

# SCIENCE

VOL. 79

FRIDAY, JANUARY 19, 1934

No. 2038

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SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKEEN CATTELL and published every Friday by

## THE SCIENCE PRESS

New York City: Grand Central Terminal

Lancaster, Pa.

Garrison, N. Y.

Annual Subscription, \$6.00

Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

## ARISTOGENESIS, THE CREATIVE PRINCIPLE IN THE ORIGIN OF SPECIES<sup>1</sup>

By Professor HENRY FAIRFIELD OSBORN

COLUMBIA UNIVERSITY AND THE AMERICAN MUSEUM OF NATURAL HISTORY

As the title of his epoch-making work Darwin chose "The Origin of Species" (1859) because, as conceived by Linnaeus (1735), "species" was the ultimate unit of creation in the animal and plant world. *Nullae speciae novae* was the battle cry of the conservatives of pre-Darwin days, but what Darwin devoted his life to was the origin not of species but of adaptations, of which species are simply the by-products.

Mechanical adaptation was the oriflamme from Empedocles (495-435 B. C.), the father of the evolution idea, through Anaxagoras, Aeschylus, Aristotle and Plato, in forming what may be called the proto-

Darwinian "chance hypothesis" as well as the proto-Lamarekian "inheritance of acquired adaption hypothesis." The progressive improvement or retrogressive degeneration of human and animal mechanisms were the guideposts to the use and disuse inheritance speculations from the naturalists of Greece and Rome to Erasmus Darwin and Lamarck, the formulator of the "Lamarekian hypothesis."

Osborn, too, for the past forty-three years a hunter of fossil titanotheres, of fossil mastodons and elephants, concerned with the origin of the masterful horns of the titanotheres; in the elephants of the superb tusks, of the marvelous proboscis, of the supreme mechanical adaptation of the great grinders which grind uninterruptedly for over a century, loves to feel that in part at least he has answered Aristotle's question: "What then, hinders but that the parts in nature may also thus arise? For instance, that the

<sup>1</sup> Abstract of eleventh William T. Sedgwick Memorial Lecture, delivered at the Massachusetts Institute of Technology, Cambridge, Mass., at the meeting of the American Association for the Advancement of Science and the American Society of Naturalists, December 29, 1933.

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