

scribed lotions, and perhaps syringing them, in doing which I must most earnestly advise you to use the utmost caution as regards your own safety, as some forms of this complaint are of a highly contagious character. Many a Nurse has lost her eyesight through contact with the discharge from the eyes of an ophthalmic patient. It is better not to employ sponges for bathing the eyes, but a bit of soft rag or lint, which should be instantly destroyed.

#### CHAPTER XIV.—THE DIGESTIVE ORGANS.

THE use of food is to make good the incessant waste of substance and loss of heat which is going on in the body. Life is a process of continual waste and repair; and when this power of repair ceases, death ensues.

The system by which food is converted into blood, for the purpose not only of sustaining but of heating the body, is called *assimilation*, and this includes the progress of digestion, or the solution of the food in the stomach, previous to its being further prepared and fitted for becoming a part of the body.

The machinery of the body is so beautiful that it is wonderful, whilst it keeps in good order, what different kinds of food it is able to make use of and turn into nourishment. There must be, however, in the food supplied to the body, certain *elements* which, as you will very often hear them talked of, it will be well to name. They are oxygen, hydrogen, nitrogen, and carbon. The first three of these are gases, and the last is a solid.

Some kinds of food supply at once only one or two of these ingredients, but others—a bit of flesh or muscle, for instance—possess in themselves all that is necessary for the nutrition of the body and the supply of heat. Some of the productions of the vegetable world contain all four of the elements I have named. It would be quite possible for a man to live on nothing but bread, only he would have to eat a great deal of it to obtain the amount of some of the necessary materials furnished by a very little bit of meat. Both the quantity and quality of what a person is to eat must be determined by his activity, and the temperature in which he lives. This has led to a division of foods into the kinds which supply each form of loss. Some kinds, for instance, which contain a great deal of carbon and hydrogen, are chiefly instrumental in producing heat, and it may be noticed that in cold climates the diet of the inhabitants consists of large quantities of oily food, which is nearly all carbon, whilst people in tropical climates subsist mainly on rice, and foods which keep up as little heat as possible.

The bulk of the body consists of a very large proportion of water, as does the solid food taken in, but yet the latter does not contain sufficient to replace the great waste of it which goes on, and which is accordingly expressly supplied by drink. In connection with this I daresay you will remember what a great source of waste the skin is; and I must also remind you that every act, even of the simplest kind, involves waste which must be repaired.

This seems a fitting time to speak very briefly of the glands. These are, as I told you, organs, the office of which is to separate something from the blood. When what is separated is of a character useful to the body, it is called a *secretion*, when hurtful an *excretion*. Glands have blood vessels, and have, to carry off the excretion or secretion, ducts or canals, which end either in an open mouth or a receptacle. The process by which secretion is carried on is one of the most wonderful operations of the human machine. There is a great deal remaining to be found out about it, and what is known is of too complicated a nature for me to enlarge on here.

We will now proceed to consider the process by which food becomes the new material of the body.

When it is taken into the mouth, the teeth embedded in the upper and lower jaws masticate it by the to and fro, and side to side movement of the lower jaw upon the upper, which is worked by strong muscles. The teeth have blood vessels and nerves, and form a kind of mill or grinding machine, which seizes the food and masticates it.

It is meanwhile mixed with a fluid called saliva or spittle, which so moistens and softens the mass that it can then be more easily swallowed and digested. Saliva is one of the secretions, and is thrown into the mouth by means of the salivary glands. The active principle of saliva is called *Ptyalin*. Besides moistening, it acts chemically on some kinds of foods, and converts starchy foods into sugar. Careless or hurried people who bolt their food, dispense with this process of mastication, and very uncomfortable sensations in the stomach are often the consequence of doing so. On the whole it is safer to swallow animal food hastily than vegetable, for the former will soon be dissolved, but the *starch* of which the latter largely consists, missing the action of the saliva, passes through most of the stages of digestion unchanged. Saliva has something to do with the sense of taste, and when, as is common to other secretions in many forms of illness, it does not properly fulfil its different offices, the mouth becomes dry and parched, and every form of nourishment is unpalatable. You must then, as Nurses, do your best to supply the machinery

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