

formalized the beginning of a long practiced but newly emerging scientific discipline dedicated to the development of medicines. At that time—predating the isolation and synthesis of the pure pharmaceutical compounds that are the mainstay of modern drugs—all medicines were derived from natural products, a focus of pharmacognosy that has persisted to this day.

Schmidt and Seydler represented a formal beginning of pharmacognosy as a scientific discipline; however, pharmacognostic knowledge had been applied in the trade of medicinal plants for as long as botanicals had been used. Alexander Tschirch (1856–1939), a noted pioneer in the early development of pharmacognosy and professor of pharmacognosy at the University of Bern, Switzerland, described pharmacognosy as a discipline that predated any of the departments of pharmacy. He further described herbalists as the first pharmacognosists and Dioscorides (Figure 1.2), by virtue of his writings on medicinal plants, as the first teacher of pharmacognosy.

## Pharmacognosy—A Descriptive Science

Prior to the advent of modern analytical chemistry, physical description was the primary means of properly identifying medicinal plant parts, and it was inextricably linked with botany before the emergence of botany as an independent discipline. Thus, pharmacognosy was predominantly categorized as a “descriptive science.” From the earliest

records of medical history, the knowledge of identifying and cataloging plants was captured in the many ancient stones, bones, papyri, and texts of herbal medicine and was the domain of herbalists, who were the original physicians. For centuries, botany was considered a subdiscipline of medicine because the identification of plants used in the development of drugs was a prerequisite for all physicians prior to the rise of pharmacy as a separate discipline.

The integration of the profession of medicine and medicinal plants was so strong that still, today, graduates of Yale Medical School (United States) wear black robes and a green cap; the green is in honor of the plants that provide the medicines. The importance of plants in medicine is similarly immortalized in the term we routinely use to describe medicines: drug. The word is derived from the Dutch *droog* and Old French *drogue*, which both refer to the drying herbs hanging from the rafters of Old World apothecaries.

Botany developed as a distinct science partially with Fabius Columna’s (1567–1650) publishing of *Phytobasanos* (plant touchstone) in 1592, and a second work, *Ekphrasis* (exposition), sometime later. Columna was a native of Naples, a contemporary of Galileo, and a skilled botanical illustrator. Searching through ancient medical texts for a medicine for his epilepsy, Columna taught himself botany and, from the *De Materia Medica* of Dioscorides, learned of the root of the valerian plant (*Valeriana officinalis*). The valerian he procured reportedly relieved his seizures.



**FIGURE 1.2** Pedanius Dioscorides (AD 40–90), Greek botanist, herbalist, pharmacologist, and physician. Author of *De Materia Medica*, a precursor to all pharmacopoeias in the Western world and one of the most influential medical texts in history. (From *Great Moments in Pharmacy*. 1966. Illustration by Robert Thom. Printed with permission of American Pharmacists Association Foundation. Copyright 2010, APhA Foundation.)