

bodies. One c.cm. will counteract the smallest dose of tuberculin that will produce a reaction in a tuberculous man. The serum is said also to possess appreciable germicidal properties. Maragliano has knowledge of 1362 tuberculous patients treated by his serum. Eighty per cent. were benefited by it. The most favourable results were obtained in afebrile cases with localized lesions. In cases of mixed infection the serum was less useful. Maragliano has also shown that the serum of tuberculous patients treated with his serum was two or three times as antitoxic as it was before the injections.

Maffucci and Di Vestea have attempted to attain results by using sheep, which are supposed to be refractory to tuberculosis, employing the methods of Héricourt and Richet and the "mithridatization" method with Behring's antitoxin. They injected both dead and living bacilli into the sheep but found that the serum resulting was neither curative nor prophylactic, but at most caused some retardation in the disease. They found moreover that while the serum was innocuous for guinea-pigs in doses of 2 c.cm. per hundred grammes, one-fifth of a c.cm. in rabbits produced a fatal hæmoglobinuria. When added to a culture of tubercle bacilli in the proportion of four to one some attenuation of the germs was produced.

Niemann has used goats. He injected for some weeks a tuberculin derived from a very virulent stock of bacilli until he was giving fifteen c.cm. Then he injected an alcoholic precipitate from the tuberculin that had been proved to be extremely toxic, beginning at first with twelve to eighteen milligrammes and increasing after a month to half to one gramme. He found that by the use of the antitoxic serum thus prepared he could prolong the disease and claimed to have observed good results in human beings.

The results of DeSchweinitz and Dorset are somewhat similar. They inoculated cows and horses with tuberculin and bacilli and found that this conferred on their sera some powers of retarding the disease in guinea-pigs. The serum of cows inoculated with attenuated bacilli proved to be more potent.

Trudeau and Baldwin were able to produce a marked degree of immunity in rabbits by the injection of attenuated cultures but the serum of such animals did not appear to have gained antitoxic properties. In a large number of experiments with sheep, asses, rabbits and chickens, inoculated with living germs, they thought that the sera thus fortified possessed slight antitoxic properties. Their results were however not very convincing.

From the above mentioned observations it will be gathered that the