

more toxins into such cases is to poison rather than to stimulate the cells. In dealing with the treatment of tuberculosis there are two factors to be taken into account. You may take a horse to the water but you cannot make him drink. You may supply a cell with tubercle toxins which are necessary in order to stimulate it to produce antitoxines, but it may be so feeble that it will not react—will not produce these toxins. All its energies may be used up in the performance of ordinary everyday function. And here we have the basis of the modern treatment in which, as you know, we do not try to do anything specifically against the disease itself; on the contrary we leave the disease as such severely alone. But we do everything in our power to improve the general bodily condition. We enforce rest, so that the cells shall not be overcrowded and may have spare energy; we give abundant, easily assimilable food, so that they may build themselves up; we demand life in the open air with abundant oxygen and that toning up of the system, which the freshness and coolness of the air brings about more naturally than does anything else. For, just as a lax violin string will give no 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 areas of 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 remarked, 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