be exchanged for $\frac{3}{4}$ lb. of flour for cooking. Further, if porridge and oatcake are used, the housewife will score by taking $\frac{3}{4}$ lb. oatmeal per week for each person instead of one of the pounds of bread. For the list shows that $\frac{3}{4}$ lb. oatmeal gives 1,299 food units or calories, whilst 1 lb. bread gives 1,200. 99 extra food units are thus obtained with the oatmeal, an increase of 8 per cent., whilst the gain of body-building protein is still greater, namely, 24 per cent. The same applies, though in lesser degree, to the other cereals, for more food value is obtained if a proportion of any of them, except maize meal, is exchanged for some of the bread. It is important, however, to keep up the supply of the body-building protein, and from this point of view peas, beans, lentils and oatmeal are the best, as they give more of it than the bread; next comes barleymeal, which gives nearly the same amount as bread; whereas the others give less.

For these reasons it is an advantage to exchange 1 lb. of bread for $\frac{3}{4}$ lb. of oatmeal, barleymeal, peas, lentils or beans; whilst tapioca, cornflour, sago, rice and maize meal should be bought for puddings in the 12 oz. ration as required, but not instead of bread.

The fat ration.

This includes butter, margarine, lard, oils and other fats. Ten ounces of these were allowed per head per week, but at present only five

ounces must be used, of which not more than four ounces should be bought as butter or margarine, and one ounce of fat for cooking, such as lard or dripping. The food value supplied is shown in the following table. The figures for suet, which is rationed as meat but contains over 80 per cent. of fat, are put here in brackets for comparison :—

Values of 5 oz. of different fats.

	Calories.	Fat.	Protein.
Dripping (bought separately)	1,308	oz. 5	—
Lard	1,250	4½	3
Butter	1,125	4½	1½
Margarine	1,115	4½	1½
(Suet)	(1,070)	(4)	(7)

Dripping rendered at home from the fat of the meat ration is not included in the fat ration.

Dripping and lard give the most energy, whilst butter and margarine are not far behind and are about equal in food value.

Fats have a high food value and for that reason are very important foods. They must be used with great care.

XVII.

FOODS WHICH ARE NOT RATIONED.

As most of our daily foods are included in the Controller's rations we may expect that the quantities allowed will be large enough to supply the greater part of our daily needs. And this is so.

The following list gives in the first column the number of food units or calories which each class requires, and in the second column the amount which the ration gives.

	Total Food Units or Calories needed per day (average).	Calories per day supplied by Controller's ration (round figures).*	Percentage of total needs supplied by the ration.	Calories per day to be supplied from other foods.
1. Men doing continuous heavy industrial or agricultural work.	3,500	2,300	66	1,200
2. Men on light continuous manual work.	3,000	2,100	70	900
3. Men unoccupied or on sedentary work.	2,500	1,700	68	800
4. Women doing heavy industrial or agricultural work.	2,800	1,800	64	1,000
5. Women on ordinary industrial work or domestic service.	2,400	1,600	67	800
6. Women unoccupied or on sedentary work.	2,200	1,500	68	700

* In this table it is assumed that a pound of extra bread is taken per week to make up for the reduction of the fat ration from 10 oz. to 5 oz.

A comparison of columns 1 and 2 shows that the Controller's rations will give 64 to 70 per cent., or roughly two-thirds, of the total food requirements of each class of worker. In column 4 of the food values which, on the average, the non-rationed foods must supply are expressed in food units or calories. It appears that about 900 calories a day need to be furnished by other foods. In class 1 more is needed, and in class 6 rather less.

The quantities of the non-rationed foods which will be required differ, therefore, to a certain extent in each class, but not greatly. The variations in the amount of bread allowed are adjusted to fit the needs of each kind of worker with reasonable accuracy.

We may now enquire: "What are the foods which are not rationed and may be used to supplement the allowance?"

Here is a list of them in the order of their food value. These figures give the value of the food as bought, all necessary waste being allowed for.

List of non-rationed foods.

—	Calories per lb.	Calories per oz.	—	Calories per lb.	Calories per oz.
Cheese	1,777	111	Pears (tinned)... ..	344	22
Currants and raisins ...	1,536	96	Milk (1 pint = 400 cal.)	325	20
Honey	1,520	95	Bananas	298	19
Figs (dried)	1,475	92	Pears	288	18
Dates (dried)	1,421	89	Parsnips	242	15
Apples (dried)	1,350	84	Artichokes	241	15
Nuts (shelled)... ..	1,165	73	Fish (cod, hake, &c., fresh).	228	14
Prunes (dried)	1,134	71	Apples	219	14
Syrup	1,072	67	Strawberry	180	11
Sardines	952	59	Beetroot	174	11
Salmon (tinned)	679	42	Carrots... ..	159	10
Salmon (fresh)	660	41	Orange... ..	158	10
Fish (preserved)	794	50	Turnip	127	8
Eggs	624	39	Greens	124	8
Grapes	450	28	Onion	116	7
*Potato	400	25	Tomato	106	7
Herring	373	23	Rhubarb	105	7
Plums	371	23			

* It is assumed that the potato is cooked in its skin. With more wasteful methods the food value of the potato as bought is lower than the figure here given.

Of these foods fish is especially valuable because it can supply the body-building protein instead of meat. Everyone who can afford it ought to buy fresh fish. Dried fish should also be used freely. Dried herring and mackerel give the food value of an equal weight of meat.

Of the vegetables, the potato is by far the most important. It should be used as a vegetable, also for making bread and scones, and for many other dishes (*see* pages 17-19). Those having a store of potatoes should see that the ones which do not keep well are used first. Next in food value after the potato comes the parsnip, and then, in order, come the artichoke, beet, carrot, turnip, cabbage, onion, tomato and rhubarb.

Fresh fruits are important to health, but their natural food value is not great. The dried fruits are valuable foods, especially currants and raisins, figs, dates and prunes. All these, however, are imported, and can only be had in small quantities, and at a high price.

Eggs are nutritious and rich in protein, but the supply is limited at present. Powders made by drying eggs without adulteration have a food value as high as the eggs from which they were prepared.

Milk is, of course, of the greatest value as a food. It should be given to children and invalids, whilst healthy adults, if they use milk at all, should use as little as possible, say, a quarter of a pint a day, or rather more if porridge is an important part of the diet.

Cheese is another very nourishing food, containing a high proportion of fat and protein. At the present price it gives more than twice the body-building material for the money that meat does, when bone is allowed for, and more food value than any meat except bacon. Unfortunately there is not enough of it to go round, and it should, therefore, be left for those who are poorer.

Jam, marmalade and honey are not rationed and should be used, though, of course, with great care, when they can be obtained.

XVIII.

HOW TO MAKE UP THE CONTROLLER'S ALLOWANCE.

We have seen that the Controller's rations supply about two-thirds of the food we need, leaving one-third to be made up from the non-rationed foods; also that potatoes and fish are the two non-rationed foods which it is most important to make full use of at the present time.

Every worker, indeed every healthy person, and every growing child over 12, should eat a pound of potatoes a day if possible. This is four fair-sized potatoes. Of these two or three may be eaten as a vegetable, and one (or two) used in making potato bread, potato scones, pies or other dishes.

Here is an example of a diet which has actually been eaten. The quantities of the non-rationed foods in this diet are suitable for any man or woman doing light work, that is in classes 2, 3 or 5.

Diet 3. A diet taken by a man doing sedentary work.

The Controller's ration gave this man (Class 3) per day:—Bread, $10\frac{1}{2}$ oz.; cereals, $1\frac{3}{4}$ oz. (oatmeal, 1 oz.; rice or barleymeal, $\frac{3}{4}$ oz.); meat, $4\frac{1}{2}$ oz.; margarine, $\frac{1}{2}$ oz.; cooking fat, $\frac{1}{4}$ oz.; sugar, $1\frac{1}{2}$ oz. These supplied 1,446 food units or calories.

He ate also:—

	Calories.
Potato, 1 lb.	400
Fresh fish, $\frac{1}{2}$ lb. (one good-sized herring, kipper or bloater, or 4 oz. of tinned salmon would give about the same nourishment)	171
Greens $\frac{1}{2}$ lb.	62
Apples, $\frac{1}{2}$ lb.	110

	Calories.
Jam, 2 oz.	118
Milk (for use with tea and porridge only), 7 oz. ..	140
Value of non-rationed food	1,001
,, ,, rationed food	1,446
Total	2,447

The meals were as follows:—

The day's food of a man in Class 3.

Breakfast.—Bread, 3 oz.; porridge (from oatmeal, 1 oz.); fresh haddock, 4 oz.; milk, 5 oz. (for porridge and tea); sugar, $\frac{1}{2}$ oz.

Dinner.—Chop, $4\frac{1}{2}$ oz.; flour, $1\frac{1}{2}$ oz. (= 2 oz. bread); potatoes, $\frac{1}{2}$ lb. $\frac{1}{2}$ oz. of suet was cut off the chop, grated fine, and worked into paste with the flour and a tablespoonful of water. The chop and potatoes were put into a basin with pepper and salt and half a cup of water, covered with the paste and baked (or steamed) for two hours. An excellent and satisfying dish. Greens, $\frac{1}{2}$ lb.; bread, 1 oz. A pudding followed of apple, 4 oz.; rice, $\frac{3}{4}$ oz.; sugar, 1 teaspoonful. The apples were sliced thinly in a dish, the rice added, and the sugar sprinkled over. Water was put in and the dish baked one hour.

Tea.—Bread, $2\frac{1}{4}$ oz.; jam, 2 oz.; milk, 2 oz.; sugar, $\frac{1}{4}$ oz.; tea.

Supper (or lunch).—Bread, 2 oz.; fish, 4 oz.; potatoes, 8 oz.; margarine, $\frac{1}{2}$ oz.; an apple, 4 oz.; sugar, $\frac{1}{4}$ oz.

In this case, as a matter of fact, $2\frac{1}{2}$ oz. of the allowance of bread was not eaten. That would give 187 calories, so that the food value of the diet on this particular day was less by that amount, and worked out at $2,447 - 187 = 2,260$ calories. The man was, of course, doing right in saving bread rather than any other food.

Any household containing people not doing heavy work, that is, excluding those in classes 1 and 4, would get enough food by following such a scheme as that given above.

The weekly food for four people would be:—

- (1) The Controller's rations, according to class, set forth on pages 28 to 31, also:—
- (2) Potatoes, 2 stone; fresh fish, 7 lb.; 9 or 10 herrings, kippers, or bloaters; tinned salmon, $2\frac{1}{2}$ lb.; greens, parsnips, turnips, or other vegetables, 14 lb.; apples, 14 lb.; jam, marmalade or syrup, $3\frac{1}{2}$ lb.; milk, 10 pints.

In class 1, of very hard workers, a considerable addition must be made, for the 1,000 calories shown above would not be enough. Another half pound or more of potato would be added, more vegetables, when available, and some cheese (say 3 oz.). These yield over 500 calories, giving 1,500 calories from the non-rationed foods.

In class 6 less of the non-rationed foods will be needed than is set forth above. Thus, a woman clerk of average build would get enough food if she took in the day, in addition to her Controller's allowance—

	<i>Calories.</i>
One kipper or bloater, or cheese, $1\frac{1}{2}$ oz. ...	171
Potato, $\frac{3}{4}$ lb. ...	300
Greens or turnip, $\frac{1}{2}$ lb. ...	62
Apples, $\frac{1}{2}$ lb. ...	109
Syrup, 2 oz. ...	134
Milk, $\frac{1}{4}$ pint ...	100
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The housewife should vary the diet as much as she can, because variety helps the appetite. Circumstances also will often compel a change, because the same foods cannot always be had. When buying it is of great importance to keep in mind so far as possible which foods are the most nourishing. The list on page 35 gave the food values of a pound and of an ounce of the non-rationed foods. In the following list the comparative values are shown in a different way.

A list of equivalent food values of the non-rationed foods.

The given weight of the food in every case has the same food value—that of a pound of bread.

Cheese, 10 oz.; currants, raisins, honey, 12 oz.; dried figs or dates, 13 oz.; dried apples, 14 oz.; prunes, nuts (shelled), 1 lb.; syrup, 1 lb. 1 oz.; sardines, 1 lb. 4 oz.; tinned and salted fish, $1\frac{1}{2}$ lb.; salmon, tinned or fresh, $1\frac{3}{4}$ lb.; 15 eggs; grapes, $2\frac{1}{2}$ lb.; potato, 3 lb.; herring, fresh, 3 lb. 2 oz.; plums (fresh), pears (tinned), $3\frac{1}{4}$ lb.; milk, 3 pints; bananas, pears, 4 lb.; parsnips, artichokes, 5 lb.; fresh fish, 5 lb.; apples, $5\frac{1}{2}$ lb.; strawberries, $6\frac{1}{2}$ lb.; beetroot, $6\frac{3}{4}$ lb.; carrots, oranges, $7\frac{1}{2}$ lb.; turnips, greens, $9\frac{1}{2}$ lb.; onions, tomatoes, $10\frac{1}{2}$ lb.; rhubarb, 11 lb.

Do not conclude, after reading this list, that fresh fish is a poor food because 5 lb. of it are needed to give the same food value as one pound of bread. In the first place, the weight here given allows for the waste of the skin, fins and bones, and represents only $2\frac{1}{2}$ lb. of the actual flesh of the fish as eaten, or, with herring, which is especially nourishing, still less. Secondly, we do not buy fish for its food value alone, but because, like meat, it supplies body-building material. Indeed, a meal of fish, with potato to supply starchy food, some margarine to give fat, and some fresh greens, is a meal containing all the foodstuffs that the body needs.

XIX.

WHAT FOODS GIVE THE BEST VALUE FOR MONEY?

The cheapness of food depends not only upon the price per pound, but upon the food value which can be bought for any sum of money.

Half a pound of cheese, for example, costing 9d., gives 888 calories, or 111 for a penny; a pound of cabbage gives only 124 calories, but the whole pound can be bought for a penny. A penny spent on barley meal

at 6½d. a pound gives 253 calories. Hence barley meal is the cheapest of the three, next the greens, and last the cheese, though it must be remembered that cheese contains more of the flesh-forming protein.

With the aid of the table on page 6, and a knowledge of prices, it is easy to find out what are the cheapest foods. To get the number of food units which can be bought for a shilling, multiply the number of calories in a pound by twelve and divide by the price per pound in pennies.

For example, bacon gives 2,708 calories in a pound. At 1s. 8d. per lb., that is 20 pence, a shilling will buy $2,708 \times 12 \div 20 = 1,625$ calories.

In the following list those foods which give the most food value at the prices given are put first. Prices are always varying so that at one time one food is cheaper and at another time another. The prices here given are in most cases an average of those in the cheaper shops in the United Kingdom in December, 1917, and January, 1918. They do not apply to any particular place. All the references to the cost of food in this little book are based upon them, unless otherwise stated.

TABLE SHOWING THE FOOD VALUE OBTAINED FOR A SHILLING
AT THE PRICES NAMED.

Food.	Price per pound.	Calories for a shilling.	Food.	Price per pound.	Calories for a shilling.
	s. d.			s. d.	
Oatmeal (Scotland) ...	0 3½	5,939	Jam	0 11	1,031
" (England) ...	0 4	5,196	Turnip	0 1½	1,016
Rice	0 4	4,893	Nuts	1 2	999
Potato	0 1	4,800	Bacon (16 per cent. bone)	2 2½	994
Sugar	0 6	3,646	Tinned beef	1 3½	991
Margarine	1 0	3,566	Currants and raisins ...	1 11	801
Arrowroot	0 6¼	3,351	Sardines	1 3	762
Dripping	1 4	3,140	Honey	2 0	760
Barley meal	0 6½	3,032	Herring	0 7½	701
Peas, &c. (dried) ...	0 6½	3,002	Mutton (24 per cent. bone).	1 5	701
Lard	1 6½	2,598	Beetroot	0 3	696
Cornflour (Maize) ...	0 8½	2,322	Apples (cooking) ...	0 4	657
Suet	1 6	2,283	Beef (average 18 per cent. bone).	1 5	645
Skim Milk	0 2½	2,266	Liver	1 2	501
Tapioca	0 9	2,189	Cream (per pint) ...	3 0	456
Macaroni	1 1	1,537	Salmon (tinned) ...	1 6	453
Butter	2 5	1,491	Rabbit	1 5	390
Greens	0 1	1,488	Plums (bottled) ...	1 0	371
Parsnip	0 2	1,452	Salmon (fresh) ...	2 0	366
Artichoke	0 2	1,446	Poultry (game) ...	2 6	280
Milk (per quart) ...	0 6¾	1,445	Tripe	1 0	270
Pork Sausage	1 7	1,345	Onion	0 6	232
Cheese	1 4	1,333	Eggs (per doz.) ...	4 1	229
Carrots	0 1½	1,272	Bananas (per doz.) ...	3 6	126
Syrup	0 10¼	1,255	Tomato	1 3	85
Dates (dried)	1 2	1,218	Pickles	1 6	73
Prunes (dried) ...	1 2	1,149			
Apples (dried) ...	1 3	1,080			
Beef Sausage	1 2	1,045			

The list shows that at present prices oatmeal, rice, potato, sugar, margarine, barley meal, skim milk, greens, new milk, pork sausage, and

syrup are among the foods which give the best value for money. A shilling spent on most other available foods buys fewer calories. With those named, therefore, the allowance can be made up at the lowest rate. The figures will vary as prices alter, but a calculation, as shown on p. 39, can be made for any change of price.

Skim milk is only obtainable in the country where butter is being made. It is a cheap and valuable food, and when it can be had should be used by man and not given to young animals. Buttermilk also has a good food value.

Here are two diets in which the cheapest foods are used. The heat values of the foods are put down; they are from the table on p. 6. Bread is taken at 9d. lb. Flour at 1s. 4d. for 7 lb.

Diet 4. Cheap diet for heavy worker (Class 1). 3,540 calories per day.

The Controller's allowance (p. 28) gives him per week:—

	Per week.		Calories.
Flour ($\frac{3}{4}$ of 8 lb. bread)	6 lb.	equal	9,906
(for bread and cooking.)			
Other cereals—Oatmeal	7 oz.	"	756
Rice	5 oz.	"	510
†Meat—Beef	1½ lb.	"	1,500
Pork sausage	½ lb.	"	1,065
Margarine	4 oz.	"	891
Lard or dripping	1 oz.	"	256
Sugar	½ lb.	"	911

He also takes:—

	Per week.		Calories.
Skim milk	3½ quarts	equal	1,484
(or new milk, 3½ pints.)			
Potato	10½ lb.	"	4,200
Syrup	½ lb.	"	536
Cheese	1 lb. 5 oz.	"	2,331
Greens and other vegetables	3½ lb.	"	434
Per week			24,780
Per day			3,540

On 6 days he gets $\frac{1}{4}$ lb. meat (with suet). 3 oz. only of meat is reckoned in the dinner (*see below*), 1 oz. being regarded as bone for soup, and a little suet. There is also half a pound of sausage for breakfast or supper; and 3½ oz. of cheese over, which is cooked on a meatless day for dinner. (*See potato cheese*, p. 19.) An extra pound or more of oatmeal might be taken with advantage instead of an equal quantity of bread.

The diet gives per day 4½ oz. of protein, 2¾ of fat, and 1¼ lb. of carbohydrate.

The cost, including tea, cocoa and a little pepper, salt and mustard, is about 8s. 5d. a week.

The following is an example of the meals for one of the days from such a diet:—

Breakfast.—Porridge, from oatmeal, 1 oz. (or 2 oz. if more oatmeal taken instead of flour); skim milk, 7 oz. (or 4 oz. new milk); bread, 6 oz.; syrup, 1 oz.; tea; sugar, ½ oz.

Dinner.—Bread, 4 oz.; meat, 3 oz., made into a pudding with 1½ oz. flour and a little suet from the meat; potato, 1 lb. (4 good-sized potatoes); greens, ½ lb.; rice, $\frac{3}{4}$ oz., boiled with skim milk, 7 oz., or new milk, 4 oz., and sugar, 1 teaspoonful.

† See footnote on p. 28.

Supper.—Soup from bones; potato, $\frac{1}{2}$ lb.; bread, 6 oz.; cheese, $2\frac{1}{2}$ oz.; margarine, $\frac{1}{2}$ oz.; cocoa; skim milk, 6 oz., or new milk, 2 oz.; sugar, $\frac{1}{2}$ oz.

Diet 5. Diet for sedentary woman worker (Class 6). 2,420 calories per day.

The allowance (p. 28), gives $3\frac{1}{2}$ lb. bread per week. If $\frac{1}{2}$ lb. bread is taken as flour (6 oz.) for cooking we get:—

	Per week.	Calories.
Bread	3 lb.	3,600
Flour	6 oz.	618
†Meat—Beef	$1\frac{1}{2}$ lb.	1,500
Pork sausage... ..	$\frac{1}{2}$ lb.	1,065
Other cereals—Peas, dried	5 oz.	510
Rice, sago	7 oz.	714
Margarine	4 oz.	891
Lard or dripping	1 oz.	256
Sugar	8 oz.	911
Milk	1 quart	800
Potato	7 lb.	2,800
Syrup	1 lb.	1,072
Greens, turnips, &c.	$3\frac{1}{2}$ lb.	434
Cheese	1 lb.	1,777
Per week		16,948
Per day		2,421

The meals, especially the dinner, would, of course, be varied. Here are one day's meals:—

Breakfast.—Bread 3 oz.; syrup, 1 oz.; margarine, $\frac{1}{2}$ oz.; tea; sugar, $\frac{1}{2}$ oz.; milk, 1 oz.

Dinner.—Meat pudding as in Diet 3 (p. 37) but with half the flour; potato, $\frac{3}{4}$ lb. (3 good-sized ones); greens or turnips, &c., $\frac{1}{2}$ lb.; pudding of 1 oz. rice (or sago), 3 oz. milk, and a teaspoonful of sugar; a small piece ($\frac{2}{3}$ oz.) of cheese.

Supper.—Pea soup (with bone from meat); potato, 4 oz.; bread, 4 oz.; cheese, 2 oz.; syrup, a little ($\frac{2}{3}$ oz.); cocoa; milk, 1 oz.; sugar, $\frac{1}{2}$ oz.

The diet gives per day $2\frac{2}{3}$ oz. of protein, $2\frac{2}{3}$ oz. of fat, and $\frac{3}{4}$ lb. of carbohydrate.

The cost, including tea, cocoa, and a little pepper and salt and mustard, is about 9s. per week.

This diet is given as an example of a cheap diet without oatmeal. If, however, $\frac{3}{4}$ lb. of oatmeal were bought instead of 1 lb. bread, a more satisfying breakfast would be obtained of porridge, provided that milk, skim or new, could be had to take with it. As in Diet 3, only 3 oz. of meat is reckoned per day on six days, leaving 1 oz. for bone and a little suet for cooking. On one day sausage would be eaten for supper and there would be some over which could be fried with potato for breakfast.

XX.

MORE EXPENSIVE DIETS.

Our aims in choosing diet must be, first: to see that only what is needed is taken, and no scrap wasted. This applies to everyone. Secondly: to make the best use of the available foods. This leads at once

† See footnote on p. 28.

to the consideration that it is not in the national interest for everyone to buy what is cheapest. Those who can afford it, should, subject, of course, to the fixed allowance of flour, meat, fat and sugar, continue to buy their ordinary foods, so that the dearer foods may be used as well as the cheaper.

In the two following examples of how the diet may be made up, attention is paid to these points and not to cost, though all the foods are of the simplest. The meat is taken as beef with 18 per cent. of bone. There is no cheese.

Diet 6. A dearer diet for a skilled industrial worker (Class 2) earning good wages. 3,200 calories per day. No milk is included.

The Controller's allowance gives him 7 lb. bread a week, and 2 lb. meat. One pound of bread is taken as flour ($\frac{3}{4}$ lb.) so that he gets 6 lb. bread, $\frac{3}{4}$ lb. flour, and 2 lb. meat.

The week's food is then as follows:—

	Per week.	Calories.
Bread	6 lb.	7,200
Flour	$\frac{3}{4}$ lb.	1,238
† Meat	1 $\frac{1}{4}$ lb.	1,250
Bacon	$\frac{3}{4}$ lb.	1,706
Other cereals—rice	6 oz.	612
Dried peas, beans	6 oz.	612
Margarine	4 oz.	891
Lard or dripping	1 oz.	256
Sugar	8 oz.	911
Potato	10 $\frac{1}{2}$ lb.	4,200
Jam	1 lb. 5 oz.	1,238
Tinned salmon	$\frac{1}{2}$ lb.	340
Fresh fish (or herring 1 lb.)	2 lb.	456
Fruit (bottled plums)	2 lb.	742
Pickles	$\frac{1}{4}$ lb.	28
Fresh vegetables (artichoke, parsnip)	3 $\frac{1}{2}$ lb.	843
Per week		22,523
Per day		3,218

This contains 3 $\frac{1}{2}$ oz. of protein, 2 $\frac{1}{4}$ oz. of fat, and over 1 $\frac{1}{4}$ lb. of carbohydrate per day.

The cost, including tea, cocoa, salt, &c., is about 14s. 4d. per week.

The following example is given of the meals of one of the days of the week:—

Breakfast.—Bread, 5 oz.; bacon, 3 oz. (4 days a week); jam, 1 oz.; tea; sugar, $\frac{1}{2}$ oz.

Dinner.—Meat, 4 oz. (five days a week); potatoes, 1 lb.; parsnips, artichokes or greens, $\frac{1}{2}$ lb.; boiled rice and fruit and sugar, 1 teaspoonful (or a pudding made with flour, and a little suet from the meat and flavouring).

Tea.—Bread, 4 oz.; margarine, $\frac{1}{2}$ oz.; jam, 1 oz.; tea; sugar, $\frac{1}{2}$ oz.

Supper.—Pea soup; bread, 4 oz.; fish, 5 oz.; potato, $\frac{1}{2}$ lb.; jam, 1 oz.

† See footnote on p. 28.

The pickles would come in for cold meat. The peas would be used for pease pudding on a meatless day as well as for soup. Some rice could also be cooked for curry.

Diet 7. An expensive diet for a man doing sedentary work or unoccupied (Class 3). 2,500 calories. $\frac{1}{4}$ pint of milk a day is included.

He is allowed $4\frac{1}{2}$ lb. of bread, but takes 4 lb. bread and 6 oz. flour (= $\frac{1}{2}$ lb. of bread). He buys 2 lb. of poultry, which counts as half its weight of meat, and is, therefore, equivalent to 1 lb. meat. $\frac{3}{4}$ lb. of steak is also bought, which, as it contains no bone, counts a quarter more, and is roughly equivalent to 1 lb. meat with bone.

The week's food is then :—

	Per week.	Calories.
Bread	4 lb.	4,800
Flour	6 oz.	618
† Meat—Poultry or game	2 lb.	1,402
Steak or sweetbread and a little suet	$\frac{3}{4}$ lb.	1,215
Other cereals—Beans	6 oz.	612
Macaroni	6 oz.	624
Butter	4 oz.	901
Cooking fat	1 oz.	256
Sugar	8 oz.	911
Potato	7 lb.	2,800
Milk	1 quart	800
Fresh fish	2 lb.	456
Fresh fruit	2 lb.	438
Eggs	7	546
Honey	$\frac{1}{4}$ lb.	380
Jam and marmalade	$\frac{1}{2}$ lb.	472
Vegetables—Artichokes, &c.	1 lb.	241
Spinach, cabbage	1 lb.	124
Per week		17,596
Per day		2,514

This contains 4 oz. of protein and $2\frac{1}{2}$ oz. of fat per day.

The cost, including tea, 2 oz. a week, cocoa, 2 oz., and pepper, salt, &c., is about 16s. 9d. per week.

One of the day's meals is as follows :—

Breakfast.—Bread, 3 oz.; an egg or fish, 3 oz.; marmalade; tea; milk, 1 oz.; sugar, $\frac{1}{2}$ oz.

Dinner.—Chicken, 5 oz., or steak, 3 oz.; potato, 12 oz. (3 good-sized ones); macaroni; a pudding made with flour, a little lard, or suet from the meat, a teaspoonful of sugar and ginger.

Tea.—Bread, 3 oz.; butter, $\frac{1}{2}$ oz.; jam or honey; tea; milk, 1 oz.; sugar, $\frac{1}{2}$ oz.

Supper or lunch.—Bread, 3 oz.; fish pie or cold meat with potato, 4 oz.; vegetables, 5 oz.; stewed fruit.

Three ounces of milk are not apportioned and could be used towards a pudding. The beans would be used on a meatless day.

† See footnote on p. 28.

XXI.

FAMILY BUDGETS.

In the following **Weekly Budgets** the total amount of food bought in a week for a family is given on three different scales of expense. Similar meals have been taken by actual households. The amount of bread, other cereals, meat, fat, and sugar is within the Controller's allowance in each case.

It should be pointed out that examples of diets, such as are found below, must not be followed too closely. Meals should always be varied as much as possible, both from day to day and week to week.

Diet 8. Plain diet. 6 persons. 2,500 calories. (Cost 7s. 2d. per head per week.)

The food is for a family of 6, the father a heavy worker, the mother a domestic worker, a boy of 15 in munition works, a girl of 11, a boy of 8, and a boy of 6. This is the same family as is mentioned on page 30.

Enough will be supplied if the father gets 3,700 calories, the mother 2,400, the boy of 15 3,000, the girl of 11 2,200, the boy of 8 2,200, the boy of 6 1,600. The family will need, therefore, about 15,100 calories a day, or an average of about 2,500 calories each. The Controller's allowance (*see* page 30) gives them—bread, 30½ lb.; other cereals, 3 lb. 14 oz.; meat, 11 lb.; fats, 1 lb. 14 oz.; and sugar, 3 lb. weekly. The father will eat more than 1 lb. of potato. Potato is also used for scones, pies, &c.

The cheaper pieces of meat are taken at 1s. 2d. a lb. Pork sausage gives a large return of calories at 1s. 7d. a lb., and 3 lb. is included. Rice and oatmeal are much the cheapest cereals, and, therefore, the "other cereals" are equally divided between these. 4 lb. of flour is used for cooking. Milk will be obtained for the children, though not so much as is required for children under 5. One pint a day is assumed for the child of 6, and half-a-pint each for the children of 8 and 11; and less than half a pint for the other three members of the family.

Purchases.—Bread, 25 lb.; flour, 4 lb. 2 oz.; other cereals, 3 lb. 14 oz. (oatmeal, for porridge three times a week, 1½ lb.; rice for puddings, 2 lb. 6 oz.); butchers' meat, 8 lb. (including some suet); sausage, 3 lb.; margarine, 1½ lb.; cooking fat, 6 oz.; sugar, 3 lb.; potato, 42 lb.; milk, 8 quarts; greens or fresh vegetables, 14 lb.; jam or syrup, 4 lb.; cocoa, 4 oz.; tea, 8 oz.; curry, 2 oz.; herring, 3 lb.; cheese, 1¼ lb.

The diet contains per head per day 2¼ oz. of protein and 2½ oz. of fat and over ¾ lb. of carbohydrate.

Daily fare.—*Breakfast*: Porridge, three times a week (or daily if more oatmeal and less rice is taken), bread, margarine, tea, sugar, milk. *Dinner*: Potato, greens. *Tea* should only be taken if supper must be late. It includes bread, golden syrup, tea, sugar, milk. Those taking only three meals eat these foods at dinner or supper. *Supper*: Bread, margarine, potato, tea or cocoa, milk, sugar.

Other dishes.—(Breakfast, dinner, tea and supper are shortened to B., D., T. and S.)

Sunday.—D. Boiled mutton, white sauce, treacle pudding. S. Mutton pie.

Monday.—D. Boiled sausages, rice pudding. S. Potted meat, cheese.

Tuesday.—D. Hot pot, ginger pudding. S. Cold mutton pie.

Wednesday.—D. Broth, potted meat. S. Curried mince, cheese.

Thursday.—D. Broth, beef pie. S. Sausage.

Friday.—D. Herring, boiled rice and syrup. S. Cheese.

Saturday.—D. Broth, stewed liver, onions. S. Cold meat pie.

There was no meat on Friday.

The next diet is for 4 adults. It is more varied and costs 4s. 6d. per week more. There are no children in the family, so milk is restricted to 1 pint a day for all.

Diet 9. Medium diet. 4 persons. 2,500 calories. (Cost 11s. 8d. per head per week.)

The father is a sedentary worker; the mother a domestic worker; one daughter a machinist in a mill (Class 5), another daughter a typist. Sufficient food will be supplied if the father gets 2,500 calories; the mother and typist, 2,400. The machinist, if tall and active, might eat 2,700. If the father is also a large and active man he would need more, and should make up by eating extra potatoes. The Controller's allowance gives each the following quantities of bread:—Father, 4½ lb.; mother, 4 lb.; machinist, 4 lb.; typist, 3½ lb. Total = 16 lb. Each one gets 12 oz. cereals, 2 lb. meat, 5 oz. fat, and ½ lb. sugar.

Purchases.—Bread 13 lb.; flour, 2 lb. 4 oz.; other cereals, 3 lb. (tapioca, ½ lb.; macaroni, ¾ lb.; peas, &c., ½ lb.; cornflour, ¼ lb.; oatmeal, 1 lb.); bacon, 2 lb.; beef and suet, 3 lb.; mutton, 3 lb.; margarine, 1 lb.; cooking fat, ¼ lb.; sugar, 2 lb.; potato, 2 stone; milk, 7 pints; greens, 4 lb.; carrots, 3 lb.; beetroot, 1 lb.; turnip, 4 lb.; syrup, 2 lb.; jam and marmalade, 2 lb.; apples (dried), 1 lb.; cocoa, 8 oz.; curry ¼ oz.; tea, 8 oz.; kippers, 10; herrings, 10; fresh fish, 3 lb.; tinned salmon, 2 lb.; eggs, 4.

This contains per head per day 3 oz. of protein and 2½ oz. of fat and ¾ lb. of carbohydrate.

Daily fare.—*Breakfast.*—Bread, margarine, marmalade, tea, sugar, milk. *Dinner.*—Potatoes, other vegetables. *Tea* (if supper is late).—Bread oatcake, jam or jelly, tea, sugar, milk, potato scones, plain cake. *Supper.*—Bread, potato, cocoa, margarine, jelly, jam or syrup.

Other dishes.

Sunday.—B. Bacon. D. Stuffed mutton, treacle pudding. S. Tinned salmon.

Monday.—B. Boiled eggs. D. Mutton broth, herring, milk pudding. S. Cold tongue.

Tuesday.—B. Kippers. D. Lentil soup, cod, potato, ginger pudding. S. Cold mutton.

Wednesday.—B. Bacon. D. Broth, boiled beef, turnips, apple and tapioca pudding. S. Curried mutton and macaroni.

Thursday.—B. Herring. D. Jellied beef, beetroot, castle pudding. S. Fish.

Friday.—B. Bacon. D. Curried fish and macaroni, apple pudding. S. Tinned salmon.

Saturday.—B. Kippers. D. Broth, pease pudding, cornflour and jam. S. Fish, tapioca and jam pudding.

There was no meat on Saturday.

The third diet contains more expensive foods, bought with the object of leaving the cheaper foods for the more needy. The amounts are for a household of eight people, including children and servants. Tea is

given as a separate meal because it is the third meal of the day for the children, the supper being the third meal for the grown-ups.

Diet 10. More expensive diet. 8 persons. Average 2,400 calories. (Cost 14s. per head per week.)

The household consists of father, sedentary worker (Class 3) (say 2,500 calories); mother and mother's sister (Class 6) (2,300 each); 3 children, boy of 14 (2,700), boy of 11 (2,400), and girl of 8 (1,800); two servants (Class 5) (2,400 each).

The diet gives 2,400 calories a day, which is on the average about 50 calories each a day over the above estimate.

The Controller's allowance gives $4\frac{1}{2}$ lb. bread to the father, $3\frac{1}{2}$ lb. each to the mother and her sister, and 4 lb. each to the servants. These all receive also 12 oz. of other cereals, 2 lb. of meat, 5 oz. of fat, and $\frac{1}{2}$ lb. of sugar. To this the children's allowance is added as in the following table (*see* page 30):—

	Bread.	Other cereals.	Meat.	Butter, &c.	Sugar.
Adults	19½ lb.	3 lb. 12 oz.	10 lb.	1 lb. 9 oz.	2 lb. 8 oz.
Boy of 14	6 lb.	12 oz.	2 lb.	5 oz.	8 oz.
Boy of 11	4½ lb.	10 oz.	2 lb.	5 oz.	8 oz.
Girl of 8	3½ lb.	8 oz.	1½ lb.	5 oz.	8 oz.
	33½ lb.	5 lb. 10 oz.	15½ lb.	2 lb. 8 oz.	4 lb.

Purchases.—Bread, $27\frac{1}{2}$ lb.; flour, $4\frac{1}{2}$ lb.; rice, sago, $1\frac{3}{4}$ lb., flaked maize, $\frac{1}{4}$ lb., pease meal, 4 oz., lentils, 2 oz., oatmeal, 2 lb., macaroni, 1 lb., cornflour, 4 oz.; fowl, 6 lb., sirloin, 6 lb., mutton, 3 lb., suet, $1\frac{1}{2}$ lb., bacon, 2 lb.; butter, 2 lb.; cooking fat, $\frac{1}{2}$ lb.; sugar, 4 lb.; milk, 13 quarts; potato, $3\frac{1}{2}$ stone; salmon, 5 lb., other fish, 5 lb., sardines, 1 lb.; eggs, 1 dozen; parsnips, 2 lb., greens, 2 lb., turnips, 3 lb., onions, 1 lb.; jam, 2 lb.; syrup, 1 lb.; honey, $\frac{1}{4}$ lb.; apples, 2 lb.; tea, $\frac{3}{4}$ lb.; coffee, $\frac{1}{2}$ lb.; cocoa, 2 oz.; tinned and dried fruits, 2 lb.; oranges, 3 lb.

The diet contains per head per day 3 oz. of protein and $2\frac{3}{4}$ oz. of fat.

Daily fare.—At *breakfast*, bread, tea or coffee, porridge, milk, syrup, sugar and butter are served. At *dinner* potatoes, at *supper* bread, butter and potatoes. At *tea*, bread, butter, jam or syrup, tea, sugar, potato scones, oatcake. Dinner is put at mid-day, as it is economical to cook one hot meal for both children and grown-ups. If dinner is in the evening the supper dishes may be used at lunch.

Other dishes.

Sunday.—B. Fish. D. Macaroni soup, chicken, salad, pancakes (with orange and sugar). T. Gingerbread, plain cake. S. Sardines, rice mould, peaches.

Monday.—B. Potted meat. D. Soup, sirloin, brussels sprouts, Yorkshire pudding, apples. T. Gingerbread. S. Soup, fish pie.

Tuesday.—B. Eggs. D. Fish soup, cold beef, turnips, fig pudding. T. Rice cake. S. Potato pie (*see* page 19), blanc-mange, stewed dried apples.

Wednesday.—B. Beef mould. D. Soup, fish, macaroni, parsnips, spice pudding. T. Gingerbread. S. Poached eggs on toast, chocolate blanc-mange.

Thursday.—B. Bacon, honey. D. Cold beef, turnip, flaked maize pudding. T. Buns. S. Salmon, apple sago.

Friday.—B. Fried haddock, honey. D. Salmon, treacle pudding. T. Gingerbread. S. Pease pudding, oranges.

Saturday.—B. Bacon. D. Soup, mutton, rice pudding, stewed figs. S. Sardines, preserved fruits.

There was no meat on Friday.

XXII.

THE HAYBOX.

Much fuel may be saved by putting foods in a haybox to finish their cooking. Further, the dish needs no attention while in the box and cannot be overcooked. The nourishing value is not impaired, and those who have had experience in this method of cooking testify that the flavour of the foods is excellent.

The following details are taken from The "Pudding Lady's" Recipe Book, by Miss Florence Petty:—

A HAYBOX MADE WITH NEWSPAPER.

Requirements:—

- 1 wooden or tin box with lid. Size 18 × 14 × 12 in.
- 18 large newspapers.
- 1 or 2 saucepans or casseroles with well-fitting lids.
- 1 or 2 small pillow cases or large brown paper bags.

Instructions for making:—

Line the bottom and sides of the box with a thick layer of the newspaper or brown paper.

Fill with tightly packed balls of newspaper.

Leave room for one or two saucepans or casseroles.

Each must be surrounded on all sides and underneath by a thickness of 4 in. of the balls of newspaper. The paper should be so tightly packed that, on removing the saucepan, the walls of newspaper surrounding it remain solid.

Fill a small pillow case, cushion cover or paper bag with tightly packed balls of newspaper, so that, when full, the pillow is 4 in. thick.

Instructions for use.—When the contents of the saucepan are thoroughly boiling, take it straight from the fire with the lid on and place in the box. Put the pillow quickly over the saucepan and shut the box. Do not open it till the dish is cooked, otherwise the saucepan must be brought to the boil again and placed in the box. If left overnight, food requires reheating before serving. A midday meal can be taken to work in a small box made as above.

TIME TO ALLOW FOR VARIOUS DISHES.

General rule.—Most dishes require about three times as long as they would if cooked in the ordinary way.

TIME TABLE.

Dish.	Time on Fire.	Time in Box.
Bacon (boiled)	45 minutes.	3-4 hours or all night.
Beef or mutton (boiled)	1 hour.	4-5 hours.
Fowl	1 hour.	3 hours.
Fruit (fresh)	5 minutes.	2 hours.
" (dried)	5 minutes	3-4 hours.
	(after soaking all night).	
Haricot beans	20 minutes.	2 hours.
Lentil soup	15 minutes.	2 hours.
Porridge	10-15 minutes.	4 hours or all night.
Stews (meat or vegetable)	15-20 minutes.	3-4 hours.
Vegetables and rice	5-10 minutes.	2 hours.

Other Uses.

For cleaning tins and saucepans.—Boil for five minutes with soda and leave (with lid on) all night in box.

For keeping butter cool in summer.—Put butter or margarine in a jar. Cover with lid and keep in box.

For keeping water hot overnight.—Pour boiling water in heated jug. Cover with lid and place in box.

To keep tea hot.—Pour from leaves into heated jug with a lid, and place in box.

To keep food hot for late comers.—Put in hot jar or casserole, or leave in saucepan in which cooked—lid on in each case—and put quickly in box.

XXIII.

COMPOSITION OF FOODS.

The figures refer to foods as bought, all necessary waste being allowed for except as mentioned. The figures are given to the nearest whole number; hence, if the proportion of any foodstuff is less than one-half per cent., it is not recorded.

Food.	Protein.	Fat.	Carbo- hydrate.	Calories per lb.	Calories per oz.
CEREALS :					
Wheat flour	11	1	75	1,651	103
Bread	9	1	53	1,200	75
Biscuit (Army)	10	1	85	1,810	113
Oatmeal	15	8	60	1,732	108
Barleymeal	10	2	73	1,642	103
Rice	8	—	79	1,631	102
Maizemeal	7	4	66	1,544	97
Rye	12	1	72	1,625	102
Macaroni	13	1	74	1,665	104
Tapioca	—	—	88	1,650	103
Sago	9	—	78	1,635	102
Cornflour (maize)	7	1	78	1,645	103
Arrowroot	—	—	97	1,815	113
MEAT :					
Beef, fat, no bone	17	31	—	1,620	101
Beef, average, no bone	15	22	—	1,219	76
Beef, tinned	26	19	—	1,280	80
Beef, average, 18% bone	12	18	—	1,000	62
Liver	20	5	—	585	37
Tripe	12	1	—	270	17
Mutton, no bone	13	25	—	1,306	82
Mutton, 24% bone	10	19	—	993	62
Lamb, no bone	15	19	—	1,080	68
Bacon, no bone	10	60	—	2,708	169
Bacon, 16% bone	8	50	—	2,275	142
Ham	14	33	—	1,670	104
Pork	10	40	—	1,873	117
Sausage	13	44	—	2,130	133
Suet	5	82	—	3,425	214
Dripping	—	99	—	4,186	262
Lard	2	94	—	4,006	250

Food.	Protein.	Fat.	Carbo- hydrate.	Calories per lb.	Calories per oz.
POULTRY, RABBITS :					
Fowl, 27% bone ...	15	10	—	701	44
Eggs ...	12	9	—	624	39
Rabbits, 29% bone ...	14	7	—	557	35
FISH :					
Cod, hake, &c. ...	10	1	—	228	14
Herring ...	13	5	—	438	27
Salmon ...	17	10	—	732	46
Tinned and salted fish ...	20	10	—	794	50
Tinned salmon ...	20	7	—	680	42
Sardines ...	24	12	—	952	59
DAIRY PRODUCE :					
Milk ...	3	4	5	325	20
Skim milk ...	3	—	5	170	11
Cream ...	3	23	4	1,094	68
Butter ...	1	85	—	3,604	225
Margarine ...	1	84	—	3,566	223
Cheese ...	25	30	2	1,777	111
VEGETABLES :					
Beans, peas and lentils (dried) ...	24	1	60	1,626	102
Beans (in pods) ...	5	—	15	371	23
*Potato ...	2	—	19	400	25
Peas (in pods) ...	4	—	10	258	16
Parsnip ...	1	—	11	242	15
Artichoke ...	1	—	11	241	15
Beetroot ...	1	—	8	174	11
Carrot ...	1	—	7	159	10
Turnip ...	1	—	6	127	8
Greens ...	2	—	4	124	8
Onion ...	1	—	5	116	7
Tomato ...	1	—	4	106	7
Rhubarb ...	1	1	4	105	7
FRUIT :					
Apples ...	—	—	11	219	14
Plums ...	1	—	19	371	23
Nuts ...	6	22	5	1,165	73
Grapes ...	1	2	19	450	28
Bananas ...	1	—	14	298	19
Strawberries ...	1	1	7	180	11
Oranges ...	1	—	8	158	10
Currants and raisins ...	3	2	75	1,536	96
Figs (dried) ...	4	—	74	1,475	92
Dates (dried) ...	2	2	69	1,421	89
Apples (dried) ...	2	2	66	1,350	84
Prunes (dried) ...	2	—	59	1,134	71
Jam and marmalade ...	1	—	50	945	59
SUGAR, &c.					
Sugar ...	—	—	98	1,823	114
Syrup ...	1	—	57	1,072	67
Honey ...	—	—	81	1,520	95
Chocolate ...	15	50	25	2,853	178

* It is assumed that the potato is cooked in its skin. With more wasteful methods, the food value of the potato as bought is lower than the figure here given.

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