Practical Notes on Invalid Feeding.

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VIII.—MEAT.

It is a true saying that "nothing makes flesh like flesh," and in the convalescence which follows illness attended with great loss of flesh, meat must be largely resorted to in order to make good what is lost. It is possible to sustain life on meat alone, but the excess of proteid which must be taken in order that a sufficiency of heat-giving substances may be supplied would severely tax the eliminating organs and give rise to disease.

Of all solid foods, meat is the most easily digested by an invalid. It calls forth a large amount of gastric juice for its digestion, but it makes very little demands upon the mechanical powers. Meat varies much in its degree of digestibility, and it is difficult to fix any hard-and-fast rule, for in the digestion of meat idiosyncrasy plays a very important part. It is generally stated that mutton is more easily digested than beef, yet there are certain stomachs which really cannot digest mutton, while others cannot manage beef. Such peculiarity is particularly intense in children and invalids, and, although it cannot be explained, it must always be respected, for harm, rather than good, follows the taking of any food to which there is a great aversion.

Pork may be eliminated at once from the subject of invalid feeding, for the fibres are coarse, and embedded in the muscle is a large amount of interstitial fat, which acts as a waterproof coating to the fibres, and prevents the action of the gastric juice. In certain constitutions it gives rise to nettle-rash, and acts as an irritant poison. For strong stomachs it proves a nourishing and economical food.

When pork is turned into bacon the character of the meat is altered. The fibres are equally coarse, but they can be better borne by the stomach than fresh meat in connection with tea, and this fact underlies the custom of taking bacon and ham at breakfast. The fat, too, undergoes a change, and becomes granular in character, so that it is more easily digested than ordinary fat, and, as it is palatable, it is a useful form of fat in the feeding of consumptives and diabetics.

There remains the flesh of the sheep and of the ox, in its young or its mature form for invalid feeding, so that their relative value may now be considered.

The structure of muscle has already been described. The connective tissue which binds the muscle bundles varies in density with the age of the animal, so that in old animals the tissue is dense and the meat is tough. The effect of cooking is to soften the connective tissue, but, as the heat hardens the fibres, the net result is that cooked meat is less easily digested than raw meat. Meat for invalids should always be slightly underdone, as the nearest approach to raw meat. Another reason for lightly-cooked meat is that prolonged cooking removes the extractives, and, as was shown in the paper on "Beef-tea," the extractives are valuable stimulants to the gastric glands.

The muscle fibres are hollow and are filled with water, which contains in solution salts, extractives, proteids, and hæmoglobin which is rich in iron. In beef the amount of water varies from 53 to 75 per cent. In mutton the proportion is slightly greater, but in the immature forms of both meats the proportion is much higher, reaching sometimes as high as 80 per cent., so that the nutritive value of lamb and veal is much lower than that of beef and mutton. The water is gradually replaced by fat as the animal becomes mature, and the proportion of extractives is increased. Veal and lamb would seem to be more suited to invalids than beef and mutton, as the fibres are less firmly lashed together; but they are really less easily digested, because the fibres do not lend themselves so readily to perfect mastication, and the deficiency of extractives retards digestion. This is especially so with regard to veal. The whitest veal should always be avoided, as the animal has been freely bled and the flesh is not the most juicy or the best-flavoured.

Meat is very exciting in its effects, and in some mental cases its use is strictly prohibited. In hot weather its use should be limited in all cases, on account of its heating character.

With regard to methods of cooking, roasting is the most economical method for prime joints, and stewing for the inferior portions. In roasting, the meat should be placed in front of a very hot fire to coagulate the albumen in the juices and form a coat which shall prevent the escape of valuable juices. When the outside is hardened, the meat should be set at a greater distance from the fire that the inner portion may be slowly cooked. In stewing, the meat should be cut into small pieces and put into sufficient cold water to cover it. The water must now be heated to just below the boiling-point, and must never be allowed to reach that point. With prolonged cooking the fibres become very soft and tend to fall apart, and the nourishment which has escaped from the meat will be stored in the gravy, so that by this method there is practically no waste. A thick stoneware jar placed in the oven answers well for stewing, but an ordinary saucepan should not be used unless the saucepan contains water in which an earthenware jar containing the stew is placed.

Meat should always be carved at right angles to the grain, as the fibres are then more easily masti-

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