

practically the same in both normal and tetany dogs. The calcium and magnesium content of the feces of normal and parathyroidectomized dogs is similar. During fasting, the excretion of both metals is diminished. The excretion of magnesium, in the urine, in dogs on a constant diet, as well as in those fasting, runs parallel with that of calcium. The excretion of both metals is markedly diminished during fasting. After parathyroidectomy with the animal fasting, the elimination of magnesium is greatly increased, while that of calcium remains unchanged. The augmentation of the magnesium begins before tetany is observed. This increased elimination of magnesium indicates that although there is a disturbance of inorganic equilibrium, it is not limited to calcium. It is suggested that the tetany represents a condition of altered salt equilibrium in the nerve cells brought about by a disturbance in the catalytic processes of the body which increases the acid factors.

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Non-fixation of complement.

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With a view of obtaining an antihuman hemolytic amboceptor on a large scale, I immunized a goat with thoroughly washed human corpuscles. I obtained a serum of a titre of 0.01 cubic centimeter, that is, capable of complete hemolysis with 1 cubic centimeter of a one per cent. suspension of washed human corpuscles in the presence of 0.01 cubic centimeter of normal goat's or guinea-pig's serum. The reactivating property of normal goat's serum for this amboceptor was found to be somewhat superior to that of guinea-pig's complement. As it would be of great economical value for complement fixation tests to utilize an amboceptor and complement from such a large animal as a goat, instead of using an amboceptor from rabbits and complement from guinea-pigs, I tested the amboceptor and complement from goats as to the possibility of using them in complement fixation tests in general. *It was soon found that no complement-fixation phenomenon can be obtained by using them (antihuman amboceptor from this im-*

*immune goat and complement from a normal goat) in connection with the following antigen-antibody combinations: (1) meningococcus-anti-meningococcus serum of Flexner (horse), (2) human-antihuman serum (rabbit), (3) egg-albumen-anti-egg-albumen (rabbit), and finally (4) "syphilitic antigen" — syphilitic serum (or Wassermann reaction). With the combinations of (1), (2) and (3), precipitates were first produced, then washed in saline solution by centrifugation, and finally, before use were resuspended in saline solution. That these different precipitates as well as the syphilitic serum with "syphilitic antigen" were not inactive was easily demonstrated by using another hemolytic system. Thus, when the antihuman amboceptor derived from rabbit and complement from guinea-pig or even from goat were used there was complete fixation in each instance. *Again, it was subsequently found that when the antihuman amboceptor derived from this goat is added to these tubes in which complete fixation is beautifully shown by the use of the antihuman amboceptor from rabbits, hemolysis ensues.* There is in such cases retardation in the hemolytic process, but it finally becomes complete. It suggests strongly that these complements are readily fixed by these precipitates or by syphilitic serum and lipoids and remain there inactive in the presence of the amboceptor derived from rabbit, while they become once more detached when the amboceptor from goat is introduced. It is difficult, however, to exclude another possibility, namely, that these sera contain one fixable and one non-fixable set of complements. The former set alone is in action when the amboceptor from rabbits is used, thus explaining the absence of hemolysis in this instance; while the latter set is in operation with the other amboceptor (goat), and, therefore, no fixation phenomenon can occur here. Whether this peculiarity is common to the antihuman amboceptor derived from all goats or simply an exception with this goat, I am unable to answer.*

The foregoing observations warn one against an indiscriminate generalization of the Bordet-Gengou fixation phenomenon and require one to adopt that hemolytic system which is experimentally proven to be suitable for demonstrating the fixation of complement. The reactivating faculty of a complement has no bearing on its fixation by the antigen-antibody combinations.