EVOLUTION

Biologists Urged To Drop Senescent Evolution Theories

Osborn, Condemning Old Doctrines Dating Back to Ancient Greek Times, Calls For a "Wholly Fresh Start"

EVOLUTIONARY doctrines, no less than evolving species of animals or plants, grow old and become due for the discard. Several such theories were hauled up for criticism before the meeting of the National Academy of Sciences by Dr. Henry Fairfield Osborn, veteran paleontologist and former president of the American Museum of Natural History.

The "chance" theory of evolution, dating back far into ancient Greek times and still upheld by such notable biologists as Dr. Thomas Hunt Morgan, American Nobel prizeman, and J. B. S. Haldane of England, was singled out for first condemnation. "There is a general failure," said Dr. Osborn, "to distinguish between Darwin's positive demonstration of the selection of the fittest combinations of energy which we observe in organisms, and the origin of a single organ or of a single species through the selection of variations which in any sense of the word could be designated as 'chance.'"

"Moribund"

The Lamarckian creed, which holds that new characters are directly impressed on the organism by forces in the environment and that such acquired characters are inherited, Dr. Osborn characterized as being "now in a moribund condition." Another "which does not bear the crucial test of observations," has been built around a misunderstanding of Aristotle's inductions of an internal principle governing evolution, expressing itself in modern times in such ideas as Driesch's "entelechy" and Bergson's "*élan vital*."

"Much less senescent and in a much more healthy condition at present," continued the speaker, "is the doctrine of the direct action of environment not only upon the organism but upon the geneplasm. It seems fair to connect this creed of direct environmental action to the names of Buffon and Geoffroy St. Hilaire because these distinguished Frenchmen of the 18th and beginning of the 19th centuries were the first to formulate the theory of environmental action and to adopt it. It now seems to be well established that one of the direct causes of the origin of species is the gradual and inherited modification of the geneplasm by the forces of the environment."

Dr. Osborn concluded with an appeal to biologists quietly to "drop all these senescent hypotheses as to the nature and causes of evolution and make a wholly fresh start along entirely new and original lines of observation and experiment, directed toward the discovery of the now wholly unknown factors in this most mysterious of natural phenomena."

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PHYSICS

Photograph Shows Atom As if Seen By X-Ray Eye

PHOTOGRAPHS OF ATOMS, in effect magnified 200,000,000 times, were thrown on the projection screen of the National Academy of Sciences meeting to show what the atoms might look like if we had "X-ray eyes" and could look at atoms through a powerful X-ray microscope.

Dr. Arthur H. Compton and Dr. E. O. Wollan of the University of Chicago declared that their photographs "afford probably the most direct information now available regarding the way in which electrons are distributed in atoms."

The photographs are images of atoms of helium, neon and argon as obtained by X-ray diffraction. The actual photographs were obtained by photographing a rotating template whose shape is calculated by a mathematical transformation of the scientists' measured values and of the X-rays scattered by helium, neon and argon gases. This mathematical-mechanical procedure corresponds to the lens which forms the image when a microscope is used.

The photographs show the helium atoms as a diffusely continuous region filled with electricity. In neon, the inner group of electrons, called the K level, is clearly distinguishable from the outer L electron group. The resolving power is insufficient to distinguish between the K and L groups of electrons in argon, but it does separate these from the M electrons. The appearance of these atoms as shown by the photographs is in good accord, Drs. Compton and Wollan reported, with modern quantum theory of atomic structure.

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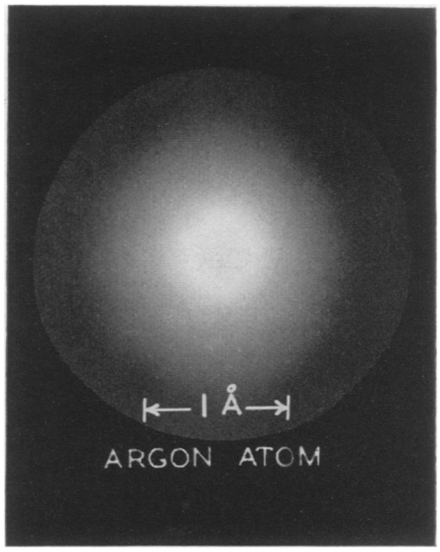

THE INVISIBLE

This photograph, made through a combination of mathematical and mechanical technique, shows what the atom might look like if you could see it. The arrows mark the distance of one Angstrom, or .00000001 cm.

MEDICINE

Study of 91-Year-Old Man Shows Way to Serene Age

LEARN not to worry if you want to have a long, healthy life.

Scientific study of a man 91 years of age with extraordinary physical and mental preservation shows that this is the chief rule to be followed in attaining healthy old age. The study was made by Drs. Francis G. Benedict and Howard F. Root of the Carnegie Institution of Washington's Nutrition Laboratory and the New England Deaconess Hospital, Boston, and reported to the National Academy of Sciences.

The other factors contributing to this man's condition are: conspicuous absence of hardening of the arteries in the man's family; and exemplary habits.

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