

Taken with the effectiveness of the medicine and equally appalled by the inexactness of the botanical descriptions and woodcuts in the classic works of Theophrastus, Hippocrates, Pliny, Galen, and Dioscorides (Figure 1.3), the 25-year-old Columna set out to bring order to descriptions and illustrations (Figure 1.4).

In his two works, Columna introduced copper etching to herbals. This was in contrast to the block woodcuts previously used, thus setting a new standard of excellence for botanical descriptions and illustrations and ushering in botany as a distinct discipline (Upton 2001). In the eighteenth and nineteenth centuries in North America, physicians were often known as *medical botanists* and the teaching of materia medica was the domain of the physician until the emergence of modern pharmacy as a distinct profession.

The writings of Dioscorides remained authoritative for several hundred years and these early treatises of illustrated medical botany were the precursors of modern pharmacognosy. The Renaissance period was characterized by numerous exquisitely illustrated herbals such as those of Leonhart Fuchs (Germany; 1501–1566) and Pier Andrea Mattioli (Italy; 1501–1577). Other works of William Woodville (England; 1752–1805) (Figure 1.5) and America's Jacob Bigelow (1787–1879) are only a few

examples of the many treatises of medical botany that represented materia medica in Europe and the United States.

In addition to botanical descriptions, these texts included a discussion on the medicinal uses of the plants, some combining the herbal knowledge of the ancient texts with knowledge of indigenous plants of the New World. These and earlier texts of materia medica additionally included knowledge of the rudimentary chemistry of the era. The connection between botany and pharmacognosy became so closely linked that, in 1910, American pharmacognosist Henry Kraemer wrote that pharmacognosy was generally considered to be a “division of botany.”

Materia Medica

Pharmacognosy skills were not limited only to botanical characterization and medicinal uses. In addition, these works included information on the macroscopic characterizations of the plant parts used in medicine (e.g., roots, barks, leaves, seeds, and fruits), country of origin of medicinal plants, specific guidance regarding botanical quality, and potential adulterations. All of these bodies of information are of substantial relevance to the quality sourcing of crude medicinal materials, which at one time was the primary domain of the pharmacognosist.



FIGURE 1.3 Example of the type of illustration in early herbals. (From *De Simplicis Medicina*, 14th century.)