

bacilli pass from the lumen of the intestine into the tissues, and so into the lymph and blood capillaries. Observations of Heidenhain, Ruffer, and others have demonstrated with the greatest clearness that leucocytes are continually passing out on to the free surface of the intestinal mucosa, and that a large number of these, laden with fatty particles, bacteria, and other matters, find their way back into the submucous layer.

These observations at first sight would appear to wholly controvert the view that there is any necessary connection between the presence of more or less modified colon bacilli, or varieties of the same, in the liver and the development of ordinary progressive cirrhosis. It may be argued that inasmuch as such forms are constantly to be found in the liver, it is clear that the bacillus can have no power to induce excessive connective tissue formation, for otherwise every living being should suffer from cirrhosis. But there is this to be noticed: in the ordinary liver in which cirrhosis is absent, the forms visible are almost all corpses, and even long action of strong carbolic fuchsin will not lead them to become stained. In cirrhosis, on the other hand, while there are many of these non-staining forms, areas can be made out in which diplococcus-like bodies stain deeply. Either they have only recently entered the organ and are just killed, or they are still alive though in a form so attenuated, that it is only with difficulty that cultures can be gained from the organ. I still cannot but consider that the very great number of these forms found in well-marked advancing cases of cirrhosis is ample evidence that there is a direct connection between these and the process. So, also, in those advancing cases of cirrhosis my observations show me that the mesenteric glands are crowded with a diplococcus form of the bacillus, just as I found them crowded in cases of Pictou cattle disease.

In favour of this contention that there is a relationship between the presence of these diplococcus forms and the development of ordinary cirrhosis, the following considerations appear to be of weight:

1. The very great number of these forms found in the liver in well-marked progressive cases of ordinary hepatic cirrhosis.

2. The coincident great number of the same recognisable in the mesenteric lymphatic glands, there being in this a close parallelism to what is seen in the Pictou cattle disease.

3. The parallelism in general between the bacteriology of these cases and that of Pictou cattle disease. Up to the present time my investigations upon the micro-organism of this disease show that, while very closely allied in form and characters to the colon bacillus, it is and remains a distinct species. Repeated subculture during the