

some of whom have apparently come to the definite conclusion that any attempt at curative treatment must of necessity be futile. Indeed, this even is expressed explicitly, for in a recent text-book the author begins his chapter on treatment with the reflection that "the profession was long in learning that typhoid fever is not a disease to be treated by medicines."

Until the developments of recent years regarding the nature and causation of the disease, the various treatments were of necessity empirical. Now, however, since the discoveries in bacteriology have demonstrated both the cause of the disease and the manner in which it produces its effects, we are in a position to proceed logically. In order that we may do so it is, however, necessary that we have a clear conception of the nature of the causative agent, and also, what is in this case of more importance, the manner in which the results of infection are produced.

Before proceeding to discuss the plan of treatment which I am advocating in this paper, let us review briefly what we know regarding the pathology of the disease and the nature and *modus operandi* of the infective agent. It is now well established that typhoid fever is the result of the location and growth in the body of a specific form of bacterium. It may, perhaps, be conceded that other organisms, in addition to the specific bacillus, play some part in the production of the phenomena of the disease. It is, however, sufficient for our purpose that we ascribe the results to infection by minute fungi, which are located primarily and chiefly in the alimentary canal. It is just as clearly established that these bacteria are themselves harmless, whatever results are produced as a consequence of their lodgment and growth in the body being due to the action of a chemical substance elaborated by them in the process of growth. For it has been demonstrated by Brieger, and also by Vaughan and Novy, that this typho-toxine, as it has been named, separated from bacterial cultures, will cause necrosis of the tissues with which it comes in contact, the severity of the lesion produced depending upon the degree of concentration of the poison. It is, in fact, as Woodhead expresses it, a "caustic." If a certain quantity of this substance be given, it causes dilatation of the pupil. Delirium is a result of its action upon the cerebral centres, this condition merging into paralysis and coma if the dose be sufficiently increased. Elevation of temperature depends upon its action upon the thermic centres. We have, then, to consider the bacterium and its product, and we place them respectively in the relation of remote and immediate cause to all the phenomena of the disease. The condition is, in fact, a poisoning by a chemical substance, which is not taken at one or at several doses, but which is produced constantly and gradually in the body itself. The main laboratory for its formation is the intestinal canal; for while the bacilli are found in the lymph spaces, blood, and solid viscera, yet the