

teid is extracted, and it is in a soluble condition. If the water containing the serum albumin is heated to 180° Fahr., the albumin is coagulated, and appears as small brown flocculi, which are not difficult of digestion.

If the temperature is raised to boiling-point, and continued for some time, the beef-tea will be enriched by the addition of gelatin. Although gelatin is a nitrogenous substance, it is not a proteid. It cannot build flesh, but by retarding tissue changes acts as a proteid-sparer. It is thus a valuable substance, but when it is present in beef-tea it shows that the temperature has been great enough to harden the tiny flocculi of albumin and render them very difficult of digestion.

The following recipe will be found a simple way of preparing beef-tea with as large an amount of nourishment as it is possible to obtain with ordinary appliances. Cut 1 lb. of shin of beef into very small pieces, or mince it in a sausage-machine. Place it in a stone jar with a pint of water, and allow it to soak for half an hour. At the end of the time, pour off the liquid, but do not strain it through muslin or a hair sieve.

Such a beef-tea contains about 1½ per cent. of proteid, or about a third of the amount contained in milk. It is then clear that from nine to twelve pints of beef-tea is the minimum amount which will supply a patient with the necessary daily amount of proteids, and the impossibility of giving such a quantity is at once apparent.

By the addition of acids a further amount of proteid can be dissolved from the raw meat. Letheby describes his method of making beef-tea, by "infusing a third of a pound of minced meat in 14 oz. of cold soft water to which four or five drops of muriatic acid and about 10 grains of salt have been added. After digesting for an hour or so, it should be strained through a sieve, and the residue washed with 5 oz. of water and pressed. The mixed liquids supply about a pint of cold extract of meat, containing the whole of the soluble constituents of the meat, which should be taken cold or warmed to a temperature of about 100° Fahr."

Liebig adopted a similar method in his preparation of beef-tea for his sick servant, but he used a smaller proportion of water, and allowed the soaking to continue for three hours.

Raw-meat juice contains 6 per cent. of soluble albumin, and on this account is of great value in the sick-room and in the nursery. There are several ways of preparing meat juice. One consists of cutting the meat into small pieces and putting it into a wide-mouthed bottle and tightly corking it. The bottle is then stood in a saucepan of water, which is gradually made hotter until it nearly boils. At this temperature it remains with the bottle in it for two or three hours, and at the end of the time the juice is strained off. Another method consists of

squeezing pieces of meat in a levered lemon-squeezer, but this method is very tedious and does not extract the whole of the juice. A better method consists of mincing steak and soaking it in four times its weight of water for an hour, and then squeezing it through muslin.

As the meat juice can be mixed with milk without altering its taste, it can be given in this way, thereby increasing the nutritive value of the milk. When given by itself its colour often makes it repulsive to invalids. This difficulty can be overcome by serving it in a coloured glass or by colouring it with a little burnt sugar. It is most essential that meat juice should be prepared from meat which is free from taint, and when it is used freely it should be prepared twice a day.

With infants who are unable to digest sufficient proteids from milk, raw meat juice is an easy way of supplying the deficiency. It has valuable anti-scorbutic properties, so that it should be given occasionally to infants who are being fed on boiled milk. There is no reason why it should not be frequently given to children who are weaned, as the general tendency is to make the diet of children of this age contain too much starchy food, and it has been proved clearly that nearly every child flourishes best on proteids, and particularly those derived from the animal kingdom, such as milk, eggs, and meat juice. Raw meat sometimes occasions tapeworms and other intestinal parasites, but no such case has been found to follow the use of raw meat juice.

Broths and soups are often used for the sake of variety. The meat from which they are made should be cut into small pieces, and the bones should be broken. Both should be subjected to prolonged boiling so as to extract as much gelatin as possible. The bones and meat should be soaked in cold water before they are boiled, for the sake of extracting the soluble proteids. From what has been said on the subject of beef-tea, it is easy to see that clear soup contains very little nourishment. The small amount which is soaked out by the cold water is precipitated by the albumin of egg-white or meat which is used in clarifying the soup, and is then strained off and wasted. Fortunately, soups can be fortified by the addition of Plasmon or other tasteless proteid powder, or by barley, rice, sago, vermicelli, or Italian paste. A thick soup contains more nourishment than a clear one, the most nourishing being that which is thickened with lentil flour.

Mutton broth is best when prepared in the same way as beef-tea. Veal broth contains more nourishment than mutton broth or beef-tea, and is used very largely at the Munich hospitals. It was formerly ordered by medical men in gastric disturbances in infants, but Dr. Cheadle advises that it be cut out from a list of infants' foods.

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