

SCIENCE

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FRIDAY, JANUARY 29, 1897.

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Prof. J. McKeen Cattell, Garrison-on-Hudson, N. Y.

CYCLE IN THE LIFE OF THE INDIVIDUAL (ONTOGENY) AND IN THE EVOLUTION OF ITS OWN GROUP (PHYLOGENY).*

THE organic cycle, as generally understood both by laymen and scientists, and as usually described in literature, is, as a rule, considered from a physiological rather than structural point of view. The development of the young, and the attainment of the adult or comparatively permanent, stage completes the progressive stages. Old age, accompanied by losses of characteristics and functions and consequent weakening of the body, is retrogressive and brings on second childhood, thus completing the cycle in the ontogeny.

My purpose to-night is to show that the cycle is also represented in the life history of the individual by definite structural changes, and that these have direct correlations with the history of the changes in the forms of the group while evolving in time.†

The fundamental discoveries that are

* This paper was in large part read as a general summary of the phenomena of cycles, before the American Academy in Boston, but does not assume to be an exhaustive or even complete account of the literature or theoretical views treated of.

† These correlations have been more fully stated in a number of publications by the author, especially 'Genesis of the Arietidae,' Smithsonian Contribution, 673, and Mem. of Mus. of Comp. Zoology, Vol. XVI.; 'Bioplastology and the Related Branches of Scientific Research,' Proc. Bost. Soc. Nat. Hist., XXVI.; and 'Phylogeny of an Acquired Characteristic,' Proc. Am. Phil. Soc., XXXII., No. 143.