

specific bactericidal products. There is wanting also in the blood serum of typhoid convalescents the specific typhoid poison present in the bacterial cells. Considering the good results obtained in cholera, it became desirable to investigate the effects of the introduction of a small quantity of killed typhoid bacilli in man. The authors used a typhoid culture which had been made from a spleen two months previously, and the genuine character of which was proved by the specific reaction with the blood serum of typhoid convalescents. The virulence of the culture was very marked. Individuals were selected who were either in good health or at least free from febrile symptoms, and who were known not to have enteric fever. One c.cm. of a bouillon preparation, so completely sterilized at 56° C. that it contained no living micro-organisms, was injected. A few hours after the inoculation the first symptoms appeared of shivering, vertigo, etc. The evening temperature rose to 38.5° , but it fell to normal during the following day. From their experiments with it on animals it became obvious that a single injection of a minimum dose of killed typhoid cultures induced in man a specific change in the blood, which was apparent six days after the injection, and which attained at least the same degree as is visible in typhoid convalescents. It is more than probable that the appearance of specific bactericidal substances in the blood of individuals who have had typhoid fever represents the chief cause of the immunity possessed by them. If this is correct, then it is to be expected that these prophylactic inoculations with killed typhoid cultures can produce an immunity of equal intensity and duration as that found after an attack of typhoid fever, Haffkine's analogous, very numerous, successful, and practical investigations lend support to the same view. The authors hope that these protective inoculations against typhoid fever will be of practical service under certain circumstances, such as the prevalence of a severe epidemic, etc. The material for inoculation can be provided with comparative ease. They refer especially to its possible value in cases of sieges when enteric fever often decimates an army. Baieger, Wassermann, E. Fraenkel have used killed typhoid cultures in the treatment of enteric fever, but not for its prevention. Individuals with typhoid fever react quite differently from healthy persons, but even in the developed disease such injections have been known to produce a beneficial even though temporary effect.—*The Charlotte Medical Journal*, January, 1897.