An Exhibition Concerning

H E R B A L S

A Celebration of the Arts in Botanical Science

The History of Science Collections

of The University of Oklahoma Libraries

Norman, Oklahoma July 1995

A medieval term for a book that includes the names and descriptions of plants useful in medicine, the herbal has served as an integral literary source for the scientific world since ancient times. The earliest known existing European work that concerns medicinal plants is the *Materia medica*, a manuscript by Greek physician Dioscorides. Until late in the sixteenth century, the writings of Dioscorides predominated as the authority of European botany. By the end of this century, however, scientists began to produce literature which served not so much as supplements to the ancients but as true replacements. These changes foreshadowed the great classification schemes that began to emerge in the seventeenth century.

The golden era of the printed herbal is generally limited to the period from 1470 to 1670. While there is a wealth of information on the significance of these works in the field of botany, material on the artistic merit of these books is fragmented.

This catalog examines the importance of the illustrations in sixteenth herbals that are found in the History of Science Collections of the University of Oklahoma Libraries.

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LIS 5823
Summer 1995

Although the idea of illustrating books with woodcuts was known, it was not used until almost fifteen years after typography had become practical. The woodcut is the earliest form of relief printing. Because the woodcut and type are both formed in relief, there can be simultaneous impressions. Woodcuts revolutionized technical literature by introducing illustrations which could be repeated exactly in all types of reference works. Precise reproduction of fine detail could now be accomplished.

Early woodcutters were often enlisted from the ranks of textile printers. In the beginning, the cutters also designed their woodcuts. In time there was a division of labor between the designer and cutter with the designer having a higher social standing. To make a woodcut, one draws a design directly on the surface of a block of soft wood, such as pear, apple, cherry, sycamore, or beech. The craftsman then takes a knife or graver and cuts away those parts of the designs which are to print white, thus leaving black lines or spaces in relief.

Because early cuts were usually in a simple outline, it has been suggested that this was done so that the cut could be colored. By the end of the fifteenth century, however, the true character of the woodcut appeared with the use of shading.

David Bland, a historian of the book, argued that there were different interpretations on the use of illustrations. A "printer treated his cuts almost as if they were stereotypes, and typically rather than individually." Thus, it was not surprising to find the same woodcut being used several times in a book but representing different things.

By the late fifteenth century, there was a trend toward including more illustrations. In 1491, Joseph Meydenbach published *Hortus Sanitatis*. This massive publication had 1066 chapters, each with an illustration at the beginning. There are also 7 full-page woodcuts, thus giving a total of 1073 pictures. The actual cutting of these woodcuts showed technical advance in the use of white lines upon black. Although most critics call the stylized cuts "tolerable," others believe they were drawn from nature by skilled, observant artists.

*** Illustration of Narcissus ***

During the first three decades of the sixteenth century, botany books mainly had illustrations which were copied from older woodcuts. In 1530, a new era beckoned. In the study of the arts, this year marked the limit of the Gothic period and the beginning of the Renaissance. The impetus for this trend was that many of the best artists, especially Albrecht Dürer, began to draw for woodcuts and engravings. Dürer remarked: "Study nature diligently. Be guided by nature and do not depart from it, thinking you can do better yourself. You will be misguided, for truly art is hidden in nature and he who can draw it out possesses it."

German botanist Otto Brunfels

pioneered the emancipation of botany from medieval herbalism with the herbal *Herbarum vivae eicones*. Published in 1530, this quarto had full page illustrations, all by artist Hans Weiditz. A contemporary of Dürer, Weiditz accepted nature as he found it. For example, if the specimen had withered leaves, the illustration had withered leaves. Although Weiditz did not cut the woodblocks, the outlines are never dull or mechanical; the design is never ordinary. The blocks have grey, open cuts with very little shading and no cross-hatching of lines.

*** Illustration of Anemone pulsatilla ***

Herbarum vivae eicones actually has two volumes in one. The title page of volume one is depicted in red and black with an impressive pictorial border and full-page woodcut of the coat-of-arms of Strassburg also in red and black. The first page of text has a historiated border which is repeated twice in the second volume. Volume one also has a poem by Joannes Sapidus included in the preliminary pages. This poem notes the contributions of Guidiotius (Weiditz).

*** Illustration of title page ***

While Weiditz showed an understanding of botany that was ahead of his time, the descriptions by Brunfels were especially lacking. Unfortunately, Brunfels had no understanding of the geographical distribution of plants. Thus, there was some disagreement between descriptions and illustrations. Herbal historian Wilfrid Blunt argued that Brunfels should not be called a father of botany. Blunt also remarked that *Herbarum vivae eicones* had a poor layout, which casually combined full-page woodcuts and small figures. Indeed, Blunt concluded that in this herbal the "pictorial tail wagged the textual dog."

Although overshadowed by the more popular *Herbarum vivae eicones*, the 1539 herbal *New Kreutterbuch* signalled a new beginning in botany. Authored by German botanist Hieronymus Bock, *New Kreutterbuch* lacked illustrations. Because Bock was neither a physician nor a university scholar, he could look at plant life through different eyes. He did not try to find a classical antecedent for every plant. Written in the vernacular, Bock's herbal presented descriptions of local species that the ordinary reader could understand. Because Bock focused on the plants themselves and questioned the authority of Dioscorides, it was said that he "led [an] exodus from the library into the fields." In 1546, a new edition, with illustrations by Strassburg artist David Kandel was issued.

Leonhart Fuchs, the final member of the German botany trio, was distinguished for his herbal *De Historia stirpium*. This herbal gained immense popularity as evidenced by the frequency the woodcuts were used or adapted by others.

Fuchs was obsessed with the rendering of the illustrations in his herbal. Thus, he employed three of the

leading artists of Strassburg. Albrecht Meyer drew the plants from nature; Heinrich Fullmaürer transferred the drawings to the blocks; and Veit Rudolph Speckle did the cutting. To show his gratitude for their work, Fuchs included portraits of the three artists at the end of the herbal. Ellison Hawks remarked: "There is probably no engraving of the sixteenth century that excels the portrait Speckle gives of himself. The result of the work of these artists make this the most beautiful of all herbals."

*** Illustrations of three artists ***

There has been a lot of comparison between the Brunfels' and Fuchs' herbals. Some believed that Weiditz approached nature with humility while Meyer bowed to Fuchs' whims. Observers noted that a Weiditz plant might be found in any hedgerow, but a Meyer plant could grow only in paradise. Scholars of botanical illustration note that imperfect specimens, as sometimes characterized the Brunfels' herbal, should not be selected to represent a species.

*** Illustrations comparing Brunfels' and Fuchs' depiction of fuller's teasel or Dipsacus fullonum ***

Although the 500 full-page illustrations are generally considered good, there has been concern that the line of the drawings is too light for full folio pages. It has been argued that Fuchs intended for his illustrations to be colored. Fuchs did not want shading to interfere with his figures. Blunt noted that most herbals of the fifteenth and sixteenth centuries were intended to be colored. Usually the artist painted one or two copies. Then, assistants (often women or children) did others. Occasionally, copies that purchasers could color were sold at reduced rates.

Agnes Arber believed that coloring of herbals by individual owners was infrequent. An onerous task, coloring was done before books were sold. Arber related that archival evidence from the Christophe Plantin printing firm of Antwerp made reference to three women who were employed to color herbals. Examination of several colored copies of *De Historia stirpium* reveals a consistency of coloring—an occurrence which seems to give credence to the fact that coloring was done by skilled hands.

*** Illustration of Lamium showing the sequence of colors ***

Despite the laudatory comments on the Fuchs' illustrations, the casual reader needed to be aware of those illustrations which showed a plant in flower and fruit at the same time. In other instances, three species of a plant might appear to be growing from the same root. Fuchs and other botanists often used such illustrations as a means of economy. Also, because of the rectangular nature of the blocks, some of the illustrations tended to form an all-over pattern. Heads of trees were distorted to conform to rectangular contours or were carved to fit minimum space. Contemporary

artists argue that those who drew on wood were often consumed by the rectangularity of the block. To avoid this effect required great will power.

*** Illustration of Arum which shows both flower and berries; Arum flowers in spring and has berries in the fall ***

Fuchs tried to contribute to botanical knowledge by giving names, habits, localities, and tempers of plants. Nevertheless, botanical historian Edward L. Greene argued that if there had been no other books on botany other than those of Fuchs or Brunfels that botany could not have progressed a single stage within that century. Indeed, others have called Fuchs an industrious, judicious compiler rather than investigator.

The woodcuts used in Fuchs' book established a standard for plant illustration which continued in the twentieth century. Fuchs said that he did not allow the craftsmen to do something that did not permit the drawing to correspond to the actual. Because of the success of the *De Historia stirpium*, the Fuchs' blocks have been used in a number of other herbals. In fact, Fuchs often complained of piracy.

French botanist Charles de L'Escluse used many of the Fuchs' blocks in his first book, a French translation of Rembert Dodoens' herbal *Cruydeboeck*. Trained as a lawyer, L'Escluse had exceptional ability in translating Latin. A true figure of the Renaissance, L'Escluse traveled to the Iberian Peninsula and discovered some two hundred new plant species. This journey led to the publication of *Rariorum aliquot stirpium per Hispanias observatarum historia, libris duobus expressa* in 1576. Later, while in the service of the Court of Emperor Maximillian, L'Escluse journeyed to Austria-Hungary. *Rariorum aliquot stirpium per Pannoniam Austriam & vicinas quasdam prouincia observatarum historia quatuor libris expressa...*, published in 1583, recounted his floral findings in this region. Several of the illustrations in both books were done by Pieter van der Borcht. It was also known that the Plantin printing firm employed Gerard Jansen van Kampen to do the engraving on the second herbal.

*** Illustration of Alpine plants from Rariorum...Pannonium... ***

A native of The Netherlands (now Belgium), Rembert Dodoens was the author of several herbals. Dodoens' first botanical work of importance was the 1554 *Cruydeboeck*. This herbal provided the basis for all his future work, as Dodoens merely updated it. In 1583, the Plantin firm issued *Stirpium historiae pemptades sex*. This herbal has 900 pages of text and 1309 woodcuts. For this latter herbal, Plantin again employed Pieter van der Borcht to do the drawings, while Arnaud Nicolai and Gerard Jansen van Kampen did the engravings.

In 1578, Englishman Henry Lyte translated L'Escluse's version of the *Cruydeboeck* into English. In the

preliminary pages of *A Nievve Herball or Historie of Plantes*, Lyte includes an intricately illustrated title page, the Lyte coat-of-arms, and a full-page woodcut of Dodoens. Unfortunately, the rest of the book is not as impressive. In addition to a disorganized page layout, most of the woodcuts lack bold, artistic quality.

*** Illustration comparing lack of distinctive features on Indian wheat to Fuchs' example of maize ***

Authors of herbals usually divide their books into entries on herbs and entries on trees. Mathias de L'Obel and Pierre Pena divided the plants in *Stirpium adversaria nova* according to leaf form with monocotyledons first and dicotyledons second. Published in 1570, this herbal was also the first to include an illustration of tobacco as a separate plant.

Graphically, *Stirpium adversaria nova* offers some unusual features. In addition to several "tipped-in" pages, there are also several illustrations which have been "pasted in." Fine line illustrations are scattered throughout the work, occasionally three cuts per two-page spread. Text is "fit around" some of the images.

*** Illustration of tobacco ***

As noted, the Plantin printing firm produced most of the herbals of Dodoens, L'Escluse, and L'Obel. The firm had over two thousand woodcuts—the most extensive body of botanical drawings of the sixteenth century.

Although these cuts served as a common pool for many herbals, most considered them only "adequate" when compared to the work of Brunfels, Fuchs, or Pietro Andrea Mattioli. While Wilfrid Blunt once praised Brunfels' woodcuts for their "Gothic vigour" and Fuchs' woodcuts for their "grace and elegance," A. Hyatt Mayor applauded the Mattioli blocks for the "delicacy of their cutting."

An Italian physician who had a keen interest in botany, Mattioli first entered the publishing field in 1544 with an Italian translation of Dioscorides' *Materia medica*. Although this work was not illustrated, a subsequent Latin edition in 1554 had numerous illustrations. Mattioli supported his work with his own drawings, drawings used in other books, and original new drawings of others.

The 1565 edition of *Senensis medici, commentarii in sex libros Pedacii Dioscoridis Anazarbei de medica materia* is always valued for its completeness and for the large woodcuts. This edition had woodcuts of plants, animals, and fish, often the full width of the page.

Five blocks that were used in this edition have survived. It is believed that the artists designed the illustrations on the pear wood blocks. Shading is extensively used throughout the herbal. Agnes Arber remarked that "details such as the veins and hairs of the leaves are often elaborately worked

out." She also observed that while a Brunfels' or Fuchs' woodcut would have a single stalk as the main element of the whole drawing, Mattioli's work would show a mass of foliage, fruit, and flowers. Indeed, Arber likens Mattioli's work to tapestry. Artists Giorgio Liberale and Wolfgang Meyerpeck were very aware of the rectangular blocks and often produced illustrations, likened to chintz or wallpaper.

*** Illustration of Mattioli's Carduus (thistle) and Brunfels' pulsatilla ***

Although the illustrations were not drawn to be colored, many were colored by owners. Critics have noted that several drawings had inaccuracies due to the use of dried plants, which had been soaked in water. Margaret Marcus observed that while it is true that decorative quality can deter from a plant's essential character, the Mattioli herbal is the exception. She noted: "The quality of the plant is never lost, however, and one would have to go far indeed to find a finer balance of design and lifelikeness, each fortifying the other...."

*** Illustration of the pine ***

The sixteenth century was a time that many western Europeans sought knowledge in the exotic Asia. Among the Portuguese travelers to India was Garcia Da Orta. His *Coloquios* was presented as a series of fifty-nine dialogues between Orta and the fictitious Dr. Ruano, his alter ego. Ruano represented theoretical knowledge while Orta was the pragmatist. The format of Orta's herbal was different in that he integrated economics, customs, and manners of southeast Asia. Published in 1563 in India, the herbal was not illustrated. In 1567, L'Escluse found a copy of the herbal and produced the abridged *Aromatum et simplicium aliquot medicamentorum apud Indos nascentium historia*. An octavo, this work had a few illustrations.

While Orta traveled to Asia to gain his knowledge firsthand, Nicolas Monardes produced an herbal on the materia medica of the New World and never left Seville, Spain! *Dos Libros de Todas* appeared in two parts in 1569 and 1571. The herbal was translated into several other languages. The 1582 Italian version was entitled *Delle Cose che vengono portate dall'Indie Occidentali pertinenti all'vso dell medicina*. Because Monardes never visited the New World, he often believed what he was told, thereby incorporating a lot of "nonsense" in the herbal. The greatest merit in the book is Monarde's style.

*** Illustration of title page ***

While Monardes intrigued all of Europe with his stories of the strange New World, Giambattista Porta offered a most fascinating herbal with his *Phytognomonica*. Porta has been both extolled and criticized for his youthful enthusiasm for the wonders of nature. Porta believed in the Doctrine of Signatures, which affirmed that the

creator offered a means for preventing or curing disease by placing a sign or hint on those natural products, mainly plants, which were useful for healing. For example, one could cure jaundice if he/she ate herbs with yellow sap. Pine cones and other plants with overlapping scales could be used to treat scaly skin.

The ornate title page consists of four sections. Each of these sections is used twice to head the eight books within the herbal. Although the 1588 herbal had only thirty-two woodcuts, decorative initial letters are used throughout the publication.

*** Illustration of maidenhair fern and bald head ***

The sixteenth century was nearly over when the best known and most often quoted herbal in the English language was published. *The Herball or General Historie of Plantes* by John Gerard was published in 1597. This rare, hand-colored herbal has over 2100 woodcuts, but only 16 are original. The title page, engraved by William Rogers, was one of only nineteen engraved English title pages of the sixteenth century

*** Illustration of title page ***

The herbal had an unusual history in that Gerard was not the first person chosen as the author. Due to the success of Lyte's translation of L'Escluse's *Cruydeboeck,* printer John Norton commissioned Robert Priest to translate Dodoens' *Stirpium historiae pemptades sex*. Because Priest died before the translation was completed, Gerard inherited the project. Gerard changed Dodoens' arrangement for that of Pena and L'Obel, added some personal observations, and then published the work as his own. Frank J. Anderson commented: "Gerard's *Herball*, in all honesty, should be recognized as Dodoens' *Herbal* with English dress, manners, and substance." Others argued that the plagiarism issue was overblown and that Gerard should be commended for the massive work.

Regardless of the fact that many of the illustrations are not botanically accurate, they are quite decorative. Norton obtained most of the woodcuts from Germany. Although the herbal had a number of errors in the illustrations and in the translation, it was finally revised in 1633 by Thomas Johnson.

*** Illustration of potato; illustration of barnacle tree ***

By the turn of the seventeenth century, there was a growing trend toward the development of more technical publications. Publishers now issued multilingual pocket editions of books. A dispersed readership began to check the books against nature and send in corrections for later editions. Often, seeds and specimens were sent to editors of technical publications. Members of the botany profession realized the importance of choosing illustrators rather than independent artists for their drawings. Only then, could the drawings began to represent types rather than individuals.