

been given showed marked induration but on the whole I am led to believe that the foreign serum given therapeutically as antitoxin was a factor in the intensity of the induration. Evidence of this I gathered while working in a slightly different direction. Having noticed a striking similarity in the faces and actions of a patient suffering anaphylactic reaction following intravenous serum to those of patients suffering from an acute tuberculous outbreak, I set out to find whether or not the number of small lymphocytes was increased during these attacks. I made blood smears before, during, and at hour intervals after the injection for 4 tests. The results were convincing that the small round and endothelial cells increase during the serum reaction, as they also do during serum rash. This work agreed with that of Shouldice and Clark in the same hospital.

On recalling the pathology of the intracutaneous test it will be remembered that it consists of an infiltration of small round cells. The fact that these are called out in larger numbers in foreign protein treated patients gives the most plausible explanation of this induration beyond normal proportions.

The point still waiting for explanation is the non-reaction in the case of scarlet fever and measles. Taking into account the fact that opsonins are activated by complement, the question arises as to whether or not the lack of resistance in this group results from a type of complement fixation during the production of the life long immunity. Since the poor

resistance of this group is general the only common weapon of serology must be thought of, namely, the substance called complement by Ehrlich. For a moment it would seem to explain the lack of complications in my control disease diphtheria since large quantities of horse serum are now nearly always given. But complement cannot be a factor as it is destroyed at 56 degrees C. and I have the word of the laboratory from which the antitoxin was obtained that all their product is heated to a temperature of 60 degrees for a period of one hour. Besides, a disease like pneumonia is as likely to exhaust the supply of complement as is scarlet fever, yet after it the mentioned complications are uncommon or do not exist. "Specific antibodies to these diseases are undoubtedly formed whether it is an antibody, antigen, complement reaction or not is hard to say, but lack of complement does not seem to be evident."

There must be some other factor independent of the blood stream, for some 400 cc. of blood can be drawn from the vein of a scarlet fever patient for therapeutic use, the donor showing not the slightest inconvenience.

It will be noticed that the complications mentioned are all of the epithelial tissues. Jenkins in his recent work on measles names the complications in this order: skin, eye, nose, air passages, gastro-intestinal tract kidneys. To my knowledge there are only 3 other diseases that leave the epithelium in such a susceptible state, namely, pertussis, plague, and typhoid fever with its allied group. Again it will be observed that these pro-