

he laid down were applied to other diseases. It would involve, too, a description of much of the life-work of that French chemist, Pasteur, who with his earliest experiments was to enlighten the world by creating a new science, the science of bacteriology, and through whose influence a new era was to begin in the treatment of disease; for it was Pasteur who first showed in this century that from a study of bacteriology we could learn to combat infectious disease in the most rational manner. His earliest experiments were made on a disease of fowls called chicken cholera, whose germ he discovered and isolated in pure culture. Rapidly following upon this discovery it was found that such cultures when kept for a long time in the laboratory lost their pathogenic power and that fowl inoculated therewith, not only survived the injections, but were apparently thereby rendered immune to the action of his most virulent cultures of the same kind of germ. Here, then, was the beginning for experiments of all kinds in the various infectious diseases. Just so soon as the germ of any disease was discovered the same efforts were made as in chicken cholera to produce immunity along the same lines. It was thus that Pasteur saved millions upon millions of francs to his country by producing immunity in cattle and sheep against that dread and fatal disease of anthrax which had up to that time proved a veritable scourge to farmers in the richest and most fertile territories of the land. The story, however, is doubtless familiar to you all, as are probably also the general features of similar experiments performed on other diseases. It need merely be said here that subsequent to the discovery by Pasteur that cultures of germs might be attenuated with age, other means were soon found of producing the same results and more rapidly. And thus by artificial heat, by compressed air, by exposure to light, by chemical re-agents, etc., the necessary attenuation of germs was easily produced and the subsequent immunity. It was but a step from this to the discovery of the toxins, that is to say, of the fact that bacteria in their growth develop chemical poisons which by a process of careful filtration may be separated in solution from the bacteria whence they have been derived. When later it was found that not only could immunity be induced by inoculation of attenuated germs or of their toxins similarly treated, but that the blood serum of animals so immunised could likewise act both as a preventative and a curative agent, the climax of rational therapeutics was reached. These facts which concern the subject of serumtherapy are too much of the nature of current events to require details of description here to-night. What is, however, of some interest concerns the mode of action of these vital therapeutic agents, and I will conclude with but the briefest reference to this most interesting topic.