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THE TREATMENT OF INFECTIVE DISEASES BY BACTERIAL  
VACCINES.

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A bacterial vaccine consists simply of an emulsion of sterilized bacteria of known numbers per volume.

In the past they have been prepared in many ways, but now the procedure is as follows:—

The organism is grown in pure culture in a nutrient medium for twenty-four hours at blood heat. It is then removed and emulsified by rubbing it up with saline sol. (0.1 per cent.) in an agate mortar. After this it is centrifuged and washed, but no attempt is made to triturate or treat it otherwise. It is now standardized, that is, the numbers per c.c. are counted approximately. A sufficient volume is pipetted off containing the desired number of bacteria for a dose. This is sterilized and sealed in a vial ready for use by subcutaneous injection with aseptic precautions.

While this method is adopted for staphylococcus, streptococcus, pneumococcus, colon, etc., vaccines, the new tuberculin T. R. is triturated more vigorously and disintegrated, then centrifuged and filtered, and is a solution of the bacilli. It contains 10 mgm. solid to 1 c.c.

I come now to the mode of action of vaccines as far as is known. This really introduces the subject of immunity, or the method by which the body protects itself against infection, with the result that the bacteria are held in check or disposed of. Immunity is itself described as spontaneous or acquired.

Spontaneous immunity is seen in races in the comparative insusceptibility of the black man to yellow fever and malaria, while the susceptibility of the Pacific Islanders to measles is known. Again, Algerian sheep and white rats are insusceptible to anthrax, while European sheep