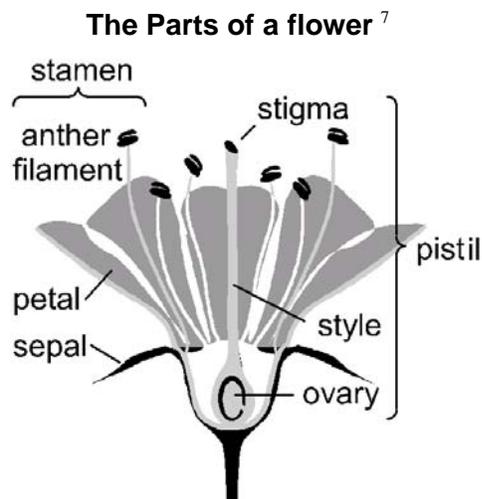


h3 Classification of the flowering plants < marriage >

The difference between a botanist and a zoologist is that botanists actually like animals.
—David Penny recalls being told in his student days.¹

Leonhart Fuchs's great herbal, 1542,² had been a pivotal work, along with Andreas Vesalius's anatomy, 1543,³ of Renaissance medicine and biology. However, the first treatise to emphasize floral structure as a key to classification was *Opera botanica* published in two volumes, the first in 1551 and the second in 1571, by Konrad Gesner who also drew most of its 1,500 plate illustrations.⁴

Francisco Hernández in Mexico, at the behest of Philip II of Spain, in seven years beginning 1570, compiled (despite unfamiliar languages, hazardous travel and illness) six folio-volumes of text and ten more of paintings commissioned from native artists, describing more than 3,000 plants, 400 animals, and 35 minerals. These added to the some 6,000 plants known to Europeans at the time but the work languished unpublished for, as Karen Reeds puts it, "Hernández, had organize it by the unfamiliar categories of plant classification, medical uses, and names used by the Nahua, the dominant population group of central Mexico."⁵ In *Searching for the Secrets of Nature*, 2002, Carmen Benito-Vessels argues that Hernández's religious orthodoxy was suspect. "His friends (and quite possibly his family) included crypto-Jews and Erasmianists; and, by naming the creatures of Mexico, he encroached on God's prerogative. The Inquisition's censors would never have passed the book."⁶



The analogy between animal and plant sexuality was first made explicit by Nehemiah Grew. In his 1682 treatise *The Anatomy of Plants*, he identified the **stamen** as the male organ in flowers. The **pistil** of a flower was soon thereafter recognized to be analogous to the female reproductive parts. How plants without flowers reproduce was not known and was not known to Carolus Linnaeus (1707-1778) when he devised a key of the sexual system of the vegetable (plant) Kingdom.⁸

In 1753, Linnaeus in *Praeludia Sponsaliorum Plantarum*, uses the terms "andria" in the place of stamen" and "gynia" in the place of pistil. He preferred these terms derived from the Greek for husband (*aner*) and wife (*gyne*) for his prejudice was that marriage is the natural state leading to reproduction.⁹ Most

flowers, however, are hermaphrodites (individuals with both male and female, fully functional, reproductive organs). Strained though it be, Linnaeus' classification of plants (**Figure h3.1**) was favored over earlier systems that distinguished genera (such as: John Ray's by differences of flower, calyx, seed coat, and seed size—11.5 orders of magnitude! from 20 kg for the double coconut (*Lodoicea maldivica*) to 0.0001 mg for some orchids; and, Joseph Pitton de Tournefort's by differences of corolla and fruit). Other systems were proposed and by twenty years after Linnaeus's death, 52 different botanical classification systems had been devised—as counted by Robert John Thornton (1768?-1832) (author of *A New Family Herbal*, 1810).¹⁰

Linnaeus's key of the sexual system for the plant kingdom is still the most used, although it is artificial, as it is simple to apply. But not always. For example, some plants have flowers on a single plant with different numbers of stamens and pistils.

The classification of fossil plants did not much concern Linnaeus, and few had been described by 1753. Chester Arnold has selected the year 1820 for when the naming of fossil plant groups began in earnest, and many of the specific names in use today occur in publishings then by Ernst Friedrich von Schlotheim (1764-1832) and by Kaspar Maria Sternberg (1761-1838).¹¹ □