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ORIGINAL ARTICLES AND COMMUNICATIONS.

SERUM THERAPY.*

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MR. PRESIDENT AND GENTLEMEN,—The wideness of the subject which forms the title of this paper, together with the limited time at my disposal, must be an apology for its imperfectness, or, rather, incompleteness. Much valuable material which I had collected, in the way of statistics, must be left out, and the gist only of the results of observation can be given here.

From conversations with medical men, I have been forced to the conclusion that a deal of loose and unscientific thinking is done about serum therapy by many who should know better; may I, therefore, be allowed to define certain terms necessary to be thoroughly understood if we are to speak and think clearly and scientifically together for a few moments upon this subject, so far-reaching in its importance to us as medical men, and to those who are entrusted to our care.

The whole idea of a serum therapy is based upon the fact that in all germ diseases a substance called antitoxin is produced. To understand how this substance comes into existence let us consider for a moment the terms germs, toxins, serum, antitoxin, unite.

The germ of, say, pneumonia, is the specific cause of the disease, the pneumococcus, while the toxin is a complex poison produced by that germ. If the *germs* of pneumonia be introduced into a susceptible animal they will produce pneumonia, while if its toxins are introduced they will produce acute poisoning.

Antitoxin is one thing, and *serum*, its vehicle or menstruum, is quite another. The antitoxin, nature's remedy against the toxin produced by the life processes of the germ in the tissues of the animal body, is a substance dissolved in the serum, and is a remedy, an antidote against the toxin in the system of the victim of, say, pneumonia.

Each germ disease has its toxin, and, presumably, its antitoxin. Antitoxin does not exist in any appreciable quantity in the blood of healthy animals, nor is it found in nature at all in sufficient concentration to be useful as a therapeutic agent. It is found in milk, in the blood of the horse

* Read before the Ontario Medical Association.