

## BOOK NOTICES.

### WEISMANNISM.

AN EXAMINATION OF WEISMANNISM. By George John Romanes, M.A., LL.D., F.R.S., etc. Chicago, Open Court Pub. Co. Paper, 35c.

In this volume (portions of which have already appeared in the *Open Court*), the late Professor Romanes examines minutely the theories put forward by Professor Weismann, who, since Darwin, has occupied a leading position among evolutionists. These theories, it may be said, though founded upon biological facts which are patent to all observers, are at present entirely of a speculative character, dealing with germs whose minuteness utterly precludes anything like objective demonstration; yet they are of immense importance, as affecting questions of heredity that lie at the basis of sociological considerations. It is impossible for us to give more than a mere outline of the scope of the work, which, though it naturally comes within the grasp of those only who have devoted some considerable amount of study to the subject, becomes interesting under Prof. Romanes' lucid and attractive style.

Weismann's theory of heredity endeavors to account for the production of known variations in plants and animals, for which Darwin formulated his theory of Pangenesis and Galton his theory of Stirp. The student of biology is aware that the lowest forms of animal life propagate by fission, the mature animal dividing into two segments, each of which grows into an adult, which goes through the same process. It is thus seen that the latest living specimens contain portions of the original patent animals; or, in other words, the race is immortal. But in higher forms of life, as we know, the individuals die off, though the immortality continues through the germs which form the starting-point of each individual. Now, while it does not seem very difficult to understand how the very simple forms of life should continue to propagate "each after his kind" by the process of fission, that the very complicated organisms, such as the higher vertebrata, should be produced from germs so minute that they cannot be made to give up their secrets to even the most powerful microscopes seems inexplicable. The facts, however, point conclusively to the certainty that these minute germs contain, not only the complex determining factors from the parents, but also often those from several preceding generations, thus producing the phenomenon known as atavism, or reversion to an earlier type. It is well known that loss of limbs by parents does not affect the development of the young, and in some species the whole of an animal or plant can be produced from one limb or a leaf, as in the case of a Begonia leaf or a limb of a jelly-fish. Darwin's theory of Pangenesis assumes that the germ material, called "gemmules," is produced in all the component cells of an organism, in a manner similar to that seen in some single-cell animals, and that these are collected to form the sexual elements, which are thus

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