

apparently to increased septicæmia or to the failure of the inhibitory action of the nervous system; but if severe pulmonary inflammation or a serious exacerbation of intestinal inflammation has occurred to cause it, I do not advise the use of cool baths until the character of the nervous symptoms or the failure of the force of cardiac action indicates that the exalted temperature is producing dangerous secondary results. A few words must be added in regard to the use of other means for reducing hyperpyrexia. Undoubtedly, quinine is the most reliable of these. I have already spoken of its use in the later stages of the disease, either by mouth or rectum, and I think its judicious use thus greatly lessens danger of hyperpyrexia later. When, however, the temperature runs up as the disease advances, it does not seem to me advisable to give large single doses of quinia, but to persevere with the use of twelve to twenty-four grains given in divided doses during the twenty-four hours. The elevation of temperature is so frequently connected with the evolution of gastro intestinal lesions that it appears desirable to avoid any measure liable to increase this surface irritation. The administration of colossal doses of quinia (twenty-five to forty grains at a single dose), while capable in some cases of lowering the excessive temperature, it seems to me has in more than one instance shown itself to be open to serious objection. If, however, the temperature persistently rises despite absolute rest, judicious diet, the regular use of quinine in moderate doses, repeated sponging, and if any special reason exist why cool bathing should not be used, or if after cool baths have been used the dangerous hyperpyrexia persists, then only would I recommend the administration of very large doses of quinia; nor would I use them even then unless the state of the stomach encouraged the hope that severe gastric irritation would not result. Digitalis, which is very valuable where failure of the innervation of the heart exists, has not, in my experience, proved itself reliable as an antipyretic or a tonic to the heart when its feeble action results from degeneration of the muscular walls from hyperpyrexia. Salicylic acid and its salts have also disappointed me, often failing to reduce the temperature satisfactorily, and often causing a most unsatisfactory amount of gastro-intestinal irritation.

To return from this consideration of the treatment of the pyrexia in typhoid fever, there is one other condition, and only one, that seems to me to demand attention in every case of this disease. Pulmonary or venous complications may or may not exist in any pronounced degree, but unquestionably there is wide-spread irritation of the gastro-intestinal mucous membrane in every case. This may or may not be so intense as to prove the source of the greatest danger in the case, it may not be associated with severe diarrhœa,—nay there may not be the slightest diarrhœa present,—and yet there is always hyperæmia and follicular enlargement. Differences between individual

constitutions, as well as differences in the degree of these local lesions, cause them to exist in different degrees of reflex irritation, and thus to influence very differently the symptoms and course of the case; but the essential fact is that they are present in every case to an unknown extent, and the obvious inference would seem to be that they should receive suitable treatment in every case.

My own feeling is that this treatment should be instituted as soon as reasonable suspicion exists that the case is one of typhoid fever, and that it should, if possible, be steadily maintained until it may be thought that the mucous membrane has returned to its healthy state. It seems to me altogether probable, even despite the presence of a special poison in the intestinal contents, that some control can be exercised over the extent and progress of these local lesions; and I must add that prolonged clinical observation has convinced me of the truth of this view. The substances which would seem most appropriate for this purpose are the salts of silver and of bismuth and creasote or carbolic acid. Of these my own preference is very decidedly for nitrate of silver, the use of which now constitutes an essential and, in my judgment, a most important part of my treatment of typhoid fever. After the preliminary measures before described, I direct nitrate of silver in the dose of one-quarter or one-sixth of a grain for an adult, usually in pill, or for children in solution in mucilage of acacia three or four times daily, to be taken soon after food. If the bowels are constipated, extract of belladonna is combined; if a tendency to looseness exists, a small amount of powdered opium is added. When given in solution, the opium is added in the form of a few drops of deodorized laudanum. Since I was led to the adoption of this remedy by the study of the morbid anatomy of typhoid fever, I have acquired a constantly-increasing confidence in its value as an element of the rational treatment of this disease. By modifying, as I believe it does, the state of the mucous membrane, it modifies the symptoms that are dependent on the irritation reflected from the mucous membrane; and the result has seemed to me to be that in a long series of cases treated with most scrupulous attention to every detail, and in all of which nitrate of silver was administered, there has been a remarkable freedom from grave complications and a most gratifying percentage of recoveries (ninety-seven per cent.).

As may be inferred from the above remarks, there does not seem to me any objection to the judicious use of opium in typhoid fever. Not only have I seen it useful in checking diarrhœa, but it has often proved the most valuable remedy for the insomnia, headache, and excessive nervous excitability that may be present in this disease. It is true that I have known one of the bromides or chloral or spirit of chloroform produce good results in some cases where such symptoms existed, but far more frequently I have succeeded in