VACCINES AND VACCINE THERAPY.

Vaccination, as has been understood for nearly a hundred years, consists in the introduction into the circulation of a patient, of the virus of cow-pox, in order to render that patient, exposed to small-pox, immune to that disease. The virus so introduced contains the living germs.

Vaccine therapy as now understood is almost diametrically the opposite of this process. It introduces those germs dead, which if alive, active, and virulent, induce the identical disease which they are expected under these circumstances, to prevent or cure. The theory is that in this we supply to the system by the questionable method of introducing these dead toxic germs, a stimulus by which the body may assist in its own protection or defense. It at once, then, becomes plain that there is a wide difference between antitoxin or serum therapy and vaccine therapy. In the former, a preventive agent is introduced into the system, which has been made so by the inherent immunizing power of another healthy animal. In the latter case, the immunizing agent must be developed within the system which it is expected to protect.

Serum therapy is thus more rational than the present vaccine therapy. It is infinitely more practical also because in the latter, so many conditions are likely to be present, that will prevent the system from developing its own immunity; or there may be many different kinds of germs present in addition to the one which is used to produce this immunity; or it is such a simple thing for the prescriber to make a mistake in determining whether he shall use a **univalent,** or a **mixed vaccine;** whether he is able to secure an **autogenous vaccine** or whether he is obliged to depend upon a **stock vaccine.** For these and other very important reasons none of the vaccines have as yet come into general use.

The typhoid vaccine therapy is most commonly used, but the evidences do not show that it shortens the period of the disease. It seems in many cases however to modify the severity of the disease processes. It promises well as a prophylactic.

It would seem natural to believe that in a course of a long period of careful investigation and accurate estimation of all the conditions involved, and the avoidance of the shot-gun method of the use of stock vaccines, there will yet be much improvement in this method of therapy, and practical results should be obtained without danger to the patient.

The pronounced success of vaccination for **small-pox** should encourage us to hope for such a result. At the same time the failures or disappointments in the present investigation of vaccine therapy, as now applied, should not in any way lessen our perfect confidence in the use of the virus of the cow-pox properly prepared, in the prevention of small-pox.