

note, while, made taut, it vibrates to the slightest touch, so by improving the tone of the tissues in general they respond more immediately and more fully to the stimulus of the circulating toxins and produce the counteracting bodies which, developed in greater abundance and poured out into the blood, can now act locally on the tubercle bacilli in the area of the disease.

We in short do everything we can to help the body to adapt itself to the changed conditions and this adaptation we know means also counteraction. The success of our modern treatment of tuberculosis—treatment, be it marked, purely empirical in its inception and based upon no adequate theory of the modes of defence on the part of the organism—this success is the strongest proof of the correctness of the conclusion reached along other lines, that recovery from infectious disease is not merely nor mainly a local reaction, but is a process in which the tissues not directly involved and the body as a whole take a most active part, becoming educated thereto during the course of the disease.

I have taken possibly too much of your time in discussing the moves on the part of the organism and have delved, it may be, too deeply for a general address. I would gladly think that my digging, if deep, has also been sufficiently broad in its scope to let in the light. Before closing some words must be said of that other matter, the moves made by the bacilli.

You must not look upon these producers of disease as fixed in their properties and unalterable; rather we have to realize that they also are capable of adaptation. For us it is a fortunate fact that their power of adaptation is not so extensive and so rapidly developed as that of the healthy human organism. This we must take as another instance of the fact that union is strength. It may be well that the individual cells of the body have not the same power of adaptation as has the tubercle bacillus, but while the bacilli are isolated and independent, the cells of the body are united and co-operate and the sum of their reactive changes may well be greater than the adaptative changes possible in an isolated tubercle bacillus. Nevertheless bacteria are capable of great changes, suiting them to altered conditions of their surroundings. There is, for example, a large bacillus, the bacillus megatherium, first found if I remember aright, upon the cabbage leaf; this is absolutely harmless for warm-blooded animals—one can inject these by the million into the rabbit without causing any recognizable disturbance,—but, as Vincent has pointed out, place some of these in a thin-walled celloidin capsule in the abdominal cavity of the rabbit, a capsule such that the fluid part of the lymph can easily penetrate through the walls and so afford nourishment to the bacilli, while the leucocytes and antitoxic bodies