

up their stain, and again, it seems to me, by the fact that when decolorised they have a peculiar brown tinge.

That the colon bacillus should thus appear within the tissues as a coccus or a diplococcus form rather than a bacillus is somewhat difficult to realise. Certainly one's experience in the bacteriological examination of sections of the appendix removed for appendicitis—an experience which here in Montreal is extensive, and in which again the colon bacillus is the form most commonly to be recognised—had not prepared me to recognise that in these diplococci often surrounded by a faint halo I was dealing with the colon bacillus or some variety of the same. Nevertheless, my observations have made this absolutely certain, that not only in the liver, but in the lymphatic glands, and, indeed, in the kidney and spleen the colon bacillus is liable to assume the above form. I have now been able to recognise in the tissues a series of forms from the easily distinguishable and typical bacillus through the diplobacillus, formed of two stumpy members, to a stumpy bacillus, either alone or still as one member of a pair, in which the main body is unstained and so appears as a halo, while along the main axis are to be recognised two fine spherical bodies giving the appearance, as above mentioned, of a diplococcus. I begin now to understand the very frequent diplococci seen in the routine examination of sections of *post-mortem* material, when cultures have revealed not a single diplococcus lanceolatus or other coccus form.

What is more, I have been able to reproduce a like series of appearances outside the body. It is interesting to note that in the early stages of rapid growth in nutrient broth the bacillus is frequently represented by diplococci of fair size, and where the short stumpy bacterium form predominates, proper staining with fuchsin, and decolorisation, gives the appearance of more intense polar staining with a clearer central space. Again, in older growths the bacillary forms when stained to the proper extent, and when examined under a high power, appear to be composed of an obscure string of spherical bodies united by a common investing substance.

I find, however, that when the bacillus has been grown in broth or upon agar, close to the upper temperature limit of growth and under certain other conditions unfavourable to active proliferation, then these interior bodies, whatever be their nature, are most easily demonstrable, so that a long bacillary form is seen to be composed of an investing relatively colourless ground substance in which are disposed either a row of deeply-stained spherules; or again, each of such spherules, which at first appears to be somewhat oval, can be resolved into a pair of gonococcus-like bodies, the division between which is roughly at right angles to the long axis of the bacillus.