

A Late 16th-Century Look-Alike of the 'Romanesco' Cocoselle Squash

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Pumpkins and squash, *Cucurbita* species, are native to the Americas. The first known images of *Cucurbita* outside of the Americas appear in the *Grandes Heures d'Anne de Bretagne* (Paris et al., 2006) of France and the *Villa Farnesina* (Janick and Paris, 2006; Formiga and Myers, 2020) in Italy. The *Grandes Heures*, a book finished in early 1508, contains an illustration of a pyriform gourd. The festoons decorating the *Villa Farnesina*, which were completed by 1518, contain images of oviform and pyriform gourds and pumpkins.

From 1540, images of *Cucurbita* proliferate, mostly in botanical herbals but also in artistic paintings of the 16th and 17th centuries (Zeven and Brandenburg, 1986; Paris, 2000; Teppner, 2000). Most of the images in the herbals and paintings are quite realistic, allowing easy diagnosis to the species level and even to the subspecies, cultivar-group (morphotype), market type, or even specific cultivar. Most of the early depictions are fruits of the Pumpkin Group of *Cucurbita pepo* L. subsp. *pepo* and include both the grooved market types of eastern North America resembling 'Connecticut Field' and 'Small Sugar' and the ribbed pumpkins of southern North America from the landraces of Mexico and Guatemala. Almost all of the other early depictions are of *C. pepo* subsp. *ovifera* (L.) D.S. Decker, including of the Acorn Group resembling 'Table Queen', 'Mammoth Table Queen', and 'Sweet Dumpling', the Scallop Group, and various small ornamental gourds.

One of the most unusual of these images occurs in a painting dated to approximately 1580, *Fruittivendola* (Fruit Vendor), by the Italian artist Vincenzo Campi. This painting contains several cucurbits, including a large, oblate, ribbed yellow pumpkin of *Cucurbita pepo* subsp. *pepo*. Most interesting, though, are small images of what appear to be female and male flower buds and foliage of this taxon. The largest female flower bud has what appears to be a ribbed ovary three-and-a-half times longer than wide, with the widest part being just under the calyx, and hence was identified as of a Cocoselle Group squash closely resembling 'Romanesco' (syn. 'Costata Romanesca') (Paris and Janick, 2005). These images do lack some detail, though, casting some doubt as to their identification. The large male flower bud, while most resembling that of *C. pepo*, also has some resemblance to a young fruit of okra, *Abelmoschus esculentus*

(L.) Moench (Malvaceae). A high-resolution representation of the painting can be viewed here: <https://postiepasti.com/2020/07/08/finestre-sullarte-1-la-fruttivendola-vincenzo-campi>.

Quite recently, I came across a curious image in a publication describing a recent inquiry into the origin of the vegetable motifs appearing in 16th-century tapestries entitled *Fidelidad de Penélope* in the Badajoz Cathedral (Vázquez Pardo et al., 2018). In this publication, several highly detailed and accurate images of plants are reproduced. These images were designed by the Flemish artist Joris Hoefnagel (1542–1601) and appeared in his *Archetypa studiaeque patris Georgii Hoefnagelii* (Hoefnagel, 1592), engraved and published in Frankfurt in 1592 by his son Jacob. This is a collection of 52 engravings containing images of plant parts, insects, and animals drawn *ad vivum* by Joris Hoefnagel and is divided into four parts of 12 plates each, each part also having a separate frontispiece. It is noteworthy that the artist had spent considerable amounts of time in lands that are today in Belgium, France, England, Spain, Italy (including Rome), Germany, Austria, and others.

The Frontispiece of Part 2 of the *Archetypa studiaeque patris Georgii Hoefnagelii* shows various animal, insect, fruit, flower, and foliage subjects (Figure 1). Among them is a large cucurbit fruit (Figure 2). As compared with the adjacent grape cluster and pears, this cucurbit fruit could be estimated at 40 or so cm in length. It is nearly cylindrical except that it is swollen at its stylar end. It is also longitudinally ribbed, with five ribs drawn along most of the length of the fruit. The size of the fruit and the ribbing indicate that the fruit is of *Cucurbita pepo* subsp. *pepo* (Paris et al., 2012). Ordinarily, subsp. *pepo* fruits have 10 longitudinal ribs, in accordance with the five main vascular tracts connecting the peduncle to the sepals and five more connecting to the petals. Hence, five of the ribs would be seen if the fruit is observed from its side, as occurs in the illustration. However, nine ribs appear at the stylar end, indicating that the fruit is either tilted or curved toward the viewer at this end. This fruit is quite elongate and, accounting for the tilting or curvature, has a length-to-width ratio approximating 3.5. This high length-to-width ratio coupled with the obviously swollen stylar end indicates that this fruit is a cocoselle squash (Paris, 1986) and, with its prominent

ribs, it strongly resembles 'Romanesco' (https://specialtyproduce.com/produce/Romanesco_Costata_Squash_10948.php); also:

<https://www.mygardenlife.com/plant-library/3925/cucurbita/pepo/costata-romanesco>).

'Romanesco' cocozelles are prized in the kitchen on the day of anthesis and a day or two prior or after, often eaten with the flower still attached as the flowers of this cultivar are particularly firm and fleshy (Umiel et al., 2007). The illustrated mature fruit, therefore, was well beyond its peak of culinary quality but would certainly have remained a fit subject for illustration, for a much longer period of time before deteriorating, than would a flower or young fruit. Its stylar scar is smaller than ordinarily encountered in 'Romanesco' fruits. 'Romanesco' cocozelles have a fairly large stylar scar when the fruit is young and of culinary use but, as the fruit grows and broadens, the size of the scar relative to the diameter of the fruit becomes smaller. Interestingly, in the *Archetypa*, the fruit is adorned at the peduncle end with a cluster of grapes, similar to the pumpkins of the *Villa Farnesina*. Moreover, the fruit is adorned with two leaf laminae that are similar in their appearance to those produced by 'Romanesco'. Foliage similar to that of *C. pepo* is also depicted adjacent to the flower buds in the *Fruittivendola*. There are Italian cookbooks from 1614 and 1644 describing the culinary preparation of tender shoots of *Cucurbita* together with their flower buds and young fruits (Lust and Paris, 2016).

So the flower buds in Campi's *Fruittivendola* (1580) and the mature fruit in the *Archetypa studiaque patris Georgii Hoefnagelii* (1592) seem to represent the same cultivar of cocozelle squash, 'Romanesco'. Yet another image of a cocozelle squash, perhaps of 'Romanesco', appears in another drawing by Hoefnagel dated, at the latest, to 1580 (Paris, 2023). This situation brings sharply to the forefront a quandary, the answer to which has been pondered again and again. Were long-fruited squash, such as 'Romanesco', already present in North America and brought to Italy subsequent to 1492? Or were long-fruited squash selected directly, from newly imported North American pumpkins, within 100 years, in Italy and perhaps other Old World countries?

Some oblong-fruited but no truly long-fruited Mexican or Guatemalan landraces of *Cucurbita pepo* subsp. *pepo* have been illustrated, described or listed in scientific literature and USDA PI collections (Zhiteneva 1930; Whitaker and Knight, 1980; Teppner, 2004; Castellanos-Morales et al., 2019), but a few long-fruited variants can sometimes be found within otherwise round-fruited Mexican landraces. Most of the cocozelles and all of the tested zucchinis are more closely related to accessions of Old World pumpkins than to those of the New World (Gong et al., 2012). The Old World pumpkins

are genetically intermediate between the pumpkins of northern and those of southern North America (Paris et al., 2015), likely having resulted from chance crossing when the pumpkins of north and south were first grown in near proximity, in European gardens. So most if not all of the long-fruited cultivars of *C. pepo* subsp. *pepo* appear to possess a European ancestry, having resulted from chance crossing followed by selection for longfruitedness on that continent within a century or two of the voyages of Columbus. However, the ribbed cocozelles 'Romanesco' and its likely derivative 'Lungo Fiorentino', as well as the viney Spanish cocozelle PI 261610, fall within the central core of *Cucurbita pepo* subsp. *pepo* accessions which includes old and primitive North American cultivars and landraces (Gong et al., 2012). These cocozelles would seem to have a direct North American origin, having been derived by selection within Mexican landrace pumpkins for long-fruited variants. In cucurbits, longfruitedness results in improved culinary adaptation of the young fruits (Lust and Paris, 2016). Prior to the arrival of *Cucurbita*, people of the Italian peninsula and some other parts of Europe had centuries of experience in selecting for and maintaining longfruitedness in two other cucurbit taxa, *Lagenaria siceraria* (Molina) Standl. (bottle gourd) and *Cucumis melo* L. subsp. *melone* Flexuosus Group (snake melon). From the images in the *Fruittivendola* and the *Archetypa studiaque*, it appears that selection for longfruitedness in *Cucurbita pepo* subsp. *pepo* succeeded within 100 years of the first voyage of Columbus, with the development of the cocozelle 'Romanesco'.

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Figure 1. Frontispiece of Part 2 of *Archetypa studiaque patris Georgii Hoefnagelii* (Hoefnagel, 1592).



Figure 2. Frontispiece of Part 2 of *Archetypa studiaque patris Georgii Hoefnagelii* (Hoefnagel, 1592), partial view, magnified.