# SCIENCE

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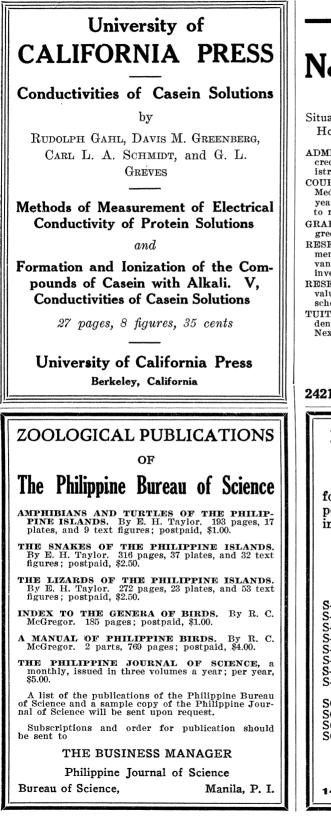
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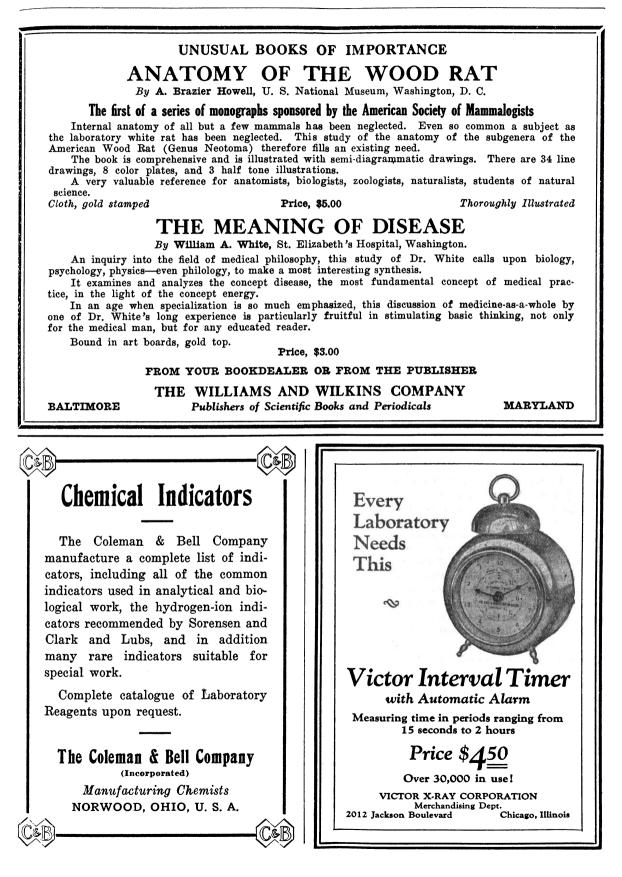
#### THE PROBLEM OF THE ORIGIN OF SPECIES AS IT APPEARED TO DARWIN IN 1859 AND AS IT APPEARS TO US TO-DAY<sup>1</sup>

The first of these objects, that is, the establishment of a belief in descent with modification, was always held by my father to be the more important of the two; for I once heard him say, if a recollection of about fifty years' standing may be trusted, that "after all, evolution is the great thing, not natural selection."—LEONARD DARWIN, "Organic Evolution," pp. 1, 2.

NEARLY one hundred years ago Charles Darwin began to collect facts for "The Origin of Species," his immortal work, which was cautiously withheld from publication until 1859. There still prevailed the zoology of Linnæus and Buffon and the paleontology of Cuvier. In Lesson's "Mammalogie" (1827) the number of mammalian species is exactly 1,124, as compared with the 13,000 species and subspecies of mammals known at the end of the year 1925. Birds increased from 3,600 to 23,939; reptiles and amphibians from 543 to 9,000; fishes from 3,500 to 20,000. Darwin's species stood apart like isolated mountain peaks, whereas to-day living species and subspecies are often comparable to mountain chains composed of lesser peaks completely connected by ridges known as intergradations. It is not the number of species and subspecies which is significant, but the facts as to habit and habitat which are recorded with them. Similarly, it is not the number of fossil species now known as compared with those of Darwin's time, but the linkage of families, genera, species, subspecies, and even of "ascending" and "descending mutations" reaching back over hundreds of thousands, if not millions, of years.

This twenty- to one hundred-fold disparity in our knowledge simply intensifies our admiration for the courage of Darwin in boldly substituting a natural for a supernatural conception of the origin of species. It is true that Darwin's most influential authority was not the current zoology and paleon-

<sup>1</sup>Read at the opening of Section D (Zoology) of the British Association, at the Oxford meeting, August 5, 1926. This is the fourth of a series of papers on the origin of species, the first having appeared in *Nature*, June 13 and 20, 1925, under the title, "The Origin of Species as Revealed by Paleontology." The fifth, under the title, "The Origin of Species, V: Speciation and Mutation," will appear in the *American Naturalist*.



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