

man, who is one of the most susceptible of all animals, to be immune, or even strongly resistant, to the most virulent race of tubercle bacillus yet discovered. It has most certainly not been shown that man possesses this immunity, and no one has been able to discover any special means of defense in the human body against the bovine tubercle bacillus. Until this is done we are bound to believe that, in common with all other mammalia, he shares this susceptibility to its ravages.

ACTION OF TUBERCULIN. Further proof of the identity of the tubercle bacilli found in different species of animals is given in the fact that tuberculins made from these different cultures have the same effect on animals.

IMMUNIZATION. Within the last two years very conclusive proof of the identity of bovine and human tubercle bacilli has been given in the work of von Behring, Pearson and Gilliland, Thomassen, Nocard, Neufeld and others. It has been shown by these workers that it is possible to render cattle immune to bovine tuberculosis by injections of small doses of the human bacillus. All of our studies go to show that the production of immunity is specific in its character, that is to say, it is possible to immunize an animal against a certain disease only by a vaccine which is related closely to that disease. Hence it follows that it would be impossible to immunize cattle against bovine tuberculosis by inoculation with the human bacillus unless these two organisms were essentially the same.

VARIATION OF VIRULENCE. While it has been shown conclusively that a greater pathogenic power is the most marked distinguishing characteristic between the bovine and the human bacillus even this is not constant. You will recall, however, that Koch, in 1901, held that this difference in virulence gave us a sure method of diagnosis between the two races. If the culture had power to cause general infection in cattle it was then certainly of bovine origin, while failure to do this proved it to be human. Replying to this Prof. McFadyean said: "If a low degree of virulence for cattle is to be taken as the distinguishing feature of human bacilli there will be no difficulty in proving that the disease is sometimes transmitted to the lower animals."

Confirmation of this has recently come from the Tuberculosis Commission appointed by the Imperial Sanitary Office of Germany. Kossel, in his preliminary report says that among seven cultures examined by them, four of which were isolated from cattle and three from swine, one was found which caused only infiltration at the point of inoculation, with some caseous foci in the related prescapular gland, and in one mediastinal, but without the generalization usually seen following in-