

masses generally somewhat smaller than a millet seed, which lie loosely on the surface of the jelly, but never penetrate into it independently, or cause it to become fluid. These colonies form such compact masses that the separate scales can easily be lifted from the stiffened serum by means of the wire, and it is only possible to crush them by using a certain amount of pressure. This extremely slow growth—which cannot be obtained at all except at breeding temperatures—and their peculiar dry, hard, scaly quality are characters presented by no other known variety of bacteria, and renders the confusion of the culture products of this bacillus with that of other bacteria impossible, so that only a slight experience enables one to recognize any accidental impurities in the culture. The growth of the colonies, as mentioned above, ended after a few weeks, and further increase does not occur, apparently because the bacilli are deficient in all power of independent motion; they spread out on the jelly surface merely by the pressure of growth, and, consequently, these slow-growing cultures reach only slight dimensions. In order to keep such a culture progressing, some of the bacilli must, some time after planting—from 10 to 14 days—be conveyed to new jelly. This is done as follows: Some of the scales are removed by a platinum wire—which, of course, has been previously heated so as to thoroughly disinfect it—to a fresh flask containing sterilized, stiffened serum, and pressed into and spread about the surface as much as possible. Then, as before, fresh scaly masses make their appearance and spread more or less over the new surface. In this way are the cultures changed or repeated. Other substances having similar properties can be used as well as stiffened serum to nourish the tubercle bacilli. For example, a sort of jelly prepared with Agar-agar, which remains hard at breeding temperatures, and to which some meat infusion and peptone has been added. On this, however, they do not grow in such characteristic forms as on blood serum.

At first I had only cultivated the bacilli from the lung tubercles of guinea-pigs, which had been infected with tubercular material. The bacilli, coming from different sources, were thus compelled to undergo a sort of intermediate culture—that is, in