

according to their habits—fish of the sea, birds of the air, beasts of the earth, and things under the earth; as carnivores, herbivores, and omnivores; and it is not very long since even expert ornithologists classified birds as waders and divers, climbers and scratchers, and so on. This mode of classification is always as interesting as it is natural, but its value is discounted by the fact that similarity of habit or habitat does not necessarily imply natural affinity. Bats are not birds because they fly in the air, nor whales fishes because both live in the sea.

The first great step to a more technical, and therefore truer, classification was made by Aristotle (384–322 B.C.), for his grouping was based on similarities of structure. Although he did not tabulate a classification as such, he was the first to draw that useful, but now somewhat hazy, line between the backboned and the backboneless, between the “lower” and “higher” animals. Thanks in part to the specimens which his pupil Alexander sent him, he knew about 500 different animals—far more, if one pauses to count, than most of us can even name, and, although he made the mistake of regarding the backboneless animals as *bloodless*, his classification reveals the insight of the true taxonomist.

Aristotle's outline remained practically unaltered for eighteen centuries, the first to modify it to any purpose being Wotton (1492–1555), a London physician, who published a work, *De Differentiis Animalium*, in 1552, and introduced a large but heterogeneous group of zoophytes. The encyclopædists, such as Gesner, Johnstone, and Aldrovandi, added considerably to the list of known forms, but made no improvements of moment in their classification. Of importance, however, was the work of John Ray (1628–1705), the worthy predecessor of Linnæus. He was the first to define the use of the term “species”, and to lay emphasis on anatomical characteristics as a basis of classification. For these reasons he may, as Professor Ray Lankester observes, be considered “the father of modern zoology”.

Physiological  
Classifica-  
tion.

Aristotle.

Ray and  
Linnæus.