

SCIENCE

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FRIDAY, MAY 27, 1898.

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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.

ON THE GENETIC ENERGY OF ORGANISMS.*

For several years the conviction has been growing more and more definite in my mind that the fundamental principle in vital phenomena is to be found in variation rather than in heredity. The first time this opinion was definitely expressed in print was in 'Geological Biology' (1894): "Variability is thus assumed to be an inherent characteristic of all organisms, and origin of species has primarily to consider how comparative permanency of characters, and of different sets of characters in different lines of descent, is brought about" (p. 184); and: "The search has been for some cause of variation; it is more probable that mutability is the normal law of organic action, and that permanency is the acquired law," etc. (p. 297). Two years later Professor L. H. Bailey said in his 'The Survival of the Unlike' (1896): "In other words, I look upon heredity as an acquired character, the same as form or color or sensation is, and not as an original endowment of matter" (p. 23). Perhaps others have published the same conclusion, but, if so, I have not elsewhere seen the point advanced as a scientific proposition.

The conviction was reached on my part through studies in paleontology. As early as 1881 I was struck by the evidence of a

* A paper read before the American Society of Naturalists, December 24, 1897, by Henry Shaler Williams, Yale College, New Haven, Conn.