

SALVARSAN (EHRlich-HATA'S "606"; DIOXY-PARA-DIAMIDO-ARSENO-BENZOL.)

By GRAHAM CHAMBERS, B.A., M.B.

(Continued from February Number.)

Flexner and Fordyce, of New York, advocate the use of an alkaline solution injected intra-muscularly; but in dissolving the drug do not use as much caustic soda as required in preparing the drug for the intra-venous injection. This seems a rational procedure inasmuch as the greater the amount of alkali used the more intense the local reaction. It may be asked, How is it possible to form an alkaline solution for a subcutaneous or intra-muscular injection with less alkali than that required for an intra-venous injection? The answer is: that the greater the dilution, the more alkali required. For instance, 6 gram. of salvarsan in 250 c.c. of water require about 21 drops of a 15 per cent. solution of caustic soda, but the same amount of drug dissolved in 10 c.c. of water requires much less.

THE REACTION.

The reaction produced by the administration of "606" may appear immediately. After a subcutaneous or intra-muscular injection pain appears at once, and in a few minutes swelling and induration are manifest. The intra-venous method does not cause any pain or swelling. These are the first symptoms and signs of the reaction. A little later, other symptoms and signs may appear, such as chill, fever, leucocytosis, vomiting, intestinal irritation, tenesmus, and loss of patellar reflexes. A chill occurred in three of my cases; fever and leucocytosis in all who were under observation; and vomiting in one. The chills occurred about forty minutes after the administration of the drug by the intra-venous method. They were followed by fever, which, however, disappeared in a few hours, and did not reappear. During the fever, leucocytosis was present. As to the cause of this type of fever, it is difficult to explain. Some think it is due to endotoxins liberated by the death and solution of the spirochætes. This may be true, but I have seen a similar chill and fever follow an intra-venous injection of normal saline. After a subcutaneous or intra-muscular injection of "606" the fever is