THE VARSITY

A Weekly Journal of Literature, University Thoughts and Events.

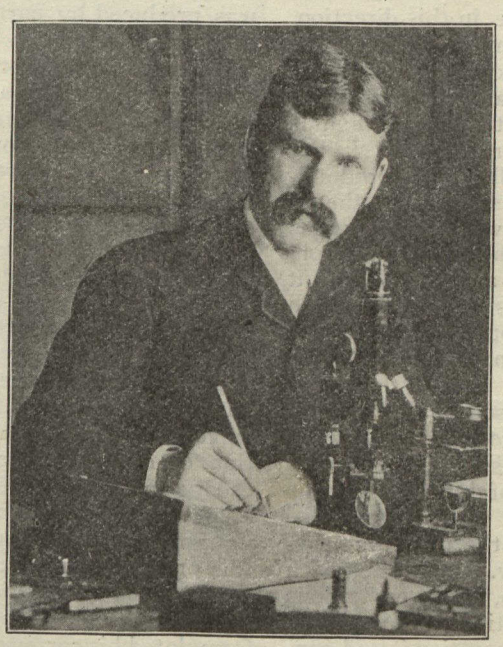
VOL. XX. UNIVERSITY OF TORONTO, JANUARY 22, 1901. NO. 14.

A CENTURY OF BIOLOGY.

BY PROF. RAMSAY WRIGHT.

An eager reporter once asked me to impart to him the science of Biology in a nutshell. It is a more modest demand that I should furnish an account of its development in the 19th century within the space of a column of THE VARSITY, and yet one to which I feel myself inadequate. Still, something may be said about it, and a form occurs to me in which I may say that something.

There stands in the vestibule of the Biological Museum a polished section of Douglas pine, nearly eight feet in diameter. On the assumption that its "annual" rings are in reality annual, it may be calculated to have lived for upwards of five centuries, and had already attained a thickness of two feet when the Cabots sailed up the St. Lawrence. It occurred to me to use its surface for an illustration of the chronology of Biology, and accordingly some interesting names and dates have been inscribed on the corresponding annual rings. During the 19th century the rings are much crowded, and it has therefore been necessary to select with care the representative names, so if I justify my selection I shall incidentally indicate some of the more important lines of biological progress.



PROF. RAMSAY WRIGHT.

By a happy coincidence the term Biology is about to celebrate its centenary. It was first used in 1802 by Treviranus in his "Biology, or the Philosophy of Living Nature," a book inspired by dissatisfaction with the dry—but necessary—systematic labours of the followers of Linnæus, and an eager desire to penetrate the secrets of life, and to arrange in a harmonious system what was known of its phenomena and laws. We need not enquire how far he was successful. He himself allows that new discoveries will certainly invalidate some of his conclusions, but comforts himself with the reflection that it is better to be shipwrecked in a noble undertaking than to be successful in a mean one. He might have been consoled by the quotation:

"In magnis voluisse sat est."

His contemporary, Lamarck, must also have been stimulated by the advent of the new century to ponder the common properties of plants and animals, for in the same year he employs independently the same term with the same meaning. The French biologist undoubtedly gained a better point of view into the relations of living things than his German colleague, yet his "Philosophie Zoologique," published in 1809, has exercised more influence on the scientific thought of the last quarter of the century than it did on that of the first half. In it the doctrine is first clearly enunciated that the species of plants and animals living on the surface of the earth are modified descendants of those living on it in past geological times, and the causes of such modification are sought in the influences of the environment, and in the transmission to the offspring of the effects of use and disuse.

But the doctrine of Descent with Modification only became an important factor in scientific thought after the appearance of Darwin's Origin of Species in 1859, in which Lamarck's explanation is scouted, and that of the variation of offspring in all directions, and the survival of the most adaptive variations substituted. The influence exercised by Darwin's book was due not only to the exhaustive treatment by a judicial mind of the available evidence on the subject, but largely to the propagandism—often very militant in its tone—of Huxley in England and Hæckel in Germany. As a result the doctrine of evolution quickly penetrated scientific thought, and, passing almost from the hypothetical to the axiomatic stage, became indeed its "Leit-motif." The point of view sighed for by Treviranus was gained.

Not that the world was standing still between Lamarck's time and Darwin's. Evidence had been accumulating from various sources which converged to favor the acceptance of the revived doctrine. The comparative morphology of organisms, for example, developed by the researches of Cuvier, Owen, Robert Brown and others, furnished evidence of a unity underlying diversity—apprehended by the keen eye of Goethe, morphologist as well as poet, when he sang

"Und es ist das Ewig Eine das sich vielfach offenbart."—

which now for the first time, under the conception of blood-relationship, was provided with an interpretation satisfying to the mind.

Embryological data furnished by von Baer and Rathke, palæontological data accumulated in the investigation of the earth's crust, all now seemed to fall into a