

ies relating to bacilli have been the result of minute observation, reasoning and experiment, the replacement of empiricism by science. The first discovery in 1850 of the bacillus of anthrax was not fully appreciated, nor was it until 1873 that its full relation to the disease was demonstrated. Since that comparatively recent period how many more of these have been exposed to view. It is unnecessary to enumerate them, but it now does not admit of doubt that every specific fever, most epidemics, every form of tuberculous disease, and all malarial disorders originate in living organisms, introduced from without. The generators of scarlet fever, measles, and smallpox have not yet been isolated but no doubt they soon will be.

Three methods have come into use for the prevention and control of processes produced by bacilli:—

1. Killing or excluding the bacilli.
2. Establishing immunity in the individual.
3. Employing antidotes in the shape of antitoxins.

The use of antiseptics in surgery is a typical instance of the first of these. Now this was no result of chance; it was in no sense empirical but based upon minute research and scientific deduction. As to the second method, that of immunity for the individual, the discovery of Jenner is the first and foremost illustration, and this remains exactly as Jenner left it with the addition of asepsis. Not the least astonishing of these methods is that which illustrates the third, viz.: the use of anti-diphtheritic serum. We have in this an illustration also of the saying that "there is nothing new under the sun." Mithradates we are told treated himself with small doses of poison until he was able to defy the doses that were ordinarily fatal. The discovery of anti-toxic serum is to my mind one of the greatest marvels of the century. A serum is made prohibitive of a disease by acting upon it with material which that disease has generated. A certain bacillus produces diphtheria, and the same bacillus secretes something that indirectly cures diphtheria. The secretion is not an antidote but it imparts that property to serum which both prevents and cures. When we consider what has been done in twenty-five years we are filled with hope for the future when zymotic disease will be equally under control. The progress of this age means that random observations, false theory and em-