

If 0.5 c.cm. of a 48-hour broth culture of either form be inoculated into the marginal vein of the rabbit's ear, within twenty-four hours the liver cells are crowded with forms which are in the main diplococci. Occasional streaks of three dots or of four can be made out; but whereas the individuals in the 48-hour growth prior to inoculation were present in the main as stumpy bacilli and diplobacilli, now in the liver these were present in a diplococcus form (*Vide* Fig. V).

As to the exact method of the passage of these bacilli into the liver cells, I am not fully prepared to make a statement. Dr. Maude Abbott is at present making a series of studies upon the subject. I can only here point out that (1) it is an observation frequently repeated, that the endothelium of the hepatic capillaries possesses pronounced phagocytic properties; (2) that Chiari has recorded similar results following the intravenous inoculation of a closely allied form (the typhoid bacillus); and (3) that the remarkable appearances presented can be easily reproduced, cautious staining with carbol-thionin giving excellent results.

It is clear from this one series of observations that the colon bacilli injected into the blood stream find their way into the liver cells, and, what is more, they are present in these in greater numbers than in the spleen, kidneys, or other organs; but what is equally remarkable is that at the end of sixteen to twenty-four hours in rabbits so inoculated, while the liver is so crowded with the bacteria, if streak cultures be made from the various organs, abundant colonies may be obtained from the spleen, the heart blood, and also, but to a less extent, from the kidney; but taking a considerable amount of liver juice, this provides relatively few colonies. So far, in these early cases, the bile has been found by us to be sterile. It would seem clear, therefore, that the liver cells do not act as excretory agents for the bacilli, but have pronounced bactericidal functions. Save for Chiari's observations upon the similar destruction of the typhoid bacilli, this remarkable and important function of the liver cells has so far, I believe, escaped general recognition.

As I shall proceed to point out, when we consider that the colon bacillus is the commonest form within the intestinal canal, and is present there in enormous numbers, the full significance of these observations becomes evident. The bacilli or diplococci thus seen in the liver within twenty-four hours after inoculation, are clearly in the main, if not dead, at least incapable of proliferating outside the body. That they are in the process of degeneration is shown, I am inclined to think, by their form and by the fact that they easily give