

SOME SUBSTITUTES FOR MEAT.

In these days of rationing it is important that some consideration be given to the best means of providing substitutes for meat. This does not present any very new problems, however, for of late years the tendency has grown to reduce or eliminate the meat which 50 years ago formed such an important part of each day's menu. No longer is the good old English roast beef regarded as an almost necessary part of the food to be provided each week for the family dinner table. It has fallen indeed from its high estate, and more and more do people tend to confine themselves to a vegetarian régime, some for conscientious reasons, some from inclination, and others, calling themselves "natural vegetarians," because they find meat difficult to digest, or because it disagrees with them in some other respect.

There is much indeed to be said in favour of vegetarianism, but too often it is adopted as a system of diet without due consideration being given to the type of food that should replace meat; a proper attention should be given to the attainment of a balance between the various food constituents, and that with reference to the body's requirements in the case of each one.

In relation to the exclusion of meat, wholly or in part, from the family larder, the first point for consideration is what foods can best take its place, from the point of view of the needs of the body? The list of these is a comparatively short one: cheese, the pulses, milk, eggs and nuts are the best.

In considering the value of any given food, there are aspects that have to influence the conclusions arrived at: (a) Its value as a tissue builder, (b) its power to produce heat and energy in the body, and (c) its protective qualities. This last is, of course, largely dependent upon the vitamin content of any given food.

Hard and fast concepts cannot be established as to the function of certain constituents of the various foods. In relation to the first of the two requirements referred to above, proteins are usually classified as the most important from the point of view of building up new tissue in the young and replacing that wasted by activity both in young and old. But proteins also play a part in supplying a means of securing energy and heat from certain aspects, while they have protective qualities. Primarily, however, proteins are to be regarded as tissue builders, and it is this fact principally that gives to them their acknowledged importance in the dietary.

Carbohydrates and fats produce heat and energy during the metabolic processes in the body—these can, however, be obtained from many sources; but when it comes to the matter of supplying proteins for a vegetarian diet the limitations are greater. Proteins are very complex bodies which consist largely of chains of amino acids and the importance of any food depends to a great extent on the types of these contained. The most valuable are cystine, arginine, histidin, lysine, methionine, phenylalanine, tryptophane and tyrosine. They are all of them valuable, because they are very similar to human proteins.

Certain other amino acids have lesser value in this respect because they do not resemble human protein. Cheese, eggs and milk contain amino acids of the first class; the amino acids of the pulses and nuts have less resemblance to the human types. However, the body, as a rule, soon adjusts itself to suitable transformation of these constituents when necessary.

Cheese.

To a person doing an ordinary amount of work and enjoying average health, probably the most useful and economical substitute for meat is cheese in one or other of its forms. Being a product of milk it contains protein

of a kind very suitable to the human body. Its principal constituent is casein and it is also rich in fat, some types more than others. As it is usually taken with bread or cooked along with some other carbohydrate food its use contributes towards attaining very easily a proper variety of the important items in any food table. Its mineral content is good and it is particularly rich in calcium, which makes it valuable as a part of the diet of growing children, although they, as a rule, do not care much for cheese and are apt to find difficulty in digesting it. Cream cheese is good and nutritious, but in it the calcium content is lower. If, when preparing cheese, the milk used for its manufacture is clotted with rennet, this tends to entangle in the curd most of the fat and so much the richer is the cheese; the system under which Cheddar cheese is made is similar to this. In preparing Stilton cheese a good deal of additional cream is put into the milk. In other cheeses, such as Dutch, for instance, cream is taken from the milk and consequently the cheese produced is correspondingly poor in fat, a fact of no great importance, as butter or some other form of fat, is usually eaten with cheese. Parmesan cheese is made from goat's milk, and Roquefort from ewe milk; both have high nutritive value.

Cheese is prepared from the casein of milk by pressure, and is then set aside in a cool place to ripen by the action of certain bacteria. From an analysis point of view, it may be said to contain thrice the nutritive value of meat, but, of course, people do not usually eat the same quantity of it at a meal as they would of meat. It is not particularly digestible, for it is with difficulty that the juices in the stomach penetrate the fat contained; it forms a kind of outside lining that fluids cannot easily pass through. Once it reaches the intestine, however, cheese is readily absorbed. Not only has it a high value as a protein food, but its caloric value is three times higher than lean meat owing to its fat content. Its deficiency of carbohydrate is rendered negligible because it is usually eaten with bread; when used as a substitute for meat, it is cooked along with foods rich in carbohydrate, such as macaroni, rice or potatoes. When eaten with salad, a valuable supply of vitamin is added.

If cheese is to be used as a substitute for meat it is rather important that one should know what cheese to buy, and, generally speaking, the cheaper cheeses give the largest amount of nutritive value for the money spent. The harder contain, as a rule, the larger amount of protein, and they lend themselves better to the various forms of cooking, such dishes as have cheese as the principal ingredient. It is obvious that cheese cannot be of much value in a sickroom diet, and, as indicated, children and people whose digestive processes are not of the best cannot take much of it in their diet. Apart from this, it is a most useful form of obtaining protein, and, because of the fat contained, it is particularly good in winter as a producer of heat through metabolism in the body itself; this useful purpose is further developed by the fact that it is generally cooked with carbohydrate food. A clever cook can introduce large variety into the dishes for which it is used and so avoid monotony.

Eggs.

The fact that the chicken is developed from the egg without any nourishment from outside is very adequate evidence that the egg contains a large amount of nourishment for its bulk. Fifteen to 20 eggs are equal to about 2 lb. of ordinary meat, and, as a rule, they are a cheap and good means of obtaining nourishment. One advantage is that they can be used in so many different ways. They have a large percentage of protein and their content of fat is very adequate; their mineral constituents are principally phosphorus, lime and iron. Carbohydrate is not present, but it is not required for the primary purpose of an egg—i.e., to induce muscular movement, for this last is, of course,

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