

of intense excitement almost maniacal followed by exhaustion and death.

The micro-organisms present in this disease are most difficult to stain in the tissues; indeed, the difficulty that I have found in determining any method whereby they can with certainty be demonstrated, has prevented me so far from publishing an extended description of my results.¹ Apparently they stain easily, but lose their stain with extreme facility. With practice I have been able to recognize them in an unstained form in the tissues and in this condition they have a faint brownish tinge and a halo is faintly but definitely recognisable. For a long time it appeared to be almost a matter of chance whether I was able to stain them or not, or more correctly, only if I was fortunate enough to clear the sections with sufficient rapidity did I get the microbes stained. Yet another difficulty in staining this micro-organism has been its minute size within the tissues, so that with the ordinary 15th inch immersion which I have used until the last year or two, unless they were stained to the right extent, neither under nor over stained, they were recognisable with great difficulty. Still, there they were, and under the proper conditions they could be found in great numbers in the liver and abdominal lymphatic glands.

If thus an extreme condition of cirrhosis of the liver is brought about in animals by the proliferation in the tissues of a micro-organism which sets up the chronic and progressive hepatic disturbance, it has seemed to me possible that a similar result may be produced in man. As a matter of fact, for some years past Hanot and the French school of Pathologists have insisted that one form of cirrhosis—the large, smooth, cirrhotic liver with jaundice, the form now frequently spoken of as Hanot's cirrhosis—is of infectious origin, though they have not been able as yet to declare what is the microbe causing the infection. To the best of my knowledge however, no one has so far ventured to state that the more common or so-called atrophic cirrhosis, the ordinary hobnailed liver, is of microbial causation. While the time has gone past when it was taught that such hobnailed livers are directly caused by alcohol, the prevailing opinion is that alcohol or other irritant by setting up a condition of chronic gastro-enteritis and destruction of the mucous membrane of the upper portion of the intestinal canal, permits the absorption of toxic substances from the food, and these toxic substances taken up by the portal blood induce

¹ Statements concerning my investigations in Nova Scotia and early studies of the micro-organisms associated with the disease are published in the Reports of the Department of Agriculture for the years 1894 and 1895. At the Montreal meeting of the British Medical Association last year, I also read a paper upon the subject, of which epitomes were published in the *British Medical Journal*, *Lancet*, &c.