

and then discussing its cause. For reasons that will appear, it is better to consider it as a group of allied conditions rather than as a single disease, but individual cases have been labelled "Botulism," "Heine-Medin disease," "Polio-encephalitis," "Epidemic Stupor," and as time goes on, it is not improbable that other names still are likely to arise.

Now for the patient. He may be of any age or sex, but children and young adults are more commonly affected. The onset is usually sudden, with headache, vomiting, and a high temperature. In the worst cases these signs deepen into stupor, coma, low muttering delirium, and the patient dies—obviously from some form of general poisoning—before there is time for any localising symptoms to develop.

When these do occur, however, they are found to consist usually of paralysis of the muscles of the tongue, lips, larynx, eyeballs, and face, so that there is difficulty in speaking and swallowing, with squint and facial paralysis: sometimes the respiration is affected, and the patient therefore dies. The general mortality appears to be about 50 per cent. to 60 per cent., and in the cases that recover convalescence is very prolonged, and some permanent weakness usually occurs. In another group of cases there is no paralysis, but the patient becomes drowsy and stupid, and may remain semi-comatose for a prolonged period.

What has happened? It is obvious, I think, that we must be dealing with a bacterial poison which is circulating in the blood, and is also capable of picking out a portion of the nervous system for more particular attention.

As a matter of fact, it is the special nerve cells in the medulla—that portion of the brain situated next to the spinal cord—that are affected in the paralytic cases, and those higher up in the brain in the stuporose type, and the pain is the product of a bacillus whose identity is—at present, at all events—somewhat doubtful.

Now the existence of a bacillus where lesions produce these sort of symptoms has been known for some time; it is found in certain foods, notably sausages and cheese, and is called the *Bacillus Botulinus*, and outbreaks undoubtedly due to this microbe have appeared from time to time. So these cases were not unnaturally at first described as Botulism, and numerous foods—including as usual everything in a tin—were blamed. But it was soon obvious that the bulk of the patients could not have eaten infected food, so further inquiry had to be made.

Now from time to time outbreaks have occur-

red of a disease which is practically infectious, infantile paralysis (only it is not confined to infants), where similar special nerve cells in the spinal cord itself are affected, and there is very little doubt that the present cases are similar in type. They are probably both due to the same or an allied microbe which has been found in the affected cells, but it is not the *B. Botulinus*, and has probably no connection with any particular food.

Then comes the next problem: Is it a new organism at all? It is not necessary to assume that this is the case, because we may be dealing only with diminished resisting power to an old one.

We all of us, for instance, carry about with us in health in our mouths and intestines germs of all sorts of diseases, but they do not attack us until something occurs to lower our powers of resistance, then we succumb.

Just now there are many causes operating against our capacity for defence, amongst which I should place worry (and emotion generally) and the diminished ration of fat as the most important where the nervous system is concerned.

In the outbreaks of spinal disease referred to, worry and overcrowding (in billets, &c.) were accepted as prominent causes, and there is an old adage which has a germ of truth in it to the effect that if you think you are going to catch a complaint, you generally do. Kingsley, in "Two Years Ago," makes dramatic use of this in his story of a cholera epidemic.

As regards fats, we know that for the production of heat and energy their place can be taken by starchy foods like potatoes, but it is not so well recognised that they are essential for repairing waste of nervous tissues, the cells of which—especially those we are now concerned with—contain a large proportion of fatty substances. For this purpose there is no substitute in the diet for fat.

As far as the ration is concerned, however, there is quite enough total fat to keep our nerve cells in condition, but there are foolish people who will only eat one kind of fat. Some, for instance, will not eat margarine, and if they cannot get butter they will go fat-less, and children are particularly apt to be fastidious in this way. Before the war these children were fed on cream—at which they often got first innings after the pet lapdog—but that is now impossible, and many mothers do not see the necessity for enforcing discipline in the use of substitutes, and do not know that the addition of some *Viol*, for instance, to the milk, is both useful and palatable.

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