

Identification of Plants in the 1584 Murals of the Casa del Deán, Puebla, México

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Abstract

The murals in the Casa del Deán in Puebla, Mexico completed in 1584 by anonymous indigenous artists contain many plant illustrations in friezes including plants indigenous to Mexico as well as European plants. Five species native to New Spain (*Iris fulva*, *Mentzelia hispida*, *Prunus mexicana*, *Prunus serotina* subsp. *capuli*, and *Symphoria globulifera*) and three species introduced from Europe (*Punica granatum*, *Rosa damascena* ‘Semperflorens’, and *Vitis vinifera*) were identified. A number of fantasy or nebulous plants are recognized.

Keywords: art history, *Iris fulva*, *Mentzelia hispida*, *Prunus mexicana*, *Prunus serotina*, *Punica granatum*, *Rosa damascena*, *Symphoria globulifera*, *Vitis vinifera*

Introduction

The Casa del Deán was built in 1570-1580 as the residence of Don Tomás de la Plaza, the dean of the cathedral in Puebla, México from 1583-1589. It contains murals dated to 1584 that were only recently uncovered from whitewash and wallpaper in the mid-1930s and 1953, and restored in 2010. Two scholarly works have recently been published on this remarkable work: *Profecía y Triunfo: la Casa del Deán Tomás de la Plaza: Facetas Plurivalentes*, which contains nine scholarly papers edited by Helga von Kügelgen (2013), and *The Casa del Deán: New World Imagery in a Sixteenth Century Mexican Mural Cycle* by Penny C. Morrill (2014), which is beautifully illustrated and notable for high quality of both historical and art scholarship.

The Casa del Deán was designed by architect Francisco B Herrera and features a Renaissance-style façade with a coat of arms above a wrought-iron balcony. Inside, a grand stone staircase leads to two surviving rooms today decorated with murals created by unknown indigenous artists called *tlacuiloque*. The first room called *La Sala de las Sibilas* (Salon of the Sibyls) contains a wrap-around mural of a parade of sibyls, female prophets of Greek mythology, who narrate the passion of Christ but mixes European symbols and aesthetics with indigenous ones, including regional mammals, birds, insects, flowers, and fruits that adorn the friezes. The second room, called *La Sala de los Triunfos* (Salon of the Triumphs) narrates “The Triumphs”, a poem written by the Italian humanist Petrarch in 1352 and banned by the Church in 1575. It depicts the nature of human life in matters of love, charity, time, death,

and divinity. Above and below the two processions, a number of friezes contain images of putti, fauns, monkeys, snakes, female heads, cornucopia, and floral motifs consisting of both European plants and indigenous ones from MesoAmerica.

In this paper we identify the various plants in the Casa del Deán murals and attempt to identify the sources. For the indigenous plants, we compare images in the Casa del Deán murals with contemporary images, such as Book 11 of the *General History of the Things of New Spain* organized by Fray Bernardino de Sahagún (known as the Florentine Codex and translated by A. J. Anderson and D. E. Dibble in 1963), and the Codex Cruz-Badianus of 1552 (Emmart, 1940; Clayton *et al.*, 2009), as well as modern photographs or botanical herbarium images.

Guidelines for the Identifications of Phytomorphs

The identification of plant illustrations (phytomorphs), is fraught with difficulties, but the *modus operandi* has many similarities to those used in modern forensic botany (Coyle, 2005; Hall and Byrd, 2012; Bock, 2013; Bock and Norris, 2016), and future botanists will undoubtedly provide additions and corrections to these guidelines. The appropriate guidelines are summarized below.

1: For any identification of a plant, the strength of evidence depends on the qualifications of the identifier(s). Obviously, a professional plant taxonomist with documented years of experience and association with a recognized herbarium carries a high degree of confidence, as opposed to an organic chemist, anthropologist, computer scientist, art historian, or linguist, for

example. Furthermore, experience of the identifier with the plants in the geographical area or related taxa lends further support to the identification (Coyle, 2005; Hall and Byrd, 2012; Bock, 2013; Bock and Norris, 2016).

2: Identification of plants, just as with forensic identification of faces or fingerprints, requires pattern recognition. For botanical subjects, this requires recognition of the appropriate plant family, then to genus, and eventually species. Amateurs of botanical identification often reverse this process and try to identify the species first and ignore the patterns of the plant family, usually leading to false identifications (Elpel, 1996).

3: Any attempt at identification must use currently accepted scientific names and the appropriate vocabulary of terms pertinent to plant taxonomy (Harrington and Durrell, 1957; Jackson, 1971). For example, the linear terminal stipule lobe and the uniform pale blue color of flowers of the phytomorph in fol. 9v of the Voynich Codex were keys to the identification of this as *Viola bicolor* of North America, not *V. tricolor* of Eurasia, which has a spatulate terminal stipule lobe and flowers that are tricolored yellow, purple, and white (Tucker and Talbert, 2013; Tucker and Janick, 2016). Identification of *Citrus aurantium* (sour orange) in the Hunt of the Unicorn tapestry, now in the Cloisters of the Metropolitan Museum of Art in Manhattan, was based on the prominent winged petioles and fruit morphology (Janick and Whipkey, 2014).

4: Details of habitat or ecological association may provide evidence to support an identification of a phytomorph. Swollen organs can indicate geophytes native to desert habitats, such as the number of caudiciforms in the Voynich Codex (Tucker and Janick, 2016). The association of limestone rocks on the coast was intersecting evidence for the identification of the rose and sage in the “Blue Bird Fresco” at Knossos (Tucker, 2004).

5: Associated names often provide supporting evidence for the identification of a phytomorph. For example, the Nahuatl name *huihuitz mallotic*, or “full of needles”, for fol. 30v and 34r of the Codex Cruz-Badianus fits the abundant hispid trichomes of *Mentzelia hispida* (see below). As another example, the names *nāshitli* for the *Opuntia* sp. of fol. 100r in the Voynich Codex and *māguoey* for the *Agave* sp. in fol. 100r of the Voynich Codex provide intersecting evidence for the identification of these phytomorphs and a key to the decipherment of the language (Tucker and Talbert, 2013).

6: Because of inherent biological variability of plants and differing talents of the artist(s), no identification of a phytomorph can be considered absolute. Rather, degrees of accuracy must be stated, from high to low (Bye and Linares, 2007; Clayton *et al.*, 2009). Confidence is based upon high percentages of match with a list of features that agree or do not agree with the identification.

7: All previous attempts at identification from books and refereed publications must be presented and discussed as to accuracy. Similar representations of phytomorphs in other original sources should be cited to bolster the identification, along with any ethnobotanical uses or mythology.

8: Identifications of phytomorphs in a transcultural society such as 16th century Nueva España must consider artistic methods of representation pre- and post-Conquest (Bye and Linares, 2007; Clayton *et al.*, 2009).

9: Pigments vary in stability, even mineral pigments in European paintings, and the transient nature of vegetable-derived pigments in MesoAmerican paintings means that the colors seen today may not be the same colors as originally applied

(Anderson, 1963; Reyes Equiguas, 2011; Kerpel, 2014).

10: The purpose and background of the portrayal must be considered. Does this have any mythology associated with it? Are certain diagnostic characteristics emphasized for identification? The portrayal of roses and sage in the Blue Bird Fresco at Knossos may have an allusion to their medicinal values when used together in ancient Greece (Tucker, 2004).

11: Any identifications from restored materials should be not be considered as absolute because of past practices with little or no records of the degree of restoration. In the past, some restorations had more in common with forgery, employing identical or similar techniques, along with pigments and pigments binders by restorers with questionable ability, sometimes even distressing the restoration to agree with the rest of the work. An example is the “Blue Bird Fresco” at Knossos (Tucker, 2004). The one remaining original flower is a tawny pink five-petaled rose, slightly tilted in profile. This fresco was restored with bright pink, full-faced, six-petaled roses, undoubtedly due to the lack of botanical expertise by the restorers. Without the one remaining original rose, we would assume that Minoan artists had no appreciation of plants.

The same principles are pertinent to zoomorphs, or representations of animals, and geomorphs, or representations of minerals.

Plant Identification

Native Flora of New Spain

***Iris fulva* Ker. Gawl. Iridaceae (*yopixochitl/iopisuchitl*), copper iris**

The phytomorph portrayed on the bottom friezes of the Sibyls South mural (Figs. 1A, B, C) is variously colored white, red, or white tipped with red. Petals are five, reflexed. The center is raised with what appears as three to four stamens. The subtending calyx is campanulate with acute lobes. Leaves are alternate, sessile, lanceolate, acute.

This is comparable to that of *yopixochitl/iopisuchitl* (Fig. 2D) of pl. 708, Book 11 of the Florentine Codex (Sahagún, 1963), in agreement with Kügelgen (2013). In Sahagún (1963:209), this plant is described as: “[The blossom] is white, striped with colors, extending. It has stamens, it has a pistil; it is like a spindle whorl. Its stalk is like that of the *itztolin*, a small spindle whorl. It grows in the water, as has been said”. The phytomorph portrayed and described in the Florentine Codex has five petals, reflexed, on a solitary salverform corolla. Stamens are exerted, three; the pistil resembles a spindle whorl, *i.e.*, doughnut-shaped. The corolla is tubular with subtending campanulate calyx that has acute lobes. Leaves are somewhat equitant, alternate, sessile, ensiform, acute. This is portrayed and described as an emergent aquatic.

Identification of this phytomorph is rendered difficult because of its stylized nature, *i.e.*, botanical characters have been modified in preference to aesthetics. The foliage and habitat are characteristics of the Iridaceae, and while three stamens would be characteristic (rather than four in the murals of the Casa del Deán), six tepals (three standards and three falls) would also be expected; one good fit might be the genus *Iris* Series *Hexagonae*. The best identification that fits most of the characters in this decorative painting might be *Irus fulva* Ker. Gawl., copper iris (Fig. 2E). This species is primarily native from Illinois to the Mississippi Delta, the edge of the ancient Aztec world. Certainly the reddish flowers with six tepals; equitant, ensiform

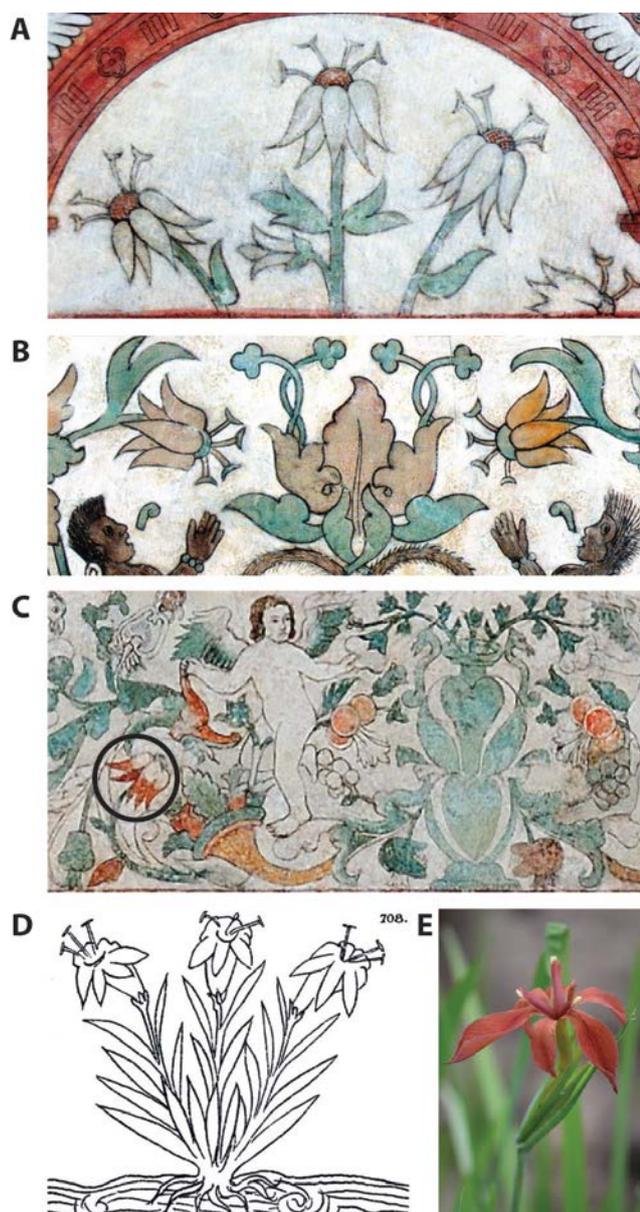


Fig. 1. *Iris fulva*: (A, B, C) lower frieze of Salon of the Sibyls south wall (Morrill, 2014:102, 11, 9); (D) *yopixochitl* / *iopisuchitl*, of Plate 708 of the Florentine Codex (Sahagún, 1963); (E) contemporary photograph, copper iris, <http://www.prairiemoon.com/images/D/iris-fulva-copper-iris.jpg>

leaves; and aquatic habitat match well. This also occurs in a number of colors, most commonly from dark red to almost pink and rarely yellow. Hybridization with the outer Louisiana irises (Series *Hexagonae*, including *I. hexagona* Walter, *I. brevicaulis* Raf., *I. giganteaerulea* Small, and *I. nelsonii* Randolph) produces a hybrid complex with a full range of colors that include blue.

***Mentzelia hispida* Willd., Loasaceae (acuilloxochitl / acuillosuchitl / acujlosuchitl), blazing star**

The phytomorph portrayed in profile on the bottom frieze of the Salon of the Sibyls west mural shows six flowers with three whitish petals visible in profile, two to four exerted

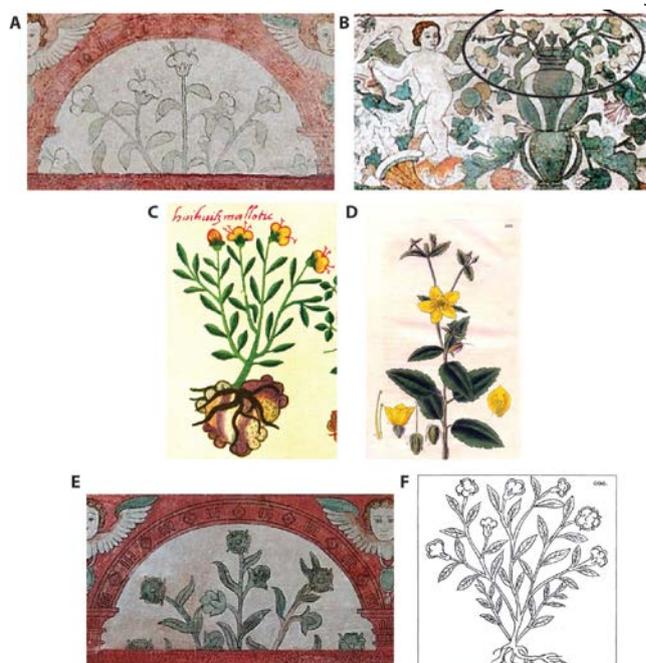


Fig. 2. *Mentzelia hispida*: (A) bottom frieze in Salon of the Sibyls west wall (Morrill, 2014:96); (B) bottom frieze Salon of the Sibyls north mural (Morrill, 2014:119); (C) *huihuitz mallotic*, of fol. 30v, 34r of the Codex Cruz-Badianus (Emmart, 1940); (D) Hooker (1832); (E) bottom frieze of the Salon of the Sibyls north mural (P. Morrill, private communication, 2015); (F) *acuilloxochitl*, plate 696 of the Florentine Codex (Sahagún, 1963)

stamens, and subtending campanulate calyces (Fig. 2A). Leaves are alternate, sessile, linear, acute. Two curving stems of the same plant (circled) with the same characteristics (Fig. 2B) are shown in a complex urn from a frieze in the north wall. The flowers and leaves of these two phytomorphs are extremely close to *huihuitz mallotic* (full of needles) (Fig. 2C) of fol. 34r of the Codex Cruz-Badianus (Clayton *et al.*, 2009; Emmart, 1940: plate 59). The Cruz-Badianus image shows flowers with a yellow corolla, two to four prominent exerted stamens, subtending calyx and leaves are petiolate to sessile, linear, acute. The yellow petals show a red edge, suggesting that the flowers are picotee (edges of a different color).

This phytomorph in the Codex Cruz-Badianus has been previously identified as *Mentzelia hispida* Willd., Loasaceae (Reko, 1947; Díaz, 1976; Linares and Bye, 2013), known as blazing star or *pega-ropa*. An engraving of *Mentzelia hispida* (Fig. 1D) by Hooker (1832) is similar to these phytomorphs. In nature, flowers of *Mentzelia hispida* rarely show distinct picotees, but often the petals are turned on the edge (especially with maturity), giving the impression of a different color with the reflectance of light. This species is coated with balsamic-scented hispid trichomes that are capable of embedding and fastening to the skin of bats, with their ultimate demise (Rojas-Martínez *et al.*, 2010).

Another phytomorph on the bottom frieze of the Sibyls north mural drawn under an arch (Fig. 2E), shows flowers in full face with four picotee petals, a prominent center and, four protruding sepals, and leaves that are alternate, sessile, linear,



Fig. 3. *Prunus mexicana*, fruit of Mexican plum, from Salon of the Sibyls mural: (A) bottom frieze, south wall; (B) bottom frieze, west wall (Morrill, 2014:9, 96)

acute. Stamens, however, are not indicated. One flower bud in profile, is similar to the one of Fig. 2A. Morrill (2014:102) notes that many of the flowers of the murals derive from the Florentine Codex of Sahagún (1963) and indeed, Fig. 2E resembles the *acujillosuchitl* (Fig. 2F) on plate 696 on Book 11 (Earthly Things) of the Florentine Codex. This identification is in agreement with Kügelgen (2013:438). However, while the Sahagún image has a suggestion of picotee flowers, the petal number of Fig. 1 is only 4 and no stamens are indicated. *Mentzelia hispida* typically has five petals (Fig. 1E). Perhaps another species of *Mentzelia* is involved or the artist took decorative liberties. In the Florentine Codex (Sahagún, 1963:206-207), *acuilozochitl* is described as follows: “The name of the stalk and of the blossom is *acuilloxochitl*. The stalks are long and thin, straight, slender, embracing. It is one which embraces. Its foliage is slender. It has a mother, becomes a mother, can be a mother. The name of its blossom is *acuilloxochitl* [or] *cuilloxochitl*. It is interspersed white and yellow. It has only a single blossom. It is of strong aroma; its aroma, its perfume, is very powerful. It is like the *tlacopatli* [*Aristolochia* sp. (Farfán and Elferink, 2010) or *A. anguicida* Jacq. (*A. mexicana* Willd.) (Díaz, 1976; Ocaranza, 2011) or *A. subclausa* S. Watson (Díaz, 1976)]. It tears one’s nose, penetrates one’s nose. It has a pistil; it has a pistil like the *izquixochitl* [*Borreria huanita* (Lex.) Hemsl. (Díaz, 1976; Alcántara Rojas, 2008) or *B. litoralis* D. A. Sm.]. It has an aroma, a perfume, a pleasing odor. Its scent is dense; it insinuates itself; it embraces; it continues embracing, encircling; it continually spreads in circles. [Its blossoms] spread bursting, blossoming. It stands spreading an aroma, raining [blossoms]. The branches] each lie bent”. In conclusion, the three phytomorphs illustrated in Fig. 1A, B, F from the Casa del Deán mural are identified as species of *Mentzelia*, and A and B are clearly *Mentzelia hispida*.

Prunus mexicana S. Watson, Rosaceae, Mexican plum

The phytomorph on the bottom frieze of the Sibyls south and west murals (Fig. 3A, B) has bluish to reddish fruits on a petiole. Leaves are lanceolate to ovate, serrate to heavily crenate,



Fig. 4. *Prunus serotina*, fruit of Capulin cherry, in the lower frieze, Salon of the Sibyls west wall (Morrill, 2014:96)

acute. This matches very well with the Mexican plum (*Prunus mexicana*), which, along with the capulin cherry was served at Aztec banquets (Standley, 1920-1926; Dunmire, 2004). Curiously, the bird feeding on the Mexican plum resembles the crested caracara, *Caracara cheriway* (Jacquin, 1784), from the reddish crested head, hooked beak, long white neck, and arrangement of the remaining blackish feathers (Peterson and Chalif, 1973). Sometimes considered conspecific with the crested caracara. *Caracara plancus* (J. F. Miller, 1777), this large, long-legged dark bird of prey is a carnivore, not an herbivore. However, this bird was held in high esteem and was the inspiration for the “sacred eagle” depicted in many pre-Columbian Mexican codices (González Block, 2004).

Prunus serotina Ehrh. subsp. *capuli* (Cav. ex Spreng.) McVaugh, Rosaceae, Capulin cherry

The phytomorph on the bottom frieze of Sibyls West (Fig. 4) has aggregated fruits with a nearby deeply lobed leaf. This matches reasonably well with the capulin cherry [*Prunus serotina* Ehrh. subsp. *capuli* (Cav. Ex Spreng.) McVaugh] (Standley, 1920-1926).

The capulin cherry is also illustrated and/or named: *capollaxipehualli* (barkless cherry tree) in fol. 43v of the Codex Cruz-Badianus (Reko, 1947; Clayton *et al.*, 2009), *capulxihuitl/capulin/capoli/capolin* (capulin plant, cherry tree) in fol. 31r of the Codex Cruz-Badianus (Emmart, 1940: pl. 53; Clayton *et al.*, 2009), pl. 425/p. 121 of the Florentine Codex (Sahagún, 1963), p. 95 of Hernández *et al.* (1651) and p. 902 Hernández (1942-1946) (Ortiz de Montellano, 1990;

Ocaranza, 2011), *elocapolin* (tender-ear-of-maize cherry) in fol. 47v of the Codex Cruz-Badianus (Reko, 1947; Díaz, 1976; Clayton *et al.*, 2009; Linares and Bye, 2013).

Symphonia globulifera L. f., Clusiaceae, boarwood

An unknown phytomorph is shown on the bottom frieze of Sibyls north mural (Fig. 5A). It has apparently trifurcated pistillate parts and globular petals colored red and blue. Three palmate leaflets with acute tips are present, along with buds that have deeply cut prominent calyces, edges crenate. This is repeated on the bottom frieze Sibyls south (Fig. 5B). The petals are red, picotee with white edging. This is stylized in execution, but the botanical characters match the Clusiaceae, most probably boarwood, *Symphonia globulifera* (Fig. 5C). This is native to Africa, Mexico, and South America. This is not *Quararibea funebris* (La Llave) Vischer, contrary to Gruzinski (2002) and Kügelgen (2013) because the botanical characters cited above do not match those of the Malvaceae.

European Flora

The many examples of European flora at the Casa del Deán indicate that the artist relied on existing European woodcuts, engravings, and publications. This source of imagery is similar to the frieze drawings to the mural in Cholulú, which also shows floral motifs (Morrill, 2014:133-134).

Punica granatum L., Lythraceae, pomegranate

The phytomorph portrayed on the upper frieze of the Sibyls north (Fig. 6) is a fruit, shown both in the immature state (lower left,) and fully ripened and bursting (bottom right), is undoubtedly the pomegranate, *Punica granatum*, Lythraceae, called *granado* in Spanish (Standley, 1920-1926; Holland *et al.*, 2009). This was introduced as early as the 1530s into Mexico from Spain (Dunmire, 2004). Pomegranates are also illustrated in the garden murals of Malinalco (Peterson, 1993).

The pomegranate has been cultivated in the Holy Land for 5,000 years, often for medicinal purposes, and there are many references to in the Old Testament (Goor and Nurock, 1968; Janick, 2007). Keister (2004) wrote: "The pomegranate was particularly revered in Judea, where it was permitted to decorate the Ark of the Covenant. Also known as the "holy apple", a representative of God's commandments, the pomegranate was depicted on priests' clothing". Baumann (1993) wrote: "The fruit of the pomegranate (*Punica granatum*), having its husk filled with numerous fleshy seeds, became a symbol of fertility and life for the early Greeks, and was venerated in the cult of Hera, mother of gods, protectress of marriage and childbirth... The significance of the pomegranate as a symbol of fecundity is confirmed by the legend of the abduction of Persephone, who was associated with fertility... It had the same repute among the Jews and other peoples of the Near and Middle East".

Thus, while explicitly not mentioned in the New Testament, the pomegranate in European symbolism has long been considered a symbol of fertility, while burst open, the "crowned apple", reveals its many seeds to represents hope and rebirth" (Heilmeyer, 2001). Lehner and Lehner (1962) wrote: "At Oriental weddings, seeds of the pomegranate were offered to the guests and, when the newly-weds entered their bedchamber, pomegranates were thrown to the floor and the bursting fruits strewed their seeds all over the room, signifying that the marriage should be happy and blessed with many

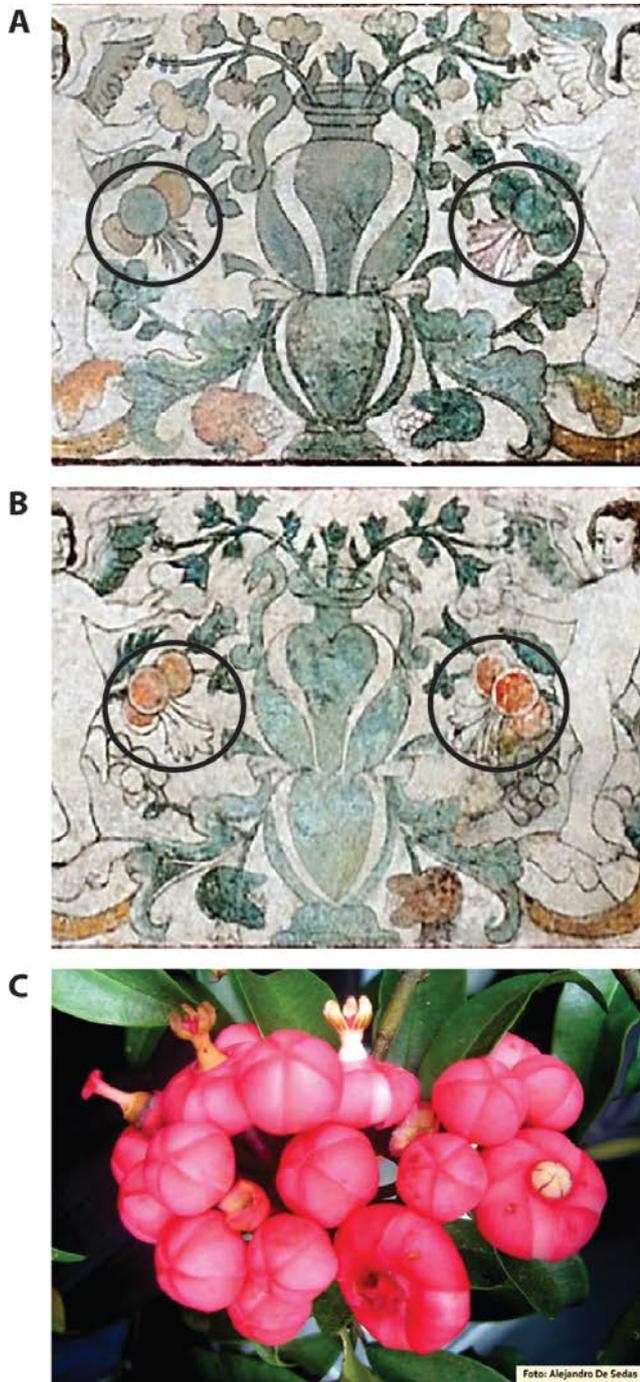


Fig. 5. *Symphonia globulifera* (boarwood): (A) lower frieze from the Salon of Sibyls mural, north wall (Morrill, 2014:119); (B) lower frieze, south wall (Morrill, 2014:101); (C) contemporary photograph

6 children. When the Moors conquered Spain about 800 C.E., they introduced the pomegranate to the Iberian peninsula and the fruit became the emblem of Granada, whose name was derived from it. Catherine of Aragon (1485-1536), the first wife of Henry VIII, wore the Spanish emblem of the pomegranate, and the Oriental fruit became the badge of their daughter, Mary Tudor (1516-1558), Queen of England". The blossoms of the pomegranate later became the so-called "squash blossoms" of Navajo silver jewelry.

***Rosa damascena* Herm. 'Semperflorens', Rosaceae, the autumn damask rose**

The phytomorph portrayed in the bottom frieze of the south wall of the Triumph of Death mural (Fig. 7) is undoubtedly a rose. The fully double nature and pale red color matches most closely with the Autumn damask rose, *Rosa vinifera* 'Semperflorens' of the Rosaceae. This cultivar is one of the primary candidates for the so-called *Rosa de Castilla*, introduced by the Spanish to Mexico and California (Bowman, 1947). A similar rose is illustrated in the garden murals of Malinalco (Peterson, 1993). This identification is corroborated by the remarks of Fray Toribio de Motolinía (Motolinía, 1951): "All the arches were covered with roses and flowers in different colors and shapes. It was figured that each arch had a *carga* and a half of roses (the *carga* of the Indians is understood). Adding to these the roses that were in the chapels, on the triumphal arches, and on the sixty-six other small arches, together with those that the people had on their person and in their hands, the total amount of flowers was two thousand *cargas*. About a fifth of the flowers seemed to be carnations. These came from Castile and have multiplied incredibly. The bushes are much larger than in Spain and they bear flowers all year around".

Heilmeyer (2001) wrote that the rose "came to be dedicated to the Virgin Mary, and *Rosa mystica* became Mary herself. Red roses symbolized Mary's suffering, white roses her joy; and virgins devoted to God were given the name Rose". Fisher (2011) further wrote: "All white roses signified purity, and Dante greatly enhanced their mystic status in a famous passage likening heaven to a white rose, with the blessed enthroned in tiers of petals adoring God at the golden centre. Further rose symbolism accrued, the great cathedrals of northern Europe incorporated monumental stained-glass windows in circular patterns known as rose windows. A golden rose represented the Catholic Church and (in the manner of a



Fig. 6. *Punica granatum*, pomegranate, from the Salon of Sibyls mural north wall: young whole fruit in lower left, bursting mature fruit in lower right (Morrill, 2014:101)



Fig. 7. *Rosa damascena* 'Semperflorens', rose of Castile or autumn damask rose, from the Triumph of Death mural, lower frieze, south wall (Morrill, 2014:131)

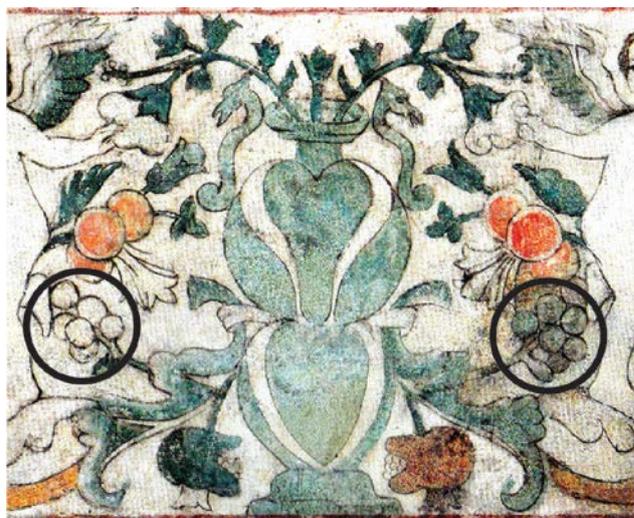


Fig. 8. *Vitis vinifera*, fruit of European grape, from the Salon of the Sibyls mural, upper frieze (Morrill, 2014:101)

golden globe) was the highest honour conferred by the Pope. The five petals of a single rose came to represent Christ's wounds, the prickles his crown of thorns, red his redeeming blood. In religious paintings red and white roses were often seen together and, taking the green leaves into account, the colours might also stand for the three virtues, faith (white), hope (green), and love (red), a colour symbolism which again had no less an authority than Dante in the *Divine Comedy*".

***Vitis vinifera* L., Vitaceae, grape (*uva, vid*)**

Grapes may be portrayed in the upper frieze of the Salon of the Sibyls, South wall (Fig. 8). An alternative hypothesis is that these are Capulin cherries, but the somewhat fanciful subtending leaves are not those of a *Prunus* sp. and might be interpreted as *Vitis* sp.-like. Grapes (*Vitis vinifera* L., Vitaceae) were introduced into Mexico at least by 1529 but did not do well outside of Puebla because of the climate (Dunmire, 2004). Standley (1920-1926) wrote: "European grapes... are said to have been introduced into Mexico about 1522 and their culture upon a large scale was begun at once, especially for the purpose of making wine. During at least a portion of the Spanish occupation, however, the manufacture of wine was prohibited by the Spanish Government, for the protection of the wine industry

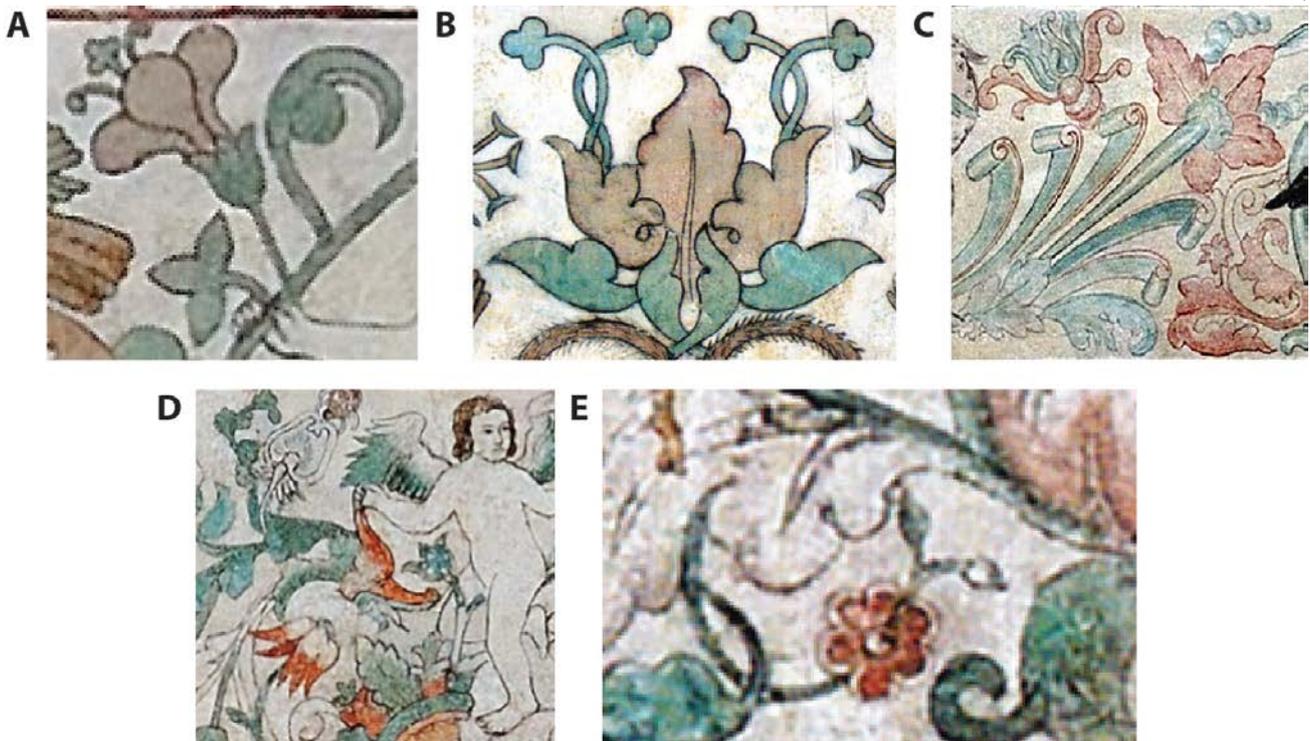


Fig. 9. Examples of “fantasy” or nebulous flowers from friezes in the Casa de Deán mural (Morrill, 2014): (A) flower from bottom frieze north wall, Salon of the Sibyls (p.119) with petals that resemble *Phymosia umbellata* (Cav.) Kearny, Malvaceae but with cruciate pistil and stamens to create a fantasy flower (see *uitztecolxochitl* of Plate 688 of Sahagún (1963)); (B) another example of cruciate pistils, see Fig. 1B above; this has been previously identified as *poyomatli* (Morrill, 2014:252, footnote 14); (C) flower from Triumphs of Death, lower frieze, southeast corner (p.131,154); (D) fruit resembling cross section of capsicum pepper. lower frieze attached to “floral dragon”, south wall, Triumphs of Death (p.9) (Morrill, 2014:9); (E) six-petaled picotee, red flower in Salon of the Sibyls mural in bottom frieze north wall (p. 119)

of Spain. Clavigero states that the vineyards were established in Baja California by the Jesuits, and that the grapes were more successful there than any other fruit except figs”. Grapes are also illustrated in the garden murals of Malinalco (Peterson, 1993). Grapevines (*vid*) have been an ancient Biblical symbol of peace and plenty and under Constantine became a symbol of the Christian Faith (Ferguson, 1961; Lehner and Lehner, 1960).

Fantasy Flora and Nebulous Plants

Some phytomorphs parceled as bits and pieces in European-inspired flourishes cannot be accurately identified with naturally occurring materials (Fig. 9). Some plant illustrations, obviously done more for aesthetics than botanical accuracy, are also a conundrum. For example, there is a cross section of what appears to be capsule (Fig. 9D), possibly inspired by the capsicum pepper, *Capsicum annuum* L. in three locations attached to a dragon head, referred to as a “floral dragon” by Morrill (2014:101). She observes that this floral dragon is very similar to one in a frieze in a cloister of San Gabriel, Cholula.

Conclusions

We have identified five species native to New Spain (*Iris fulva*, *Mentzelia hispida*, *Prunus mexicana*, *Prunus serotina* subsp. *capuli*, and *Symphoria globulifera*) and three species introduced from Europe (*Punica granatum*, *Rosa damascena*

Semperflorens, and *Vitis vinifera*). The combination of indigenous and European elements indicate that the artist must have been aware of both native and introduced species. The inclusion of some rather obscure species indigenous to Mexico indicates association or familiarity with a botanic garden in Tenochtitlan, Chapultepec, Iztapalapa, el Peñon, and Huaztepec (Morelos). Sadly, only the elaborate stone pools and waterways remain in the botanic garden of Huaztepec, originally constructed for the many concubines of the Poet King of Tezcoco.

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