

different rôles I have had to occupy. For instance, I was connected with the Army as a civil professor and we used to see great numbers of people come back from India wrecks from typhoid, and the returns showed that about two per cent. of a battalion were attacked with typhoid every year, and that half of that number died. There was no remedy for that unless a remedy could be sought at the hands of Science. I sat down to work with my assistants and we studied the problem of resistance of the blood against typhoid fever, and we elaborated a system of inoculation which I think is doing useful work in the world. I am not going to discourse to you about preventive inoculation against typhoid—that lies rather remote from your life. The chances of getting typhoid even here in Toronto are not sufficiently great to induce people to undergo preventive inoculation against typhoid. But I began working on that matter, and when anti-typhoid inoculation had come to an end for a period, a man chanced to come to me who was covered with boils from head to foot. He had had blood poisoning some nine years before, and his beard was in a state of severe inflammation; he had styes in his eyes and his life was a misery through his staphylococcus infection—staphylococcus being a microbe that grows on and in the skin. Now this man had very little resistance against this particular microbe and therefore staphylococci grew freely in his tissues. Instead of an ointment I applied some of the knowledge we had acquired in connection with typhoid to the treatment of this man and we were very successful in getting him entirely well.

This is only an aside to tell you how the work began. The point I want to impress is that you have to study the question of bacterial disease very carefully. Why do microbes invade the body? What does Nature do to ward off these microbes or to cure the invasion after it has begun? These are the problems I want to consider with you for a time. You have learned, or will learn in your classes that when you introduce a microbe, such as the staphylococcus, into the artificial nutrient media we employ in the laboratory, that it increases and millions of microbes are produced in a very few hours. It is obvious to consideration, if you sit down to think of it, that the blood cannot be such a medium as our artificial laboratory medium. When you introduce microbes into the blood they do not proliferate at random in that fashion. There are protective or bacteriotropic substances in the blood that prevent them growing and increasing in the body. You will suggest that the blood might not be a proper nutrient medium, but bacteriological investigations show that