Typhoid or Enteric Fever.

Typhoid or enteric fever *(ἔvτερov,* the intestine) is a con­tinued fever characterized mainly by its insidious onset, by a peculiar course of the temperature, by marked abdominal symptoms occurring in connexion with a specific lesion of the bowels, by an eruption upon the skin, by its uncertain duration, and by a liability to relapses.

This fever has received various names, such as gastric fever, abdominal typhus, infantile remittent fever, slow fever, nervous fever, &c. Dr Murchison, in reference to its supposed origin in putridity, uses the term “ pythogenic fever,” but this designation has not been generally adopted. Up till a comparatively recent period typhoid was not dis­tinguished from typhus fever. For, although it had been noticed that the course of the disease and its morbid ana­tomy were different from those of ordinary cases of typhus, it was believed that they merely represented a variety of that malady. The distinction between the two diseases appears to have been first accurately made in 1836 by Messrs Gerhard and Pennock of Philadelphia, and still more fully demonstrated by Dr A. P. Stewart of Glasgow (afterwards of London). Subsequently all doubt upon the subject was removed by the careful clinical and pathological observations made by Sir William Jenner at the London fever hospital (1849-51). A clear distinction has been established between the two fevers, not only as regards their phenomena or morbid features, but equally as regards their origin. While typhus fever is a disease of overcrowding and poverty, typhoid may occur where such conditions are entirely excluded ; and the connexion of this malady with specific emanations given off from decomposing organic or fæculent matters, or with contamination of food or water by the products of the disease, is now almost universally admitted. Alike in sporadic cases and in extensive epidemic outbreaks the existence of insanitary conditions in house drainage, water supply, &c., can in the majority of instances be made out. The question whether such conditions alone will suffice to beget this fever—or, in other words, its *de novo* origin—has, as in the case of typhus, been much dis­cussed, and an affirmative opinion expressed by some high authorities. But the same remark must again be made as to the difficulties in the way of maintaining such a position in view of the evidence of the part played by microbes in infective processes.

That all insanitary conditions in respect of drainage of houses and localities furnish the most ready means for the introduction of the contagion of typhoid there is a general agreement, as there is equally that the most certain means of preventing its appearance or spread are those which provide a thoroughly trustworthy and secure drainage, a safe method of disposal of sewage, and a pure and abundant water supply. Typhoid fever is much less directly com­municable from the sick to the healthy than typhus. The infective agent appears to reside in the discharges from the bowels, in which, particularly when exposed and under­going decomposition, the contagium seems to multiply and to acquire increased potency. Thus in sewers, drains, &c., in association with putrefying matter, it may increase in­definitely, and by the emanations given off from such de­composing material accidentally escaping into houses, or by the contamination of drinking water in places where wells or cisterns are exposed to fæcal or sewage pollution, the contagion is conveyed. Of the precise nature of the contagious principle we have as yet no full information,@@1 but there appears to be strong reason for believing that a specific microbe or organism plays a part in the propagation of the disease. Still it is obvious that for its successful

implantation in and effect upon the system a peculiar con­dition of preparedness or receptivity to the morbific agent must be presupposed to exist in the individual, regarding which also our knowledge is of the vaguest. There is abundant evidence that one of the vehicles for the con­veyance of the contagion is food, especially milk, which may readily become contaminated with the products of the disease where an outbreak of the fever has occurred in a dairy.

Typhoid fever is most common among the young, the majority of the cases occurring between the ages of fifteen and twenty-five (Murchison). But children of any age may suffer, as may also, though more rarely, persons at or beyond middle life. It is of as frequent occurrence among the well-to-do as among the poor. The greater number of cases appear to occur in autumn. In all countries this fever seems liable to prevail ; and, while some of its features may be modified by climate and locality, its main characters and its results are essentially the same everywhere.

The more important phenomena of typhoid fever will be better understood by a brief reference to the principal pathological changes which take place during the disease. These relate for the most part to the intestines, in which the morbid processes are highly character­istic, both as to their nature and their locality. The changes (to be presently specified) are evidently the result of the action of the contagium on the system, and they begin to show themselves from the very commencement of the fever, passing through various stages during its continuance. The portion of the bowels in which they occur most abundantly is the lower part of the small intestine (ileum), where the “solitary glands ” and “ Peyer’s patches ” on the mucous surface of the canal become affected by diseased action of a definite and progressive character, which stands in distinct relation to the symptoms exhibited by the patient in the course of the fever. (1) These glands, which in health are comparatively indistinct, become in the commencement of the fever enlarged and prominent by infiltration due to inflammatory action in their substance, and consequent cell proliferation. This change usually affects a large extent of the ileum, but is more marked in the lower portion near the ileo-cæcal valve (see Anatomy). It is generally held that this is the condition of the parts during the first eight or ten days of the fever. (2) These enlarged glands next undergo a process of slough­ing, the inflammatory products being cast off either in fragments or *en masse.* This usually takes place in the second week of the fever. (3) Ulcers are thus formed varying in size according to the gland masses which have sloughed away. They may be few or many in number, and they exhibit certain characteristic appearances. Thus they are frequently, but not always, oblong in shape, with their long axis in that of the bowel, and they have somewhat thin and ragged edges. They may extend through the thickness of the intestine to the peritoneal coat and in their progress erode blood-vessels or per­forate the bowel. This stage of ulceration exists from the second week onwards during the remaining period of the fever, and even into the stage of convalescence. (4) In most instances these ulcers heal by cicatrization, leaving, however, no contraction of the calibre of the bowel. This stage of healing evidently occupies a consider­able time, since the process does not advance at an equal rate in the case of all the ulcers, some of which have been later in forming than others. Even when convalescence has been apparently com­pleted, some unhealed ulcers may yet remain and prove, particularly in connexion with errors in diet, a cause of relapse of some of the symptoms, and even of still more serious or fatal consequences. The mesenteric glands external to, but in functional relation with, the intestine, become enlarged during the progress of the fever, but usually subside after recovery.

Besides these changes, which are well recognized, others more or less important are often present. Among these may be mentioned one which the present writer has repeatedly observed in the severe and protracted forms of this fever, namely, marked atrophy, thin­ning, and softness of the coats of the intestines, even after the ulcers have healed,—a condition which may not improbably be the cause of that long-continued impairment of the function of the bowels so often complained of by persons who have passed through an attack of typhoid fever. Other changes common to most fevers are also to be observed, such as softening of the muscular tissues generally, and particularly of the heart, and evidences of complica­tions affecting chest or other organs, which not unfrequently arise. The swelled leg of fever sometimes follows typhoid, as does also periosteal inflammation.

The symptoms characterizing the onset of typhoid fever are very much less marked than those of most other fevers, and the disease in the majority of instances sets in somewhat insidiously. Indeed, it is no uncommon thing for patients with this fever to go about for a considerable time after its action has begun. The most marked of the early symptoms are headache, lassitude, and discomfort, to­gether with sleeplessness and feverishness, particularly at night ; this last symptom is that by which the disease is most readily de­tected in its early stages. The peculiar courte of the temperature

@@@1 A bacillus frequently noticed in certain tissues in cases of typhoid fever has not yet been satisfactorily proved to be an organism character­istic of that disease, nor even to be constantly present.