results obtained by other experimenters, and also by the fact that tuberculosis followed the introductionof many other substances besides caseous matter, even blotting-paper and gutta percha ! (Cohnheim, Frankel). But more recent experiments with ubercular matter itself have been more decisive. Tappeiner succeeded in producing tuberculosis in dogs-animals not liable to spontaneous tuberculosis-by making them inhale phthisical sputa, distributed by a spray producer ; while similar experiments with non-tubercular sputa and pus gave no result. These experiments were very numerous. and had the advantage of being performed in Virchow's laboratory, the autopsies of the dogs and the descriptions of the lesions being made by his assistance. In addition, more precision has been introduced into the inoculation experiments by the plan of introducing the morbid material into the anterior chamber of the eye instead of under the skin; by this means tuberculosis of the iris is produced, and owing to its situation the evolution of the lesion can be watched from day to day. Such experiments have been made by Cohnheim, Baumgarten, and Solomonson, and their results strengthen the view that tubercle is a specific disease, capable of propagating itself by infection.

The infective nature of tuberculosis was insisted upon very strongly by Cohnheim in his pamphlet, published two years ago, which attracted very general attention. He insisted that this constituted the sole criterion of tubercle; that is to say, given a certain diseased animal tissue, its tubercular nature could be proved only by observing the consequences of introducing a portion of it into the body of another animal. Such a view of tubercle necessarily involved, with pathologists like Cohnheim and Klebs, who are thorough-going germ theorists, a belief in the existence of some specific organism.

Cohnheim himself has described what he called the *monas tuberculosum*, a micrococcus which, however, Deutschmann has shown to be incapable of giving rise to tubercle when freed from all admixture with caseous material. Klebs and Schiller also described "micrococ-spheres," in tubercle, and Aufrecht found micrococci and short rod-shaped bodies in inoculated tubercles.

Eklund, a Swedish naval surgeon, described two years ago an organism which he regarded as the specific fungus of tubercle, and to which he gave the name of *micrococcus phthisis dryotemenos*; and we are now only just recovering from the *furore* created by the announcement, almost simultaneously, of the discovery of the *tubercle bacillus* by Koch and Baumgarten.

However much ground there may be to dispute Koch's claim to absolute priority of discovery, there can be no doubt that the splendid series of investigations which he has recorded place him in the front rank of workers in this particular department. Koch has shown: (1) that the examination of a very large number of cases of tubercle in man and animals, including bovine tuberculosis, reveals

the constant presence of bacilli, slender rods, onequarter to one-half as long as the diameter of a red blood-corpuscle; (2) that these bacilli behave in a characteristic manner with certain staining agents, e.g., retaining the color of methyl blue when this is discharged from the tissues in which they lie; (3) that these bacilli may be cultivated out of the body, on gelatine, and separated from all contamination by frequent transplantation and breeding for weeks and months, and are then capable of producing typical tubercle of the iris when introduced into the anterior chamber of the eves of rabbits. or general tuberculosis when injected into the abdominal cavity or the blood-stream of cats and dogs. Following on this, Dr. Ehrlich by a modification of Koch's method, succeeded. in identifying the tubercle bacilli in phthisical sputa.

I am not disposed to regard the behavior of the bacilli with staining agents as per se satisfactory evidence of their identity, but Koch's cultivation experiments and successful inoculation of the fungus after repeated transplantations require only independent confirmation to establish the existence of the tubercle bacillus as an incontrovertible fact, like that of the bacillus of spirillum fever, anthrax, &c. It is of course still undetermined what value we must ascribe to these bacilli, whether for example we shall agree with Cohn in regarding the fungus as the direct agent in the production of the disease, or follow Nageli and Pasteur in believing that, although transmitting the virus, yet that this was originally independent of them, or, failing to accept either of these views, content ourselves with saying that we are not at present able to determine the relations which exist between the organisms and the pathological conditions in which they are found.

Fokker's experiments on the anthrax bacillus show at least that there is need for further investigation of these relations. He points out that mice inoculated with anthrax bacilli often die without any bacilli being found in their blood or tissues, yet from them a long series of cases may be fatally inoculated, and after the virus has passed through the systems of many individuals the bacilli may again appear in the blood. An additional doubt is thrown upon the question by the well-known fact that the presence of the spirillum in the blood of relapsing fever is by no means constant, and this inconstancy has not yet been properly explained.

Having thus reviewed the past history of the discussions on tuberculosis, there is good reason to blush at the manner in which Koch's experiments were served up to form the subject of leading articles in the daily papers; that a new era in the treatment of consumption should have been so loudly proclaimed, and that even our medical papers should teem with articles on the antiseptic treatment of consumption conceived in the same spirit of optimism. The "antiseptic treatment" of consumption is certainly no novelty,