

## BACTERIOLOGICAL EXAMINATION OF THE MEMBRANE—

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In Case II the membrane, microscopically, showed fibrillar structure, but did not give the staining reaction of fibrin. By Weigert's stain, fibrin can be readily distinguished under the microscope. The fibrin filaments come out bright blue, and many bacteria, notably the diphtheritic bacillus, are also stained. In the present case the number of bacteria was very small, and the results were atypical.

Cultures from the exudation had an appearance not quite the same as that of the diphtheria bacilli, being coarser and somewhat yellowish. Microscopically, the bacilli in the cultures had exactly the appearance of the diphtheritic bacilli. I inoculated the conjunctivæ of two rabbits, having first wounded the membrane by scratching, but did not succeed in producing any diphtheritic exudation. On account of these negative results I thought it was not a case of diphtheria. I preserved the cultures, however, and some months afterwards, in working over some old cultures, I experimented with these and found they possessed the property of growing on serum in twenty-four hours, and, invisibly, on potatoes. This made me think they might after all be the true diphtheria bacilli. I injected some of the cultures subcutaneously into a guinea pig, and found it killed in a typical manner, so that after all we had to deal with true diphtheria. The rabbit is a more refractory animal than the guinea pig towards diphtherial virus, and I had at first probably a mixed culture, which afterwards became purified on being passed through serum. Thus we had a curious exudation which had not the ordinary characteristics of the diphtheritic exudation, either to the naked eye or to the microscope, where the patient was apparently not at all sick, and yet where we got finally positive proof that we had the genuine Loeffler bacillus to deal with.

In Case I, I received a small piece of the dried membrane about the size of a pin-head. I moistened this and made cultures in the usual way, and obtained a very abundant growth of colonies with all the general appearances of the diphtheria bacillus.