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THE OPSONIC THEORY AND THERAPEUTIC INOCULATION WITH BACTERIAL VACCINES.*

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MEDICINE has come to the point where diseases, as a rule, can be attended, but there are some where it has very little control and where the medical man has to treat by the expectant plan, letting nature do her part in the throwing off of the disease, such as tuberculosis, cystitis, severe cases of typhoid fever, etc. While Prof. Wright was connected with the civil service he studied the problem of resistance against typhoid fever by preventive inoculation, and was very successful in combating the disease. The questions he asked himself were: Why do microbes invade the body, and what does nature do to withstand them? If one places a couple of germs in a culture medium we know that we get millions in a very short time, but there must be some resisting influence in the blood that controls the growth to a great extent. We know that blood which is removed from the body for some time is a good culture medium for the growth of germs, so this resisting influence is only active when the blood is in the body, or when the blood is freshly drawn.

The blood contains two things different from simple media. Firstly, it contains white corpuscles, which have the faculty of picking up, digesting and killing microbes. Secondly, there is a substance contained in the blood plasma which acts against bacteria. The blood can be compared to a weak carbolic solution containing white corpuscles. The School of Metchnikoff believes that the leucocyte is the only element that is actively concerned in the phagocytosis of micro-organisms. Prof. Wright went on to show that it was not the white corpuscles, but that it was a substance contained in the blood plasma which causes phagocytosis. He first separated the corpuscular from the fluid contents of the blood, obtaining the leucocytes suspended in a neutral medium, and the blood plasma free from leucocytes. Then he mixed together leucocytes and some germs, say staphylococcus, and found out that practically no phagocytosis occurred, but that with the addition of the blood plasma a change was effected and phagocytosis took

*An abstract of the address at the opening of the University of Toronto Medical College, 2nd October. Reported by Dr. Herber^t Carveth.