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MORPHOLOGY AS A DYNAMIC SCIENCE[1]

By Professor EDMUND W. SINNOTT

BARNARD COLLEGE, COLUMBIA UNIVERSITY

WHEN a science has developed to the level where it can recognize the fundamental problems which confront it, it may be said to have passed from youth to maturity. Long ago the physical sciences were able thus to formulate their objectives, and they have made enviable progress in attaining them. Biology, on the other hand, throughout its history has moved from one major interest to another and has never seemed able to distinguish its fundamental problems from a host of minor ones, or indeed to determine whether or not there exist any strictly biological problems at all. Not many generations ago the naming and classification of the host of plant and animal species was regarded as the chief task of the biologist. This naive attitude was altered by an acceptance of the tremendous fact of evolution, which seemed to make obvious that the central problem of both botany and zoology was to write the entire phylogenetic history of the organic world, a task which commanded the allegiance of the majority of biologists for half a century.

As time went on, however, it came to be realized that the ultimate secret of a living organism will never emerge from the records of its ancestry, no matter how completely these may be deciphered. Physiology is evidently nearer than phylogeny to the ultimate problem. Stimulated by the great advances which the physical sciences had made, the attack through physiology began about a generation ago to attract many new workers and gave every promise of substantial progress. The years have found this promise amply fulfilled in our success in plotting the flow of physical and chemical change of which an organism is the seat, but the results of physiological research have tended

[1] Address of the retiring vice-president and chairman of the Section on Botanical Sciences, American Association for the Advancement of Science, Atlantic City, December 29, 1936.