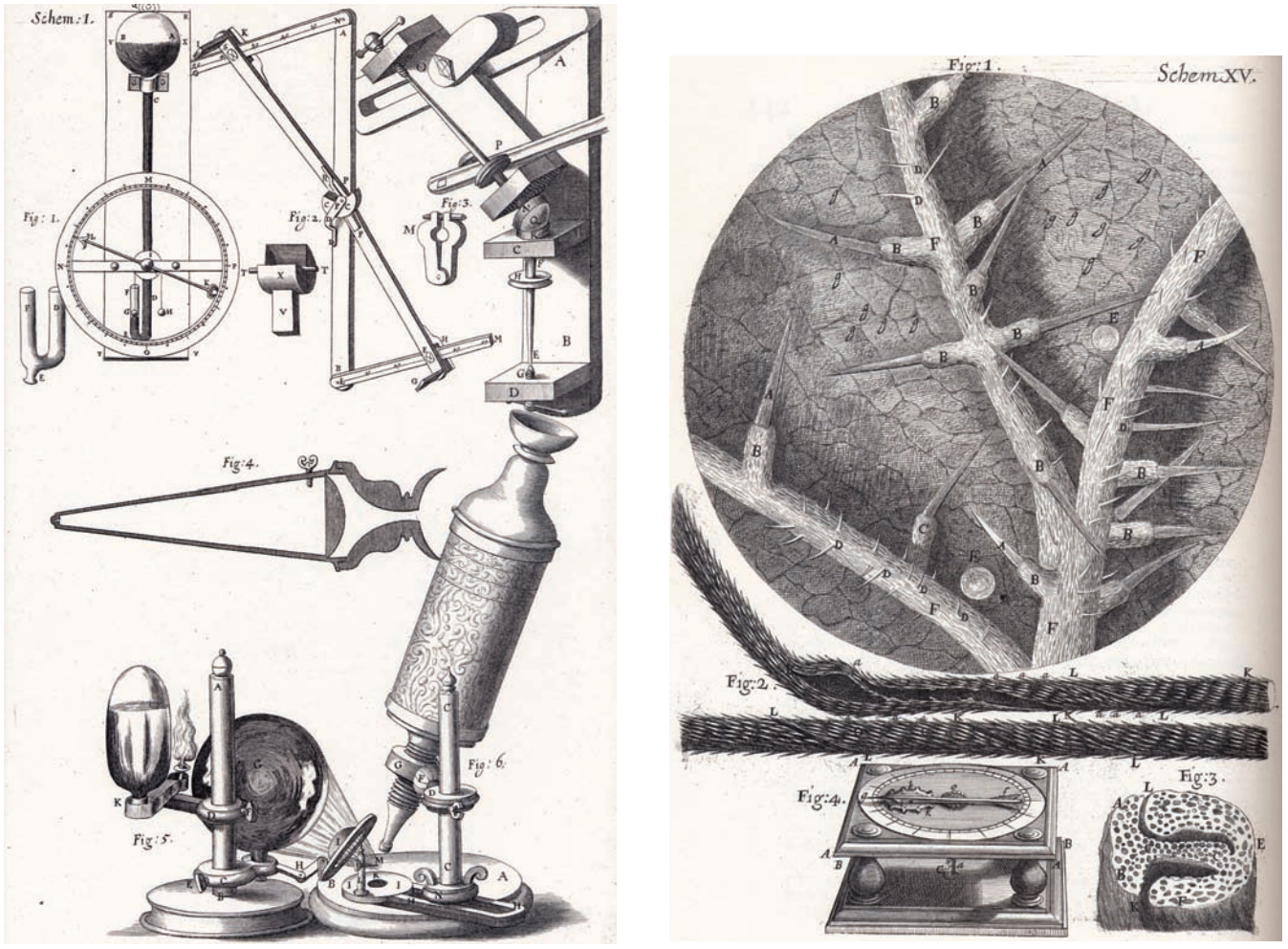

a b

FIGURE 1.6 **(a) Microscope of Robert Hooke (1667), a contemporary of Sir Isaac Newton, considered by some as the greatest experimental scientist of the seventeenth century and credited with the invention of the original two-lens microscope. (b) Hooke's microscopic examination of the medicinal plant stinging nettle (*Urtica dioica*). (From Hooke, R. 1665. *Micrographia*.)**

Thus, botanical microscopy emerged as an essential and often dominant tool in the analytical armamentarium of the early pharmacognosist.

For approximately the next 80 years, numerous texts on the microscopic analysis of plant medicines were published. Included among the most seminal of these were the works of Tschirch and Oesterle (Switzerland; 1887; Figure 1.8), Öberle and Berg (Germany; 1939), Wallis (England; 1909), Greenish (England; 1933), and in the United States, Sayre (1905) and Youngken (1926). Microscopy was so dominant in pharmacognosy that, in a lecture in 1885, William Stephen Disbrow, a professor of pharmacognosy at the New Jersey College of Pharmacy, referred to pharmacognosy as the "child of the microscope" (Shellard 1983). These early works provided detailed anatomical descriptions and illustrations of the medicinal part of the plant used, usually in its whole form, but quickly came to include descriptions of powders as well, which, as happens today, were frequently traded.

As originally postulated by Schleiden, every plant has characteristic structures and structural tissue arrangements; some are unique. An analysis of the tissues and arrangement of structures can provide key information as to the origin of the material being analyzed; whether it is a root, seed, leaf, or bark; of what botanical family it may be a member; and, in many cases, identification of the