

Chapter 36

Horticulture and Art

Jules Janick

Abstract One of the unique characters of horticulture as an agricultural discipline is that it has an esthetic component. There are two approaches to the esthetics of horticulture: (1) art in horticulture, the direct use of plants alone and in groups as pleasing visual objects, and (2) horticulture in art, the use of horticultural objects as a basic component of artistic expression. Art in horticulture revolves around plants as beautiful objects, individually and en masse. This concept has generated distinct disciplines such as flower arranging and the floral arts, garden design and development, and landscape design and architecture. Horticulture in art, refers to the depiction of horticultural plants in connection with various manifestations of the visual arts such as sculpture and mosaics, drawings and painting, and embroidery and tapestry. The depiction of plants is one of the great themes in artistic expression as exemplified in their widespread use in the decorative patterns in the design of innumerable objects from floor and ceiling patterns, silverware, pottery and ceramics, coins and banknotes, to heraldry.

Keywords Floral arts · Gardens · Landscape architecture · Mosaics · Painting · Sculpture · Tapestry

Introduction

Horticulture is unique among the agricultural disciplines in that it has an esthetic dimension (Janick 1984). There are two approaches to consider in the relation of horticulture to artistic expression: (1) art in horticulture, the direct use of plants alone or en masse as pleasing visual objects, and (2) horticulture in art, the use of horticulture objects and subjects as a basic component of artistic expression in various art forms such as drawings and painting, sculpture, mosaics, photography, and tapestry (Janick 2007). The relation of horticulture and art has created unique disciplines including the floral arts, garden design, landscape architecture, and still life painting. The depiction of plants is one of the great themes in artistic expression and

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has spawned the use of plants in decoration of innumerable objects such as floor and ceiling patterns, sculptural columns, silverware, ceramics, banknotes, and heraldry.

Art in Horticulture

Horticultural plants are often considered beautiful and pleasing objects in themselves based on a combination of shape, texture, color, form, design, symmetry, as well as fragrance and taste (Janick 1984). Plants also may be viewed individually or arranged as components in a larger context and became an essential part of three artistic disciplines: the floral arts, garden design, and landscape architecture. There is no clear distinction between these three components except that of scale. The growing of horticultural plants for esthetic purposes in the home and in the landscape has developed a huge part of horticulture now referred to as the “green industry.”

The Esthetic Value of Plants

Our perception of beauty is strongly affected by our emotional feelings and by our cultural attitudes towards objects. Thus, things that are feared such as snakes or spiders are thought by some as ugly despite having many attributes we ascribe to beautiful objects. Basically, the things that have been accepted as beautiful for long periods of time, and which are more or less universally admired, have a basic simplicity and harmony of form and function. Thus, our concept of beauty is made up of two parts; sensory stimulation and a cultural component.

Most plants have an inherent capacity to visually stimulate. The most obvious feature is their coloring, not only the brilliant hues of flowers, fruits and leaves, but the muted tones of stems and bark. Green of course is the most common environmental color and our positive response is probably more than coincidental since it also psychologically is the most restful. Structure and shape (form) of plants shows tremendous variation from turf and creeping ground covers, to shrubs, and trees of various sizes and shapes. Symmetry makes random shapes orderly. All plants show some types of symmetry a common feature of plant growth which is inherently pleasing (Fig. 36.1a). However, the use of plants in asymmetrical patterns or arrangements also produces visual interest. (Fig. 36.1b).

Gardens

With the possible exception of arctic peoples, human cultures have developed in plant-dominated environments. Plants provide food for people and their animals, as well as fiber, shelter, and shade. Our dependence upon plants has influenced and molded our esthetic consideration of them. And no doubt plants have been

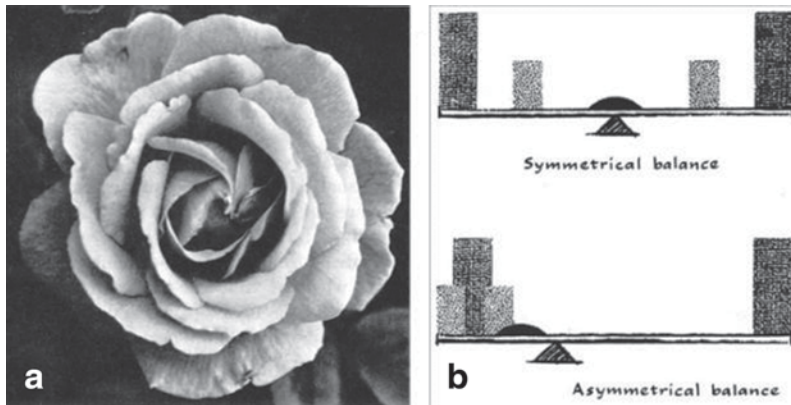


Fig. 36.1 Symmetry and balance: **a** symmetry in the rose; **b** graphic representation of symmetrical and asymmetrical balance. (Source: Janick 1984)

culturally accepted as beautiful partially because they are useful. In modern cultures only a relatively few people are directly involved with the growing of plants, but we all depend on them. At present, the production and management of ornamentals, known collectively as the green industry, remains one of the important parts of modern horticulture. Horticulture has a place in all our lives.

Civilizations create gardens (Groening 2007). The origin of the garden is rooted in the human desire to be surrounded by plants, both useful food plants such as, trees for shade, fruits, vegetables, and spices for sustenance and pleasure, as well as plants that are esthetically pleasing based on appearance and fragrance. Thus we speak of pleasure gardens and kitchen gardens. In many cases it is often difficult to separate the purely functional from the esthetic. The first gardens in recorded history are found in ancient cultures of Egypt, Mesopotamia, and China but gardens have been greatly influenced in England, Greece, Japan and Persia (Thacker 1979). The two opposing traditions in gardens—formalism and naturalism—originated in Egypt and China, respectively.

Formalism The orderly, non-natural arrangement of plants represents an essentially artificial environment using plants as structural material. The formal garden represents the human dominance over nature. Formalism is achieved by orderly placements of plants, emphasis on symmetry, severe plant pruning and training. Formalism was developed in ancient Egypt where the natural vegetation was scarce, and the garden in a sense represents an artificial oasis. The dry climate demanded irrigation which in turn demands orderly arrangement of plantings. The Egyptian garden was enclosed, typified by water and shade, with pools, and orderly arranged plantings was copied everywhere (Fig. 36.2). Although altered by local variations in plants and climate, formalism spread to Persia, Syria, and India and ultimately to the Rome empire. It is still a major force in modern public gardens throughout the world.

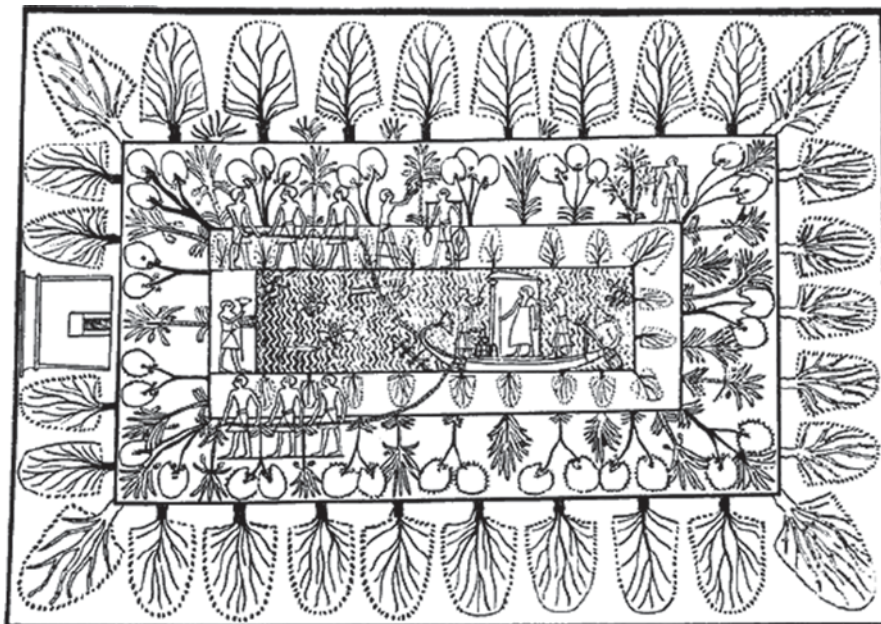


Fig. 36.2 Formalism in garden design as represented in an ancient garden plan for a wealthy Egyptian estate. (Source: Singer et al. 1954)

Naturalism Naturalism is an attempt to live with rather than dominate nature. The concept of naturalism is to emulate the natural world and to achieve the effect of being in a happy accident of nature. Unlike the formal tradition where the plants are pruned to geometric shapes, in naturalism, the free form is emphasized and exaggerated. Although the separation between gardens and landscapes in formalism is severe, in naturalism it is vague and indistinct. The landscape blends into the garden. If formalism is the straight line of geometry, naturalism is the free curve.

The concept of naturalism originated in China, and reached its highest development in Japan where there were beautiful natural landscapes to copy (Fig. 36.3). Naturalism also developed independently in the West, specifically in England where the natural landscape—verdant meadows and rolling hills—were emulated. However, the methods to achieve naturalism are as artificial as those of formalism. It involves severe training and pruning, and is combined with the wide use of many natural materials such as stones and wood. In the Eastern tradition, plants further assumed symbolic significance.

Combinations The fusion of Eastern naturalism and Western formalism took place in eighteenth century England where the influence of Asian cultures coincided with a movement away from formalism to take advantage of the English landscape. The marriage was not always successful. Some English gardens became interspersed with Chinese pagodas amid fake antique Gothic ruins. This influence of English gardens survives today in the use of curved walks, artificial wishing wells, and herbaceous borders.

Fig. 36.3 A naturalistic garden in Kyoto, Japan. (Photograph by Jules Janick)



The contemporary trend in gardens is to develop a meaningful design for living. Freed from the confines of “formalism” or “naturalism” modern gardens strive to reach esthetic expression through the capacity for both abstraction and utility. Plants and people, as in the past, make good companions. We have turned full circle with the concept of the garden and now consider it primarily as a vital need in our society and not merely as an esthetic mix.

Landscape Architecture

Landscape architecture in its broadest sense is concerned with the relationship between people, plants and the landscape and is involved with all aspects of land use. The profession deals with site development, building arrangement, grading, paving, plantings, gardens, playgrounds, and pools. It is concerned with the individual home and the entire community. Thus it deals with parks and parkways, shopping centers, and urban planning. Landscape architecture is ultimately concerned with the allocation of space and the interaction of people and the environment. If the landscape architect must be first an artist, he or she must also be a horticulturist and a civil engineer. Although landscape architecture was in the past intimately associated with architecture—two opposing sides of the same door—the two have become rather distinct professions. The objectives of the landscape architect have been to functionally and esthetically integrate people, buildings, and site.

During the Renaissance, the grand period of the West’s cultural revival, the concept of the garden was transformed from relative insignificance to a magnificent splendor befitting the age. The grounds design became the important concept, while the plant was treated rather impersonally as merely an architectural material. The plant was pruned, clipped, and trained to conform to the design plan. Even architecture became subservient to the landscape plan, the landscape engulfing and dominating the stately palaces or grand residences, especially those of royalty or high ranking dignitaries. The resultant “noble symmetry” included courtyards, terraces, statuary, staircases, cascades, and fountains. The emphasis was on long symmetrical

Fig. 36.4 Seventeenth century gardens at Versailles designed by André Le Nôtre

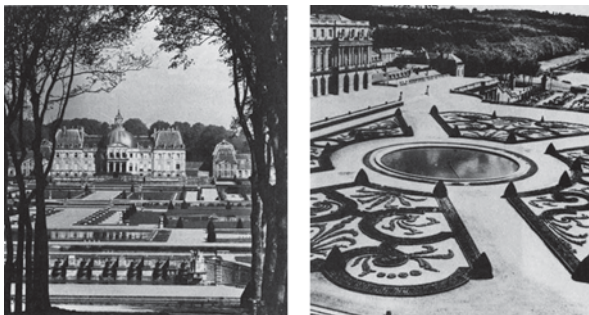


Fig. 36.5 Sidewinder, a landscape form of Patrick Dougherty consisting of red maple and black willow saplings constructed by students and faculty at Purdue University, 2011. (Photo courtesy Ann Hildner)



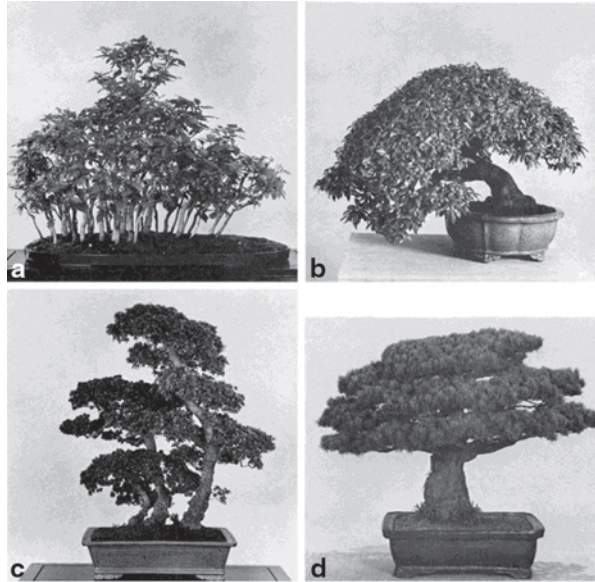
vistas and promenades. The small enclosed garden remained but only within the walls of the buildings, as a component part of the grand plan. Formalism reached its peak in seventeenth century France in the Age of Louis XIV (1635–1715). The master architectural gardens of André Le Nôtre (1613–1700) still remain unsurpassed examples of this concept of design predominating over nature (Fig. 36.4).

A modern trend in landscape architecture considers the landscape itself as an art form (Sovinsky 1995). This is achieved by various installations and constructions many of which use different plant forms. A splendid example is the installation of a creation consisting of red maple and black willow saplings at Purdue University by the artist Patrick Dougherty (b. 1945) in 2011 entitled *Sidewinder* (Fig. 36.5). Many of the willow saplings have rooted which has created a living sculptural form that can be entered permitting an intimate interaction between observer, plant, and form.

Floral Arts

The floral arts include the decorative use of flowers and plants in various arrangements usually but not always on a small scale, from individual flowers in a vase, corsages, container plantings, and large floral floats. Floral design bears about the same

Fig. 36.6 Bonsai or tray culture is an oriental art form achieved through pruning and controlled nutrition. (Photograph by Jules Janick)



relationship to landscape architecture, as a string quartet to a symphony orchestra. The principles are the same but the scale is reduced. The arranging of flowers and decorative parts of plants has long been used for home decoration. In Japan, flower arrangement (*ikebana*) has a continuing tradition that has been an integral part of cultural life for over thirteen centuries. Unlike the occidental concept, the Oriental tradition emphasizes the element of line over form and color. In the classical concept, line is symbolically partitioned into a representation of heaven (vertical), earth (horizontal), and humanity (diagonal and intermediate). The chief aim is to achieve a beautiful flowing line. To accomplish this, the most ordinary materials may be used. The concept of naturalism is expressed throughout. Symmetry is avoided.

The floral arts are still an important component of Japanese life. There are many different styles and schools: *ikenobo*, classical arrangements, *rikka*, large ornate upright reproduction of the landscape by means of flowers and plants, *nageire*, simple naturalistic arrangements, and *moribana*, expressive scenic arrangements with greater use of foliage and flowers. Other typical Oriental types of artistic expression involve growing plants. *Bonsai*, the culture of miniature potted trees, dwarfed by pruning and controlled nutrition, is a spectacular example of the horticultural arts. Living trees, some over a 100 years old and yet less than a meter in height are grown in containers arranged to resemble a portion of a miniature landscape (Fig. 36.6). *Bonseki* is the construction of a miniature landscape out of stone, sand and living vegetation.

In both the East and West, flowers are now an important part of cultural life. Flowers and potted plants are readily purchased in the market place, both in special shops and supermarkets, and are in common use as part of normal living. Flowers

Fig. 36.7 Topiary: **a** hedge sculpture in Portugal, photograph by Jules Janick; **b** aborisculptural forms made by grafting. (Source: Mudge et al. 2009, Fig. 9.2)



are emphasized in special occasions such as formal dining, decoration in religious holidays, appropriate remembrances (weddings, funerals birthdays, anniversaries, get well gifts) and as gifts for special remembrance (they are prominent at Valentine's Day and Mother's Day). Corsages were once important parts of proms and formal dances. In many parts of the world street floral displays are part of the culture.

The plant itself may become the basis for artistic construction. Certain woody shrubs can be trained and pruned in a great variety of shapes, limited only by the imagination of the horticulturist (Fig. 36.7). Plant sculpture, known as topiary, exploits the plasticity of the growing plant to create various shapes, including animals and architectural facades. In addition, many unnatural architectural forms can be achieved with the aid of grafting.

Fig. 36.8 Woman figures of the Paleolithic period showing evidence of textile technology



Horticulture in Art

Horticultural plants are a major component of artistic expression. There are numerous sources of plant iconography: cave paintings, ancient mosaics, sculpture, carvings and inlays, frescos, tapestries, illustrated manuscripts, herbals, books, and photography. Furthermore, works of art involving plants from prehistory and antiquity to the present constitute an alternate source of information on plants and crops (Janick 2007; Janick et al. 2011). Plant iconography becomes a valuable resource for investigations involving genetic and taxonomic information, as well as crop history including evolution under domestication, crop dispersal, and lost and new traits. Crop images are one of the unequivocal tools for assessing the historical presence of botanical taxa in a particular region and are an especially valuable resource for determining morphological changes of crops from antiquity to the present. Although a plethora of ancient plant images exists, they are widely scattered among libraries and museums, and are often difficult to locate and to access. Recently, the digitization of information by some of the major world libraries has greatly facilitated the search for ancient illustrations, although they still remain expensive to publish because of copyright issues.

Sculpture

Prehistoric stone sculptures of voluptuous women known as Venuses dating 25,000–30,000 years ago indicate a keen interest of early humans in fertility that still engender an emotional impact. A number of them show evidence of clothing made from local plant sources (Fig. 36.8) that indicate the development of weaving and textile technology.

The ancient Near East cultures, known as Mesopotamian civilization, are largely based on Semitic populations that existed between the Tigris and Euphrates Rivers that expanded to the area known as the Fertile Crescent, which includes parts of present day Israel, Jordan, Lebanon, Syria, Iraq, and Iran. A second Neolithic

Fig. 36.9 Uryuk Vase ca. 4th millennium BCE with wedding attendants offering fruit in a wedding ceremony between a priest king and the goddess Inanna. (Source: Janick et al. 2011)



Fig. 36.10 Date palm pollination depicted by Assyrian bas reliefs, 883–859 BCE. The pollinator assumes the form of a godlike figure (genie) and the date palm has been transformed into a symbolic tree. (Source: Paley 1976)



Revolution between 6000 and 3000 BCE (the Bronze Age) involved the change from villages to permanent urban centers and the development of a settled agriculture coinciding with the beginning of fruit culture. This is well documented in the decorations of a vase of the late 4th millennium BCE (Fig. 36.9), found in Uryuk (biblical Erekh), an ancient city on the Euphrates north of present-day Basra, Iraq, that is associated with Sumerian civilizations, where writing was invented. It portrays barley and sesame above a watery matrix, domesticated sheep, and attendants bearing baskets of fruit to a wedding between a priest king and the goddess Inanna (Istar). Evidence of agricultural technology includes the refinement of a plow with a seed drill from a cylinder seal and date palm pollination from a bar relief (Fig. 36.10).

Plants in sculptured form are found in Egyptian, Greek, Roman, pre-Columbian American, Indian, and European Renaissance art. In ancient Egypt, the papyrus and lotus were symbols of the upper and lower Nile region; and the reunification of

Fig. 36.11 Intertwining lotus symbolizing the reunification of upper and lower Egypt. (Source: Janick 2002)



Fig. 36.12 Sculpted acanthus leaves ca. 450 BCE from a column in the Delphi Museum. (Photograph by Jules Janick)



Fig. 36.13 Bar relief of snake melon (*Cucumis melo* var. *flexuosus*) from Merida Spain, fourth century CE. (Photograph by Jules Janick)





Fig. 36.14 Precolumbian ceramic jars from Peru **a** peanut, **b** potato, **c** squash, **d** cacao pod. (Source: Leonard 1973)

Fig. 36.15 Fruits of eggplant, pepper, tomato, and cucumber adorning the bronze doors of Pisa Cathedral at the Piazza dell Duomo. (Photo by Jules Janick)



Egypt in the third millennium BCE is shown in illustrations where these two plants are intertwined (Fig. 36.11) and these forms are also found in architectural columns. A greek column at Delphi about 400 BCE representation an acanthus leaf (Fig. 36.12). Roman bas relief of snake melon from Merida, Spain is identified by its leaves and striated fruit (Fig. 36.13). In pre-Columbian American ceramics celebrate the domestication of indigenous crops such as potato, peanut, and cacao (Fig. 36.14). The cathedral bronze doors in Pisa, Italy dated 1601, are rich in sculpted food crops that surround the panels of religious scenes and include eggplant, cucumber, and tomato (Fig. 36.15).



Fig. 36.16 Cucurbits in Roman mosaics: **a** Snake melon (*Cucumis melo* Flexuosus Group) from Tunisia second century, **b** immature and mature snake melon showing fruit splitting Tunisia third century, **c** round striped melon (*C. melo*) Tunisia fourth century, **d** bottle gourd (*Lagenaria scieraria*) showing characteristic swelling on the peduncular end, **e** youth holding bottle gourd in right hand and watermelon (*Citrullus lanatus*) in left hand Tegea Episkopi, Peloponnese. Late fourth to fifth century. (Source: Janick et al. 2007)



Fig. 36.17 Apple culture in mosaics, Saint-Roman-en-Gal, third century, Vienne, France; **a** detached scion grafting; **b** fruit harvest; **c** juice extraction. (Source: Janick 2007)

Mosaics and Inlays

The assemblage of images from small pieces of colored glass, stone, or gems referred to as mosaics, date to the third millennium BCE. Mosaics were popular in ancient Greece and Rome and survive in Christian and Islamic art up to the present time. Mosaics were prominent as decorations on floors, walls, and ceilings of private residences and public buildings, especially churches, mosques, palaces or mansions and constitute some of the glories of ancient, medieval, and Renaissance art in the West. Mosaic art spread throughout the Roman Empire and is particularly rich in areas that today are in Italy, Tunisia, Libya, Syria, and Turkey. Roman mosa-

Fig. 36.18 Floral motifs in the Taj Mahal, seventeenth century: **a** stone inlays (*pietra dura*) of chrysanthemum; **b** bas reliefs (*dado*) showing iris in the center and in descending order columbine, daffodil, columbine, windflower, tulip, windflower, poppy capsule, delphinium and daffodil. (Source: Janick et al. 2010)



ics included rich scenes of horticultural plants that included cucurbits such as the snake melon, bottle gourd, and watermelon (Fig. 36.16). A third century panel from St. Roman-en gal, in Vienne, France depicts fruit culture scenes and contains the first image of detached scion grafting (Fig. 36.17).

Mughal mosaics and motifs are found among the decorations of the Taj Mahal, constructed in Agra, India, by Shah Jahan (1592–1666) from 1632 to 1658 as a memorial to his wife known as Mumtaz Mahal (1592–1666) (Janick et al. 2010). Islamic decoration restricts graven images of humans but is rich in botanical subjects and includes floral inlays known as *pietra dura* and bas relief sculptures known as *dados*. The plant images are dominated by ornamental geophytes (bulb crops) common to the region (Fig. 36.18).

Paintings

Paintings from antiquity to the present have often used plants and crops as themes for their esthetic and/or symbolic value. Cave paintings are rich in animal forms but crude depictions of plants can be found (Fig. 36.19). The ancient technology of agriculture can be vividly reconstructed from the artistic record, paintings and sculpture in tombs and temples dating onward from 3000 BCE. Agricultural activities were favorite themes of artists, who illustrated lively scenes of daily life that adorn the tombs of the pharaohs and dignitaries. The artistic genius engendered by Egyptian civilization, the superb condition of many burial chambers, and the dry climate have made it possible to reconstruct a detailed history of agricultural technology. Ancient Egypt is shown to be the source of much of the agricultural technology of the Western World. Illustrations of these artifacts can be gleaned from four key references: Keimer (1924), Singer et al. (1954), Darby et al. (1977), and Manniche (1989).

Examples of the presence of plant images from ancient Egypt are shown in a brief sampling of the artistic record. This includes grape harvest and wine mak-

Fig. 36.19 Paleolithic images of plants, 17,000–30,000 years ago: **a** aurock with a primitive plant image; **b** more sophisticated imaged carved on a reindeer horn. (Source: Tyldesleay and Bahn 1983)

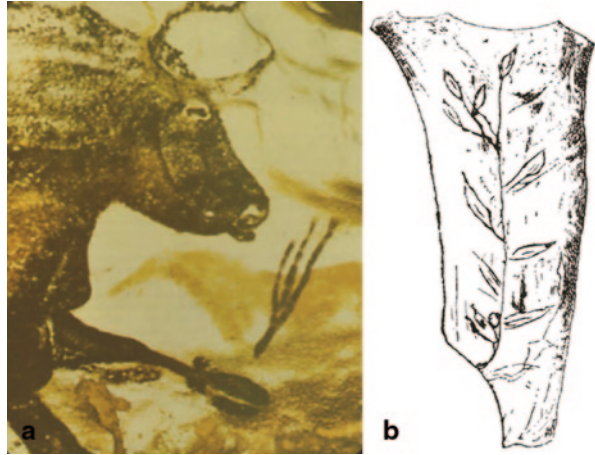


Fig. 36.20 Egyptian wine making: **a** grapes collected from a round arbor with grapes crushed by stomping before storage in amphorae; **b** Pressing grapes in a bag press; **c** bag press encased in a frame. (Source: Janick 2002a)

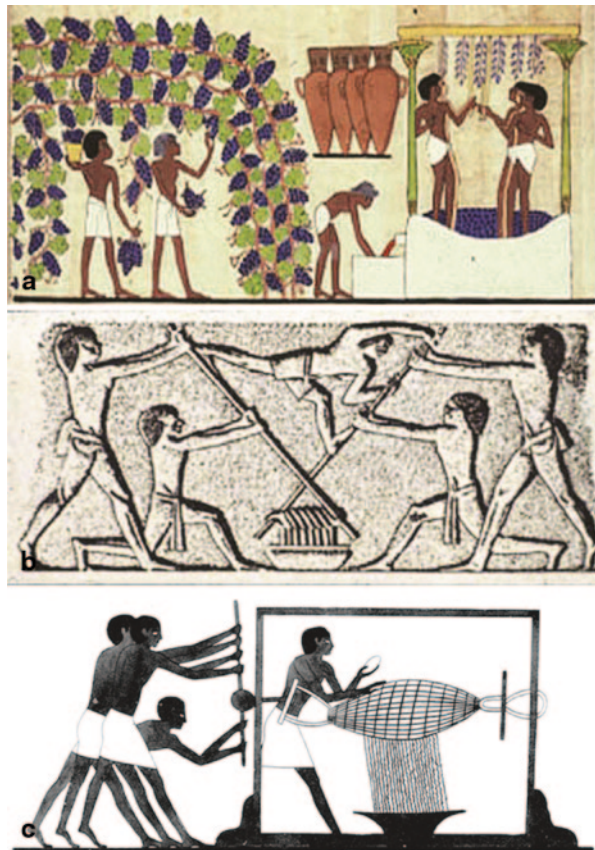


Fig. 36.21 Roman fruit paintings from Pompeii (first century): a figs; b peach. (Source: Jashemski 1979)

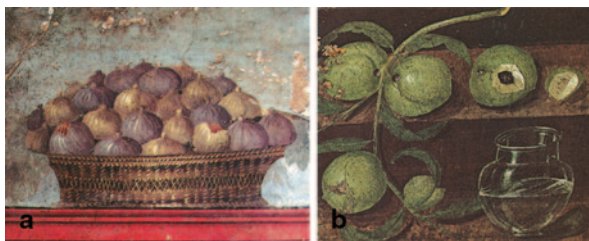
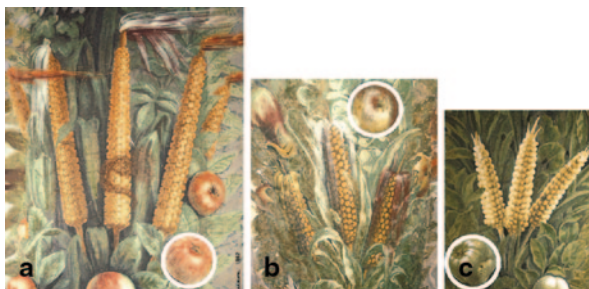


Fig. 36.22 The first images of maize in Europe in the Loggia of Psyche Villa Farnesina 1515–1518 painted by Giovanni da Udina. The encircled apples provide an estimate of size. (Source: Janick and Caneva 2005)



ing (Fig. 36.20) and a collection of cucurbits. The absence of images of cucumber (*Cucumis sativus*) supports the conclusion that the many reference to cucumbers in English translations of ancient texts should be understood as being snake melons, *Cucumis melo* L. subsp. *melo* Flexuosus group (Janick et al. 2007a).

Frescoes, paintings on freshly applied plaster on walls and ceilings, are well preserved since the pigments seep into the plaster. The frescoes of Pompeii and Herculaneum in Italy have been preserved as a result of the eruption of Vesuvius in the year 79 CE and are valuable resources for ancient depictions of plants. Examples include images of fig and peach from Pompeii (Fig. 36.21).

Paintings of plants increased during the Italian Renaissance. The Roman residence (now known as Villa Farnesina) of the wealthy Roman financier Agostino Chigi, decorated between 1515 and 1518, is a splendid source of crop images. The ceiling of the Loggia of Cupid and Psyche illustrate scenes from *Metamorphoses* (*The Golden Ass*) by Apuleius, a second century CE Roman author, painted in fresco by Raphael Sanzio (1483–1520) and his assistants, including Giovanni Martini da Udina (1470–1535) who was responsible for the festoons that are a fantastic source of crop images. The thousands of images of 163 species in 49 botanical families include some of the first illustrations of New World plants (Janick and Caneva 2005; Janick and Paris 2006a). Included are the first images of maize showing three distinct ear types (Fig. 36.22).

The early paintings of the baroque artist Michelangelo Merisi (1571–1610), also known as Caravaggio, are particularly rich in the inclusion of fruits and vegetables (Janick 2004a). Furthermore, the photorealistic style makes it possible to distinguish diseases and examples of insect predation (Fig. 36.23). This genre of Baroque paintings known as *natura morta* (still life) emphasizing fruits vegetables,

Fig. 36.23 Fruit basket by Michelangelo Merisi, known as Caravaggio, showing evidence of disease and insect injury including fig anthracnose, quince scab, codling moth on apple, oriental fruit moth damage on peach, leaf roller damage on pear, grape mummies, and grasshopper injury. (Source: Janick 2004)



Fig. 36.24 Two fruit renaissance fruit markets: **a** Produce seller (1567) by Pieter Aertsen; **b** Fruit seller, (1570) by Vincenzo Campi. (Source: Janick et al. 2011)



and flowers is a rich source of information (Zeven and Brandenburg 1986). Baroque painters found scenes of everyday life intriguing subjects to paint, and fruit and vegetable markets increasingly became a common subject. Two example of fruit market paintings are shown in Fig. 36.24. The Flemish painter Pieter Aertsen (1508–1575) entitled the *Produce Seller* (1567) is rich in *Brassica* crops including head cabbage (7 green and 1 red) as well as cauliflower and various cucurbits

Fig. 36.25 Sixteenth and Seventeenth century horticultural paintings: **a** Giuseppe Arcimboldo (1528–1593), **b** Giovanna Garzoni, (1600–1670), and **c** Bartolomeo Bimbi (1648–1723). (Sources: Ferino-Pagden 2007; Meloni et al. 2000; Consiglio Nazionale delle Ricerche 1982, respectively)



Fig. 36.26 Nineteenth and twentieth century horticultural paintings: **a** apples and pears by Paul Cezanne, **b** sunflowers by Vincent Van Gogh, **d** jack-in-the pulpit by Georgia O'Keeffe; **c** pitayas by Freda Kahlo



including bottle gourd, melon, pumpkin, and cucumber and also includes Belgium waffles! *The Fruit Seller* by Vincenzo Campi (1580) displays a plethora of fruits and vegetables in an Italian market—included in the upper right, a box of pears and young squash, *Cucurbita pepo* subsp. *pepo* Cocozelle group, with flowers attached, still a common commodity in Mediterranean countries (Janick and Paris 2005; Paris and Janick 2005). Other noteworthy painters of horticultural crop images include Guiseppi Arcimboldo (1521–1593), Giovanna Garzoni (1600–1679) and Bartolomeo Bimbi (1648–1723) (Fig. 36.25). Note that Bimbi includes a key to

Fig. 36.27 Fruit of loquat (*Eriobotrya japonica*), and a mountain bird by an anonymous Chinese artist (1127–1279)



Fig. 36.28 Botanical illustrations: **a** wide strawberry by Jacques Le Moyne (1533–1588); **b** lily by George Dionysus Ehret (1710–1770); and **c** Canterbury bells by Pierre-Joseph Redoute (1759–1840)

the cultivar names. The inclusion of fruits and vegetables continues to be a popular subject in the nineteenth century and twentieth century evidenced by the horticultural paintings of Paul Cezanne (1839–1906), Vincent Van Gogh (1853–1890), Georgia O’Keeffe (1887–1986), and Freda Kahlo (1907–1954) (Fig. 36.26).

The illustrations of botanical and horticultural plants become a specialized art form in its own right. Plants and flowers are also found in early Oriental art (Fig. 36.27). Masters of the genre include Jacques Le Moyne de Morgues (1533–1588), Georg Dionysus Ehret (1708–1770), and Pierre Joseph Redouté (1759–1840) (Fig. 36.28). Plant forms also became a favorite subject of photography (Fig. 36.29). Finally

Fig. 36.29 Photograph of cabbage ('Larry's perfection') by Charles Jones (1866–1959). (Source: Sexton and Johnson 1998)



Fig. 36.30 Embroidery of capsicum pepper, Peru, 400–500. (Source: Andrews 1995)



plants themselves have become art material. In Korea dried flowers have been used to create special pictures including plants, landscapes, and animal forms.

Embroidery and Tapestries

The elaboration of textiles into decorated patterns is an ancient technique in various cultures and horticultural plants are a common motif. In Peru, during the early Nazca period (400–600 CE) an embroidery shows a man holding two capsicum peppers with two fruits on a cord around his neck (Fig. 36.30). Tapestry, a form of woven textile, became an extremely popular art form in the Middle Ages and

Fig. 36.31 The unicorn in captivity, one of the most famous medieval tapestries is resplendent with plants. (Source: Metropolitan Museum of Art, New York)



Fig. 36.32 Repeated floral motifs in a seventeenth century Persian carpet. (Source: Michell 2007, p. 26)



Renaissance and was carried out extensively in the seventeenth century in Flanders, one of the regions and communities of Belgium. The Hunt of the Unicorns, a seven piece tapestry from 1495 to 1505 is especially rich in horticultural imagery (Fig. 36.31). Garden themes are common motifs in carpet weaving, an essential part of Persian art and culture (Fig. 36.32)



Fig. 36.33 Horticultural illustrations of the *Juliana Anicia Codex* 512; **a** cowpea, **b** nonheading cabbage, **c** turnip, **d** English ivy. (Source: Janick and Hummer 2012)

Illustrated Manuscripts

The *Juliana Anicia Codex* (*JAC*) or *Codex Vindobonensis*, 512 CE, a magnificent, illustrated manuscript from late antiquity found in Constantinople is based on the famous non-illustrated herbal Περὶ ὕλης ἰατρικῆς (Latinized as *De Materia Medica*, *On Medical Matters*) originally written about 65 CE by the Roman army physician Pedanios Dioscorides (20–70) born in Anazarbus, Cilicia in what is now southeastern Turkey. The *JAC*, made as a presentation volume for the daughter of the Roman emperor Anicius Olybrius, contains descriptions, medical uses, and illustrations of 383 plants listed alphabetically and can now be accessed through a two-volume facsimile edition, *Der Wiener Dioskurides* (1998, 1999). Four examples of horticultural images from the *JAC* are included in Fig. 36.33.

A late medieval example of crop illustrations can be found in a series of lavish versions of an eleventh century manuscripts known as the *Tacuinum Sanitatis* (*Tables of Health*) which probably were prepared as royal gifts in Europe. There are six major works (one is divided) in libraries in Liège, Vienna, Rome, Paris, and Rouen, which were commissioned by northern Italian nobility during the last decade of the fourteenth century and the course of the fifteenth century (Paris et al. 2009; Daunay et al. 2009; Janick et al. 2009). The text is based on an eleventh-century Arabic manuscript, *Taqwim al-Sihha bi al-Ashab al-Sitta* (*Rectifying Health by Six Causes*), written as a guide for healthy living by the Christian Arab physician known as Ibn Butlan (d. 1063). Vivid agricultural imagery includes scenes of the harvest of vegetables, fruits, flowers, grains, and culinary and medicinal herbs, accompanied by a brief summary of the health aspects of each subject. Each of the manuscripts are drawn by different artists but are obviously related. The *Vienna codex Ser. N. 2644* contains the most accurate depictions, which include 9 cereals, 26 vegetables, 33 fruits, 3 flowers, and 21 culinary and medicinal herbs. The illustrations show crops at the optimal state of maturity and, moreover, are a rich source of information on life in the feudal society, with nobles engaged in play and romance while laborers worked on the estate. Illustrations of eggplant and watermelon from the *Tacuinum Sanitatis* are presented in Fig. 36.34.



Fig. 36.34 Eggplants and watermelon in the *Tacuinum Sanitatis*, Vienna 2644, an illustrated version of a Latin of an eleventh century Arabic manuscript by Ibn Butlan (d. 1603). (Source: Paris et al. 2009)

Many illustrated medieval and renaissance books are filled with horticultural illustrations. A French Royal prayer book known as *Les Grandes Heures d'Anne de Bretagne* (*Manuscript Latin 9474*) contains prayers with illustrated margins, and full page monthly calendars and paintings of religious themes (Paris et al. 2006). This stunningly illustrated manuscript was prepared for the personal use of Anne de Bretagne (1477–1514), twice Queen of France as wife of Charles VIII (1470–1498) and Louis XII (1462–1515), by the famous artist Jean Bourdichon (1457–1521), probably painted between 1503 and 1508, about a decade from the return of explorer Christopher Columbus (1451–1506) of Spain. There are miniature paintings of plants and small animals, mostly insects, on each page that can be searched on www.hort.purdue.edu/newcrop/bilimoff/default.html. Well over 300 plant species are included in this prayerbook. This work contains the first European illustration of a non-esculent gourd of *Cucurbita pepo* subsp. *texana* (Fig. 36.35). The seed source for this gourd cannot be determined but could have been obtained from various sources. Seeds from the voyages of Columbus were transmitted in 1494 by Peter Martyr D'Angheria, Tutor to the Spanish royal household, to Cardinal Asconio Sforza secretary of state to the Vatican and seed could have reached France this way. Other possibilities include the voyages of Europeans including Amerigo Vespucci (1454–1512) who entered the Gulf of Mexico as early as 1498, or from various Bretons or Norman who reached the Americas by 1503, returning with parrots and Brasilwood.

Fig. 36.35 Cucurbits of *Les Grandes Herues d'Anne de Bretagne* (1505–1538) by Juan Bourdichon: **a** gourd (*Cucurbita pepo*), **b** bottle gourd (*Lagenaria siceraria*), and **c** cucumber (*Cucumis sativa*). (Source: Paris et al. 2006)



Printed Herbal Woodblocks

Herbals, botanical works emphasizing the medical uses of plants, are one of the most important sources of plant iconography (Eisendrath 1961). A splendid introduction to the field can be found in Agnes Arber's 1938 book on herbals. Facsimile editions exist for a number of printed herbals, including the 1542 herbal of Leonhard Fuchs (Meyer et al. 1999), the 1597 *Herball* of John Gerard(e) (John Norton, London) and the 1633 edition amended by Johnson (Dover Publ.). The illustrations of Renaissance herbals are derived mostly from woodcuts and sometimes from original painted drawings. However many herbals copy parts of text and woodcuts from previous herbals or are based on an exchange of woodblocks by printers, thus they often contain errors in identification. Woodcuts of sweet potato (*Ipomoea batatas*) and potato (*Solanum tuberosum*), the first printed illustration of potato in Europe, from the famous English *Herball* of John Gerard(e) (1597) are presented in Fig. 36.36. Gerard is responsible for the confusion between potato, *Solanum tuberosum* (Indian

Fig. 36.36 Woodcuts from the 1597 herball of John Gerard(e): **a** sweet potato (*Ipomoea batatas*); **b** potato (*Solanum tuberosum*)



Fig. 36.37 A bouquet of peony, poppy, foxglove pansy and French marigold by Jean-Louis Prévost (1760–1810). Florilegias and botanical illustrations were used as a source of motifs for designers of china and textiles. (Source: Saunders 1995)



name *papas*) and sweet potato, *Ipomea batatas* (Indian name *batatas*), because he labeled his printed illustration of potato, the first one to be published in Europe, *Batata Virginiana sive Virginianorum & Pappus, Potatoes of Virginia*; Virginia being the area where the tubers he grew in his garden came from.

A study of the iconography of the Solanaceae (Daunay et al. 2008) shows the richness of information found in herbals. In the seventeenth and eighteenth centuries, botanical art became a sensation and many Royal collections of plant images called florilegias were made for their sheer beauty and for conveying the knowledge of exotic plants brought back by travelers around the world (Fig. 36.37). They became the source of floral art for commercial uses such as fabrics and wallpaper.

Conclusions

It is clear that horticulture and art are intimately entwined. Horticultural plants, flowers, and fruits are considered beautiful objects in themselves and it natural that they become motifs for artistic expression to adorn the body, the table, the home, and as principle objects in the canvas of the landscape. Horticultural plants have also become subjects in traditional art forms such as paintings and sculptures but also tapestries, weavings, mosaics, and photographs. The study of the images of plants (plant iconography) involves both art and history. Furthermore, plant iconography is an outstanding resource for research on crop evolution and genetic diversity. This is especially true in prehistory where images are older than writing. Plant iconography provides a valuable resource for investigations involving genetic and taxonomic information, as well as crop history.

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