a manual craft, and as such was viewed with disapproba-
ton of physicians, for example). Their works contributed to
by plant name. Each chapter normally contained the
sented is the Latin name of the plant and all such chapters were ordered alphabetically
served to elevate it to a divine art. His *Chirurgia* illuminated the
rearranged several times, including the production of a herbal *stricto sensu*, first attested by the
with Istifan ibn Basil, and several other times later on.
other decorative elements suggesting natural habitats (with
apples, or dried berries). The presence of a fruit or berry is an
BRENDA GARDENOUR
HERBALIS
The term “herbal” (*herbarium*) usually refers to early printed books of the fifteenth and sixteenth centuries on the therapeutic properties of plants used in medicine. However, it can be applied to earlier works dealing with the same topic, from their prototype, *De materia medica* (MM) by the Greek *Dioscorides* (first century C.E.), to late-medieval compilations such as the early fourteenth-century *Liber de herbis*.

In their medieval canonical form, herbas usually consisted of a list of plants whose parts (roots, twigs, leaves, flowers, fruits, and seeds) were used as primary ingredi-
teven be successful in the field.

See also Medicine, practical; Medicine, theoretical

Bibliography

Primary Sources

Secondary Sources

HERBALIS
The term “herbal” (*herbarium*) usually refers to early printed books of the fifteenth and sixteenth centuries on the therapeutic properties of plants used in medicine. However, it can be applied to earlier works dealing with the same topic, from their prototype, *De materia medica* (MM) by the Greek *Dioscorides* (first century C.E.), to late-medieval compilations such as the early fourteenth-century *Liber de herbis*.

In their medieval canonical form, herbas usually consisted of a list of plants whose parts (roots, twigs, leaves, flowers, fruits, and seeds) were used as primary ingredi-
ten to accumulate with the passage of time.

Byzantine and Arabic Precursors
In Byzantium, Dioscorides’ MM rapidly became the standard work for the knowledge of herbal substances used for therapeutic purposes; it seems to have been preferred to Galen’s works on the topic because of the Christianization of medicine. MM was widely spread from Egypt to Constantinople and from Rome to Syria. Its original text was rearranged several times, including the production of a herbal *stricto sensu*, first attested by the manuscript now in Vienna, Österreichische Nationalbibliothek, *medicus graecus* 1, c. 513 C.E. This herbal contained about three hundred plants and their representation in color illustrations, and was abundantly reproduced until 1453 and even later in the West. Eastern plants from the original version of MM were eliminated in this herbal, and not reintroduced until the eleventh century in the manuscript now Athens (Greece), Megistis Lavras, S 75.
The works of both Dioscorides and Galen were translated into Syriac during the sixth century. MM was translated into Arabic twice during the ninth century by Hunayn ibn Ishaq working in Baghdad in collaboration with Istifan ibn Basil, and several other times later on. Plant representations in early Arabic copies of MM strongly recall their Greek models, and include other decorative elements suggesting natural habitats (with animals and environmental elements such as rivers and rocks, for instance) and human uses (with representations of physicians, for example). Their works contributed to the production of original Arabic herbalis (or sections on herbal drugs in larger medical encyclopedias) such as the *Book on medicinal plants* of *al-Biruni* and the *Canon of
Arabic herbalism attained its apogee in the Cordoban school, whose origin dates back to the Umayyad 'Abd al-Rahman I (756–788) and to his experiments of temperament and age, and to season and place. Local knowledge was enhanced during the tenth century thanks to a Greek naturalization of Eastern plants. "Theodore of Mäkara" (c. 1063) in the *Ortus sanitatis*, perhaps of Gariopontus (late eleventh century), the herbal of Platearius commonly identified by its first words as *Circa instans* (twelfth century), the Salernitan secrets, and the early-fourteenth century *Book of herbs*, with its French translation, the *Livre des simples médecines*. As the latter suggests, versions in the vernacular proliferated from then onward (even though they were not a novelty of that time), in Romance, Anglo-Saxon, and German languages. The illustrations of a copy of the *Liber de herbis*, the early fourteenth-century manuscript *Ortus sanitatis* now conserved at the British Library (London), have a realistic character that induced historians of art to think that they were made from nature directly, rather than reproducing previous models.

During the post-translation period, new translations of Greek works were made by such scholars as *Burgundio of Pisa*, *Pietro d’Abano*, and *Niccolo da Reggio*. Characteristically, they included Galen’s treatise *On the mixtures and properties of simple medicines* and tried to reintroduce Galen’s herbalism, which was abandoned during the early Byzantine period. In Pietro d’Abano’s pharmacological work, both Dioscorides’ and Galen’s texts are associated.

### Into Print

The first printed herbal was the *Herbarius Maguntiae impressus* (Mainz, 1484), followed by the *Herbarius Patavie impressus* (Passau, 1485), and the herbal attributed to Arnau de Vilanova and Avicenna (Vicenza, 1491). In the same year came the *Ortus sanitatis* (Mainz, 1491), immediately followed by the *De Plini aliorumque in medicina erroribus* by Nicolao Leonceno (1428–1524) published in 1492 (Ferrara), which put an end to the era of medieval herbas. The work suggested a return to Greek science (that is, to Dioscorides’ MM) rather than using Pliny’s *Natural History* or the Latin translations of Arabic medical treatises. No new herbal appeared before the *Herbarum vivae eicones* by Otto Brunfels (c. 1530).
HERMANN OF CARINTHIA

Hermann of Carinthia (fl. 1138–1143) was a translator from Arabic into Latin of texts on mathematics (including *astronomy) and Islam, and the author of original works on astrology and *cosmology. The various epithets attached to his name—De Carinthia, Dalmata, Slavus—indicate that he was a Slav from the northern Balkan homeland in his translation of *Abu Ma’shar’s *Great Introduction. He referred to himself as “Hermannus Secundus,” perhaps in recognition of his scientific work which was a continuation of that of Hermannus Contractus of Reichenau. Inspired by the example of *Thierry of Chartres, chancellor of Chartres cathedral, to whom he refers as “his most loving teacher” (*diligentissime preceptor), he embarked on a program of translating mathematical works from Arabic, together with his colleague, Robert of Keton, to improve the quality of the textbooks available for teaching the secular sciences (the seven liberal arts) in the Western Schools. Many of the texts that they prepared have not survived, including their translation of *Ptolemy’s *Almagest from the Arabic, which was their ultimate aim and may never have been completed. But versions of astronomical tables, of *Euclid’s *Elements and Theodosius’s *Spherae have been attributed to them, and evidently formed part of their enterprise. In 1143 Hermann dedicated Ptolemy’s *Planisphere (on the mathematics of stereographic projection, on which the operation of the astrolabe is based) to Thierry. Robert and Hermann’s project was interrupted in 1141 by a commission from Peter the Venerable of Cluny to translate the *Qu’ran and a representative collection of texts on Islam, of which Hermann was responsible for *On the Generation of Muhammad (on the transmission of a divine spirit from Adam to Muhammad), and *The Doctrine of Muhammad (a simple exposition of Muslim belief). Hermann was particularly interested in establishing the scientific bases of astrology in Latin, by translating works (e.g., a work on general astrology by Sahl ibn Bishr, translated in León in 1138) and compiling manuals on specific topics (e.g., texts on weather forecasting and finding treasure and lost objects). He may have worked closely with *Hugh of Santalla in putting together *summae of astrological judgments based on several Arabic authorities.

Principal Achievement

Hermann’s most important contribution to astrology, however, was his translation of Abu Ma’shar’s *Great Introduction to Astrology (1140), which underpinned the whole field of astrological doctrine with rational arguments, several taken from Aristotle. Hermann used these doctrines and arguments in his original work *On the Essentials (1143), which was devoted to physics “whose first part” (in his own words) “considered the nature of the upper world, and second part, the nature of the lower world, these being respectively the formal causes and the material causes of all things” (from his preface to the *Planisphere). The “essences” of the title are cause, movement, place, time, and “condition” (*habitus), and Hermann expertly weaves together doctrine from the Arabic and the Latin traditions to form a well-constructed synthesis on the constitution and operation of the cosmos, the formation of minerals, plants and animals, and finally the composition of man. Hermann was writing at a time when the subject matter of mathematics, physics, and metaphysics was still being established in the West. The section on “cause” in *On the Essentials is virtually an essay on metaphysics, while “movement” (the effect of the cause) involves discussion of physical principles, to which the astronomy of the *Almagest is accommodated. The analogy of musical harmony is often invoked (e.g., in the comparison of the planets’ diversification of the movement of the first cause to the production of different pitches issuing from a single breath being blown into pipes of different lengths), and the biological language of the mating of masculine and feminine elements, characteristic of alchemy, is used. Hermes and Plato are Hermann’s most venerable authorities: the “Emerald Tablet” of Hermes—the alchemists’