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THE PROBLEM OF LATENT DIPHTHERIA.

In the authoritative papers upon latent infections of the diphtheria bacillus read at the meeting of the British Medical Association at Belfast, in July of last year, by Drs. Watson Williams, R. M. Buchanan, and Duncan Forbes, now appearing *in extenso* in the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, our readers are afforded an opportunity of studying in detail an exhaustive and interesting presentation of the latest investigations upon a subject which, in recent years, has assumed very considerable importance, not only to the epidemiologist and laryngologist, but also to the general practitioner.

As practical clinicians our first impulse, naturally, is to inquire what the authors of the articles have suggested in the matter of the treatment of those persons who harbour diphtheria bacilli in a "latent" form. Is there any means whereby we can promptly evict the unwelcome tenants? Unfortunately, the answer to this question is in the negative. No specific and certain method of removing these organisms from their habitat has, so far, been discovered. The diphtheria antitoxin, no doubt, prevents or annuls their deleterious influence upon the living tissues of the host, but it does not possess the property of destroying or expelling the organisms themselves, and for this reason, as a means of shortening the period during which a latent case may be infectious, it is of little or no value.

With reference to the action upon the diphtheria bacilli of the direct application of bactericides to the mucous surfaces Dr.

Watson Williams observes that although the infectivity of the organisms may be diminished while antiseptics are being used, the period of their infectivity is not thereby shortened in the slightest.

The disappointment we naturally experience when we become acquainted with the lack of success that has attended these experiments is counter-balanced, however, by one or two considerations of not a little importance. First of all, there seems to be a fairly general agreement that the infecting potentiality of the diphtheria bacillus in a latent case is very low. This opinion is supported by an examination of Dr. Buchanan's diagrams graphically depicting the association of fully-formed diphtheria with the latent type of the disease, in which the most striking feature is the comparative sparsity of possibly infected cases—only one or two children in the neighbourhood of each latent case being attacked. Further confirmation of the inferences we draw from these diagrams is supplied by the remark that, in the experience of public health authorities, "return" cases of diphtheria are by no means common.

Another set-off to the ineffectual character of the treatment of latent diphtheria is afforded by the fact that the length of time the diphtheria bacillus can remain in residence is, at the most, limited to a few months. In this respect the organism of diphtheria stands in marked contrast to that of typhoid fever, which, as recent experience has shown, may, and often does, continue to lead a quiet parasitic life within the organs of the "carrier" for many years, sometimes, indeed, for a lifetime.

Another curious and important point specially referred to by Dr. Buchanan is that the diphtheria bacillus in a latent case is comparatively innocuous both to its host and to the community in general, unless an additional infection by some other organism occurs, and then its virulence and infectivity are enormously enhanced. Hence the advisability of isolating cases of simple sore throats during a diphtheria epidemic.

It should be noted in passing that the virulence test upon guinea-pigs, while it serves to determine the specificity of a given strain of organisms, affords no indication whatever as to their capabilities of infection.

The advance reflected in the articles we are now discussing exemplifies the truism that with each forward step in knowledge new problems emerge from obscurity and demand solution. It is possible, for example, to explain the fact of latency by assuming the presence of an autogenous antitoxin, but we are not yet able to account for the fact that in some individuals diphtheria bacilli

take up their residence as non-pathogenic organisms, while in others they entirely fail to effect a lodgment at all. In like manner the agency which determines the final disappearance of the organisms is at the present time also unknown to us. The solution of this problem, when it is completed, will doubtless furnish us with the clue to the successful treatment of latent diphtheria.

In conclusion, we venture to offer our thanks to the authors for their instructive and thought-provoking articles, and to express our hope that they will carry out their intention to issue the several papers bound together in one single brochure.

DISCUSSION ON THE LATENT INFECTIONS BY THE DIPH- THERIA BACILLUS AND ADMINISTRATIVE MEASURES REQUIRED FOR DEALING WITH CONTACTS.

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THE discussion which I have the honour of introducing to-day from the bacteriological standpoint deals with only a small part of a very large subject. In the latent infections by the diphtheria bacillus and administrative measures required for dealing with contacts we have in essence to discuss what has come to be recognised as one of the sources of diphtheria infection and the problem of dealing with it.

The great tide of experimental research that flowed from the discoveries of Pasteur and Koch gradually swept away much of the mystery enshrouding infection and its spread from individual to individual. And one of the earliest and happiest achievements in this way was the finding of the germ of diphtheria by Klebs in 1883 and its isolation by Loeffler in the following year. In the quarter of a century which has elapsed the work on diphtheria has been an embodiment in a sense of the modern spirit of research and scientific achievement.

It is interesting to find in the classical work of Loeffler a foreshadowing of the very difficulties that confront us to-day. He obtained the organism in pure culture from a number of cases, but did not find it in all the cases regarded clinically as diphtheria. What further tried his belief in the specificity of the newly discovered bacillus was the fact that he found it in the throat of a