

**CROONIAN LECTURES: ON
SOME POINTS IN THE
PATHOLOGY AND TREATMENT
OF TYPHOID FEVER**

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Croonian Lectures: On Some Points in the Pathology and Treatment of Typhoid Fever by Wm. Cayley

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ON SOME POINTS IN THE PATHOLOGY AND
TREATMENT OF TYPHOID FEVER

Delivered at the Royal College of Physicians of London

BY

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CROONIAN LECTURES.

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LECTURE I.

Etiology.

MR. PRESIDENT AND GENTLEMEN,—

In taking for the subject of these lectures the Pathology and Treatment of Typhoid Fever, I fear I may seem to have chosen one which has been completely exhausted, and about which, therefore, little or nothing new remains to be said; its general pathology, its mode of origin and dissemination, its distinction from other diseases, have indeed been thoroughly investigated, owing in no small degree to the researches of eminent Fellows of this College, among whom I need only enumerate the names of Stewart, Jenner, and Murchison. Of late years, too, there has been a pretty general agreement as to the principles on which the disease should be treated; but, notwithstanding, upwards of 73,000 persons

died during the past nine years in England alone of typhoid fever.

In the face, then, of this great mortality, I think it may not be without some degree of interest and advantage if we again pass in review some of the received opinions as to its nature and treatment. I do not, however, propose again to discuss the distinction between typhoid and other fevers, or to give any clinical account of the disease, but to confine myself to the consideration of some points about which more or less difference of opinion and practice still prevails. And I shall first consider the causation and mode of dissemination; secondly, some points in the pathology; and, lastly, the treatment.

In proceeding to consider the mode of origin and propagation of typhoid fever, we are at once arrested by the question, What are the nature and properties of the poison which is supposed to give rise to the disease?

Now, the typhoid poison has up to the present time eluded all attempts to isolate it or to demonstrate its nature either by microscopical examination or chemical analysis; we are only conscious of its existence by the effects which it produces on the human organism. Nevertheless, some of its properties are known with tolerable certainty: First, when introduced into the system it multiplies; secondly, it is contained in the alvine discharges of persons suffering from the disease; thirdly, it

retains its activity for an indefinite time after it has passed out of the body, when placed under favourable conditions, these conditions being the presence of decaying animal matter and moisture. Hence its usual habitats out of the body are drains, sewers, cesspools, dung-heaps, wet manured soils. And there are some grounds for supposing that in these situations also it may possess the power of multiplying. Lastly, in all probability it is particulate, and not either liquid or gaseous.

The actual nature of the poison,—whether it be, according to the hypothesis most generally accepted, some kind of fungus, or microzyme, or protoplasm, in a word, a *contagium vivum*, or whether, as maintained by others, it is some derivative of albumen, capable of exercising a catalytic action on other albumen,—I do not propose to discuss, as it is a question at present rather of theoretical than practical interest, and it is one, moreover, for whose final determination the data are hardly yet sufficient.

A subsidiary question to this, but one of considerable practical importance, is whether the poison can be generated *de novo* from decaying organic matter, whether it be pythogenic as was so ably maintained by Dr. Murchison, or whether it can only arise by continuous propagation, as was maintained no less ably by Dr. William Budd.

The arguments on both sides may be very briefly stated.

In favour of its origin *de novo*, it is asserted that

typhoid fever has often broken out in isolated situations—as solitary farm-houses, far removed from, and holding no communication with, places where the disease exists; and many such instances are given by Dr. Murchison. On the other hand, it has been proved incontestably by numerous examples, both in this country and on the Continent, that all the conditions supposed to be required for its generation may be present for an indefinite time—as percolation of sewage into wells supplying drinking-water,—and yet the disease does not show itself till the poison is introduced by the arrival of an infected person, when an outbreak at once takes place.

Now, I would submit that this latter argument far outweighs the former; for otherwise, if it be proved that all the conditions necessary for the origination of the poison are present, as shown by its subsequent development when the germs are introduced, and yet it does not develop, we should have to admit that the same causes are not always followed by the same effects.

The instances in which persons in the latent stage of typhoid fever, or actually ill with it, have carried the disease to distant places, and caused it to spread, are so numerous, that I believe that this mode of propagation is now universally admitted; the communication of the disease taking place not by direct contagion from the sick to those brought into immediate contact with them, but by the ordinary mode of sewage contamination.

I will quote in illustration three instances which have occurred in this country.

One is the famous epidemic at Over Darwen. The water-supply pipes of the town were leaky, and the soil through which they passed was soaked at one spot by the sewage from a particular house. No harm resulted till a young lady suffering from typhoid fever was brought to this house from a distant place: within three weeks of her arrival the disease broke out, and 1,500 persons were attacked.

Another well-marked instance occurred at Calne. A laundress occupied the middle one of a row of three houses supplied by one well, into which the slop of the laundress's house leaked. She, on one occasion, received the linen soiled by the discharges of a case of typhoid fever, and after fourteen days cases occurred in all three houses.

At Nunney a number of houses received their water-supply from a foul brook contaminated by the leakage of the cesspool of one of the houses, but no fever showed itself till a man ill with typhoid came from a distance to this house. In about fourteen days an outbreak of fever took place in all the houses.

Many equally striking influences might be quoted from foreign sources; I will, however, only adduce the well-known one of Lausen, as it illustrates some other points of great importance in the etiology and prophylaxis of the disease.

Lausen is a village through which I have no doubt