

unchanged or practically so—in which case waste occurs, and worse than waste; for a certain amount of energy must be expended to carry this overplus through the body ; (2) The excess food may be digested and assimilated (metabolized) and what we call *growth* results. The body becomes bigger and heavier, and, if this growth be normal, as in the case of children and young people, all is well. (3) The excess food may be changed into fat, and more or less fat may be deposited in the tissues. Up to a certain point this is a good thing. The fat represents a storage of energy (potential energy) that may serve a good purpose on occasion; just as a bank deposit, representing money of which you have no need at the moment, may come to be useful, when your debtors don't come to time, and enable you to meet your obligations. But this deposition of fat may go to excess; and by creating layers of fat in the muscles, may so weaken them, that they can no longer work efficiently. For example; the heart is a muscle, and what is called fatty degeneration of the heart, always fatal, is merely the result of too much fat deposition in this muscle.

If too little food be taken, then, as long as expenditure of energy goes on and it has already been shown that an expenditure amounting to 1680 calories, in the case of an adult of 156 lbs. weight goes on in every 24 hours, even though the person lies quietly in bed the whole time, there must be a deficit at the end of each day, and the individual undergoes starvation. If he possesses a considerable store of surplus energy, as fat, this store will be drawn upon. The body will lose weight, but the loss is something that can be spared without serious harm. When this store of fat is used up, energy can still be obtained, but it will now be derived from the actual body tissue and the body will waste away to the point of exhaustion and death. This is of course, the worst kind of cannibalism for the man is consuming, as food, the material of his own body. Death results when the weight of the body is reduced to two-fifths of its original weight (Chossat). This, of course, refers to death by simple starvation, and apart from all disease.

All foods provide energy. A substance taken by the mouth, which does not furnish energy, is not, in the true sense, a food. We do, as a matter of fact, take in many such substances with our food, chiefly for the purpose of sweetening it (saccharin) or of giving it a pleasant flavour. (spices, etc.). One substance, which is not in the strict sense a food, we must have in considerable amount. I refer to water. Sixty-three per cent. of the total weight of the human body consists of water. Practically all foods as prepared for the table, consist largely of water. This is especially the case with soups stews, puddings, porridge, etc., and many market food stuffs, which we do not think of as containing water, nevertheless contain large amounts of it. Thus, average beef contains 15 per cent; fresh fish about 30 to 40 per cent ; bread 33 per cent; potatoes 76 per cent ; cabbage 90 per cent.

But water must be taken to a greater or less extent by itself, in addition to that which is incorporated with our ordinary table dishes. We must keep in mind that most of the waste products of life (chlorides, urea, uric acid, phosphates, etc.) are got rid of by the use of water as a solvent.

Fortunately, the consumption of water does not enter largely into the question of the cost of food, so that I need say nothing further about it than that we are not likely to use too much of it as a beverage, while most people use decidedly too little.

All foods, properly so called, may be divided into two classes :—

- 1st. Those which contain material capable of building up the tissues of the body (muscle, bone, cartilage, etc.) in addition to being able to furnish energy. To this class of foods the term *proteids* is applied.
- 2nd Those foods which, practically, supply energy only. It is necessary on account of the way in which the body works in changing food into energy, to subdivide this class into two subclasses, known as *Fats* and *Carbohydrates*.