



The 'Table of Water-Fowl' in the *Ornithology* reveals how shared characteristics enabled Willughby and Ray to classify subjects down to the level of species. Middleton Collection, Mi LP 39, p.273



Taxonomy

Willughby and Ray transformed scientific study of the natural world through their systematic collection of data and its analysis and classification.

In the *Ornithology*, the significant characteristics of species were identified and used to create taxonomic tables. Species were scientifically differentiated through common attributes such as appearance, behaviour and environment. Moorhens, for example, were identified as cloven-footed birds that swim and whose toes have no lateral membranes, under a heading of birds that both swim and wade. A succinct account of the genus is given: “The Characteristic notes of Water-hens or More-hens, by which they may be distinguished from other kinds of Birds, are a small Head, a slender, compressed, or narrow Body; A short Bill, moderately bending; short concave Wings, like to Hens; a very short Tail; long Legs; very long Toes: Short flights.”

Detailed observation challenged assumptions such as the folk wisdom that flight defines birds: there are birds that cannot fly, and flying things that are not birds. As Ray explained in a language textbook:

The *Ornithology* was illustrated with hundreds of images of varying quality and from different sources. ‘*Gallinula Chloropus*’, the Latin name given here for the Moorhen, was selected by Linnaeus (1758) as his species name. Middleton Collection, Mi LP 39, Tab. LVIII, detail

Francis Willughby

A Natural Historian and his Collections



Traditional groupings of birds and animals were often listed in textbooks, such as JA Comenius, *Orbis sensualium pictus* (1658), where the bat (no.16 and detailed) is included among ‘Tame Fowl’. From English translation by Charles Hoole, 1689. Briggs Collection, LT109.A/C6



“A Bat, tho it flies, hath no affinity to Birds, not so much as a flying Serpent: And tho it be not properly a Quadruped, yet hath it Claws in the Wings, which answer to fore-Legs.” (Ray, *Dictionarium Trilingue*, 1675, p.21).

The same taxonomic approach was applied to other domains of the natural world, with reliable ‘characteristic marks’ being differentiated from features that were accidental and non-essential. This innovative method was made explicit in Ray’s publications on plants.

The famous taxonomist Carl Linnaeus was influenced by the work of Ray and Willughby, and naturalists now rely on field guides and ‘field marks’ whose use Willughby had pioneered. The science has moved forward and certain groups, like bacteria, which were traditionally difficult to identify, can now be studied using molecular methods.

Carl Linnaeus (1707-78) from William Pinnock, A catechism of botany. 7th ed. London, 1824. Briggs Collection, LT210.QK/P4

