

be liquid in character throughout the entire course of the disease.

I have repeatedly seen ill results from the infringement of this rule, while I have rarely seen a case where the digestion had been carefully managed from the start in which liquid nourishment did not suffice to maintain nutrition. Indeed, such is my conviction of the supreme importance of the condition of the mucous membranes in this disease, and of the necessity of giving only such food as can be fully digested and absorbed, that I am inclined to believe that far more patients are over-fed than under-fed in typhoid fever.

I have seen many cases where, while beef-tea and pure milk were freely administered, dryness of the tongue, nausea or vomiting, and diarrhoea existed, and where the substitution of light chicken or mutton broth, and of skim-milk, or milk diluted with equal parts of water, has led to the subsidence of these symptoms and the re-establishment of good digestion.

With regard to the use of stimulants, I have been led to feel that they are not to be regarded as a necessary part of the routine treatment of typhoid fever. During the early stage of the disease, indeed,—unless exceptional symptoms arise demanding them,—their use is often injurious, and tends to increase the derangement of digestion and the gastro-intestinal catarrh then existing. When the early stage is carefully managed, stimulants are often not called for throughout the whole course of the case, or only towards the close to hasten convalescence. On the other hand, in cases where the constitutional infection is serious, and marked nervous prostration and heart-failure exist, their free use may be demanded. No question in the treatment of typhoid fever has seemed to me to rival in difficulty that of deciding, in cases which do not come under notice until high hyperpyrexia, serious nervous symptoms, a rapid and feeble circulation, together with marked derangement of digestion, have supervened, how far the symptoms are the result of nervous exhaustion from protracted surface irritation which may be increased by the free use of stimulants, and how far they are the result of poisoning of the nerve-centres and depression of the vital forces by the zymotic poison.

In such cases it is probably better to use stimulants at once, but with the greatest caution and with a mind fully awake to the fact that their use may aggravate the very symptoms they are given to relieve. Where the case has been under observation from the very beginning, and stimulants have been withheld until the appearance of symptoms actually demanding them, it is generally a comparatively easy matter to determine when they are called for, and to decide in what form and to what extent they shall be given.

In every case of typhoid fever the febrile movement should be carefully watched, and the temperature be recorded two or three times in twenty-four hours,—say at 9 A.M., 2 P.M., 9 P.M. In many

cases no special treatment is called for to reduce the temperature. If the primary zymosis is not violent, and the gastro-intestinal irritation is moderated by proper means, the febrile movement preserves its well-known course without the maxima attaining, in most cases, a dangerous point. So long as the temperature fluctuates 2° or thereabouts within each twenty-four hours, and the maximum alone, lasting for a few hours or less, reaches 102° to $103\frac{1}{2}^{\circ}$, while the nervous symptoms and the heart's action are reasonably favorable, no special anxiety need be felt about the pyrexia. This is especially true in women with sensitive nervous systems and in children, since in them high temperatures are most readily produced and have less serious significance. It is, however, desirable for the comfort of the patient and for the promotion of healthy action of the skin that the surface should be sponged several times daily. The water may contain a little alcohol, vinegar, or carbolic acid, and its temperature should be determined by that of the body and by the sensations of the patient. For instance, in a highly-nervous and delicately-organized young woman of 25 years, with marked typhoid fever in which the maximum daily temperature reached 104° , $104\frac{1}{2}^{\circ}$, even 105° , for ten or twelve days successively, sponging even with tepid water produced a sense of chilliness, so that it was entirely abandoned, and a perfectly satisfactory recovery was made. I am entirely convinced that any "cold-water treatment" of typhoid fever, with rigid rules for cool bathing, etc., as soon and as often as the temperature reaches a certain point ($102\frac{1}{2}^{\circ}$ to $103\frac{1}{2}^{\circ}$ or so on), is unphilosophical, unnecessary, and less successful than the simpler mode of treatment here advocated. The excellent results obtained by some of the advocates of frequent cool bathing show that such baths are well borne, and may be safely conjoined with a scrupulous attention to all the other details of rational treatment. But I have preserved the notes of the last one hundred cases of typhoid fever of whose treatment I have had the direction from the beginning of the attack, and the mortality has been but three per cent., and in only five or six of these cases were full baths employed. In the great majority of cases, then, I believe that cool bathing can be dispensed with, and sponging of the surface be found sufficient. But, on the other hand, there are certain conditions that seem to call imperatively for rapid reduction of temperature by cold baths. The first of these is when, early in the case, the temperature rises very high ($104\frac{1}{2}^{\circ}$ or over) without any sufficiently severe local irritation to explain it, so that there is clearly a grave zymosis present. Again, when at any period of the disease the daily maximum reaches $105\frac{1}{2}^{\circ}$, and the daily average is very high, and the hyperpyrexia is maintained despite the free use of cool sponging and the judicious use of antipyretics cool bathing should, as a rule, be instituted. I follow this rule whether the hyperpyrexia is due