Third meeting.[1]

Zoölogical Laboratory of Columbia University. October 21, 1903.

13. **"An experimental study of cell-specification in embryonic development,"** with demonstrations: **EDMUND B. WILSON.**

The author presented the results of a study of the development of isolated embryonic cells, in the mollusks *Patella* and *Dentalium*, which demonstrates that from the first cleavage onward, an isolated blastomere undergoes essentially the same differentiation as if it had remained in connection with its fellows. These eggs accordingly show a true mosaic development and differ widely in this respect from those of echinoderms. It was also shown that the specific character of the cleavage cells is predetermined, at least in part, by specification of the regions of the unsegmented egg from which the blastomeres arise, as is proved by the development of fragments obtained by cutting the egg in two before development has begun.

14. **"The occasional presence in the blood of untreated adult animals of large amounts of substances agglutinating many bacteria,"** with demonstrations: **WILLIAM H. PARK.**

The affinities of bacteria for specific agglutinins have been made use of, since the researches of Gruber, to establish relationships between different cultures. The test properly performed is delicate and reliable, but when carried out with insufficient precautions is often misleading. It has been known for some time that the blood of animals before immunization possessed, in moderate amount, substances which agglutinated many bacteria. An agglutination of bacteria must, therefore, take place in a high dilution of serum before it can be considered a specific reaction.

From results obtained in his own researches, the author considers that even this requirement is insufficient. He found that, before any inoculations had been made, the blood serum of certain horses agglutinated, even in such great dilutions as 1 in 1,000, both the bacilli having the characteristics of the true dysentery bacilli of Shiga, and those having the characteristics of the mannit-fermenting class of Kruse, Flexner and Duval. This was true to a somewhat less extent of the serum of full-grown goats. It has

[1] Reprinted from *American Medicine*, 1903, vi, p. 733.

happened in some instances that, after repeated injections with cultures of one of the varieties of the dysentery bacilli, the animal's blood agglutinated the variety of bacilli not used for immunization in as great or even greater dilutions than it did the variety injected.

It was found that a serum drawn from a horse which had been immunized by repeated injections of the dysentery bacillus received from Shiga, agglutinated this bacillus in dilutions of 1 in 500. The same serum, however, agglutinated the mannit-fermenting bacillus in dilutions of 1 in 1,000. The serum from another horse which had received injections of the mannit-fermenting bacillus, agglutinated this bacillus in dilutions of 1 in 1,000, but also agglutinated the Shiga bacillus in dilutions of 1 in 500. Judged by these reactions, these two varieties of bacilli would appear to be much alike in their affinities. Indeed, Shiga and Flexner seem to have come to this mistaken conclusion. Duval and Bassett certainly fell into this error when they announced, in the fall of 1902, that the mannit-fermenting type from the Baltimore diarrhea cases and the Shiga type had identical agglutination characteristics.

The blood of young animals was found by the author to be comparatively free from bacterial agglutinins. A goat 6 weeks old was found to possess no appreciable bacteria-agglutinating substance in its blood. After four injections of a culture of Shiga dysentery bacilli, its blood in dilutions of 1 in 500 agglutinated Shiga bacilli, but only in dilutions of 1 in 10 the mannit-fermenting variety. A rabbit whose blood was negative before immunization, after six injections of this bacillus agglutinated the mannit-fermenting bacillus in dilutions down to 1 in 5,000. The Shiga bacillus was agglutinated only in dilutions of 1 in 20. The slight development of substances which agglutinated the mannit-fermenting type during the process of immunizing to the Shiga bacillus, cannot be considered as showing any affinity between the Shiga type and the fermenting type, since about the same increase was found in animals injected with nutrient bouillon and other substances.

15. "Gastric secretion induced by a reflex from the intestine": HOLMES C. JACKSON.

The main points in his results were summarized by the author as follows :