

THE FIRST IMAGES OF MAIZE IN EUROPE

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ABSTRACT - Evidence is presented that the first images of maize in Europe are to be found in the festoons painted by Giovanni Martini da Udine about 1515-1517 that surround the frescoes designed by Raphael Sanzio in the fabulous residence, now known as the Villa Farnesina, of the Sienese banker Agostino Chigi. Additional representations of maize by the same artist painted in 1517-1519 are included in festoons in "Raphael's Loggia" in the Vatican Palace commissioned for Pope Leo X. The maize images indicate genetic diversity based on ear length and type and display characters found in the races of Spain, Portugal, and Italy. Their presence in Rome as early as 22 to 24 years after Columbus' return from the first voyage to the New World is evidence of the very rapid diffusion of maize into Europe.

KEY WORDS: Maize; *Zea mays*; Villa Farnesina; Giovanni Martini da Udine; Agostino Chigi; Art history.

INTRODUCTION

The earliest representation of a maize plant in Europe had long been considered to be a woodcut print in the herbal *De Historias Stirpium* of Leonhard Fuchs published in 1542 in Basel, and which appears on the cover of *Maydica* (Fig. 1). The image was drawn from nature by Albrecht Meyer, transferred to a woodblock by Heinrich Füllmaurer, and then cut by Veit Rudolf Speckle. The plant is beautifully drawn and shows a multi-tillered plant containing five ears with silks arising from the tip of the ear; one of the ears shows four rows of kernels exposed suggesting the ear is eight-rowed but the woodcut image is crude at this point. The image is labeled *Turcicum Frumentum* (Latin) and *Türkisch*

korn (German). The name suggests that the new grain was introduced into Europe from Turkey; the turkey (*Meleagris gallopavo*) retains this misnomer for the same reason (FINAN, 1948). Alternate explanations are that the name was given because the silks resembled the beard of a Turk or simply to accentuate its foreign nature, Turkey being considered exotic in the 16th century. However, the name for maize is Egyptian corn in Turkey and Syrian dourra in Egypt (DE CANDOLLE, 1890).

The print of maize in *De Historias Stirpium* is not the first European image. CANEVA (1992a,b) and CHERUBINI (1992) have reported that maize images can be found at the Roman villa of Agostino Chigi "the Magnificent" (1466-1520) now known as Villa Farnesina, in the festoons painted by Giovanni Martini da Udine (1487-1564) surrounding the frescoes of the heavenly adventures of Cupid and Psyche designed by Raphael Sanzio (1483-1520) for the loggia. Like Edgar Allan Poe's story, *The Purloined Letter*, the images were not hidden but were obvious, surrounding one of the best known works attributed to the workshop of Raphael, yet had been completely overlooked by biologists, agronomists, and maize scientists. Interest in the origin and representations of American plants in Europe (see BETTOLO, 1981; ANDERLINI, 1989) have been stimulated by celebrations surrounding the fifth centenary of Columbus' encounter with the New World.

Chigi's villa located on the west bank of the Tiber in an area of Rome known as the "rione Trastevere" was constructed between 1505 and 1509. Born in Siena, Chigi became fabulously wealthy as financier to popes and kings. His luxurious villa built to display his wealth and prestige was decorated under the guidance of Raphael and his coworkers (Giulio Romano, Francesco Penni, and Raffaellin Del Colle). The decorations on the ceiling of the loggia (now enclosed) are based on the

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FIGURE 1 - Woodcut of maize from *De historia stirpium* of Leonhard Fuchs (1542).

heavenly adventures of Cupid and Psyche from the *Metamorphoses* (*Golden Ass*) of Apuleius, 2nd century CE. Ten illustrated episodes of the tale are located in spandrels surrounded by festoons of fruits, vegetables, and flowers, all remarkably preserved (Fig. 2). Based on a deprecating letter from Leonardo Sellaio to Michelangelo, Raphael's rival, dated January 1, 1518 (Florentine calendar) describing the work, it seems plausible that the work was completed by 1517 (GERLINI, 2000). There are about 170 botanical species in "living color" and over 2000 images. The work is important in the history of art as one of the precursors of Renaissance still life paintings known as *natura morta* and has agricultural significance since they contain the first images of New World plants in Italy: maize (*Zea mays*), New World cucurbits (*Cucurbita pepo* and *C. maxima*), and probably beans (*Phaseolus vulgaris*). CHERUBINI (1992) has al-

so proposed sunflower (*Helianthus annuus*), but these images are undoubtedly *Inula belenium*, a medicinal composite that is spontaneous in European mountain environments.

From 1517-1519 in a commission from Pope Leo X, Raphael directed the completion of the decorations of the loggia of the Vatican (Fig. 3) initiated under Giuliano della Rovere (Pope Julius II). Raphael again chose Giovanni da Udine for the "nature" paintings and images of maize are also included in this work. Raphael created a rich new style where biblical histories were surrounded by "grotesques" in pictures and stuccos, and where naturalistic festoons with flowers, fruits, and birds repeated the Farnesina style.

In this paper we will depict and analyze all the images of maize in the festoons of the Farnesina and Vatican Palace, explore the genetic diversity, and comment on their relevance to the history of maize in Europe.

THE IMAGES

There are a total of ten "groups" of putative maize ears scattered throughout the festoons, eight from the Farnesina and two from the Vatican (Fig. 3). The eight images from the Farnesina are displayed with the ears oriented in a vertical position for ease of comparison in a sequence from longest to shortest ears. The size of the ears have been adjusted by equalizing nearby apple fruits which are assumed to be 76 mm in diameter in the Farnesina and pomegranate or quince which are assumed to be 100 mm in diameter. The length/diameter ratios have been calculated by dividing the calculated length by the width at the middle of the ear. Eight of these images show colored silks (groups 1, 2, 3, 4, 5, 7, 9, and 10), five show green leaves (1, 2, 3, 4, 7), and two may show husk leaves (4 and 7). All of the images show yellow-orange kernels and four (1, 2, 3, 4) show indentations, referred to here as dimples, that differ from those found either in dent or *sbrunken* maize, but resemble semi-dent maize. If the ears are immature, as suggested by the brightly colored silks, the dimples may represent silk scars. The characteristics of the images including number of ears, presence of leaves and silks, ear length (L) and diameter (D), L/D ratio, number of rows, and number of kernels in the longest row, and image position on the spandrels are summarized in Table 1. In all groups the data is based on

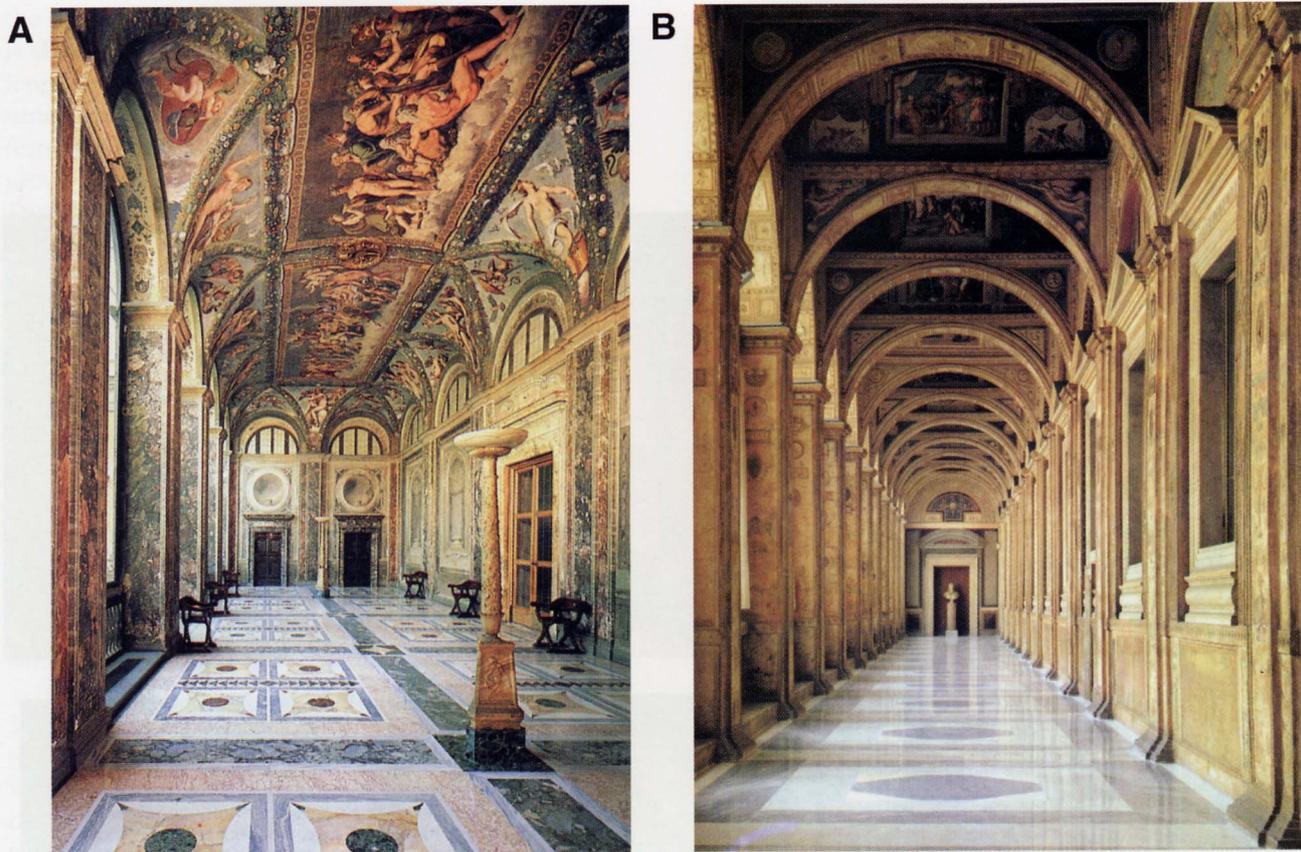


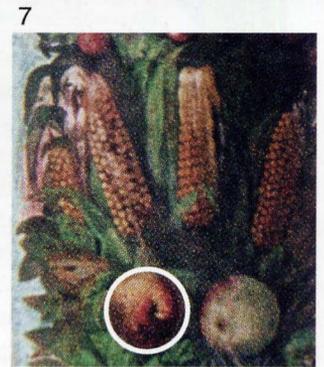
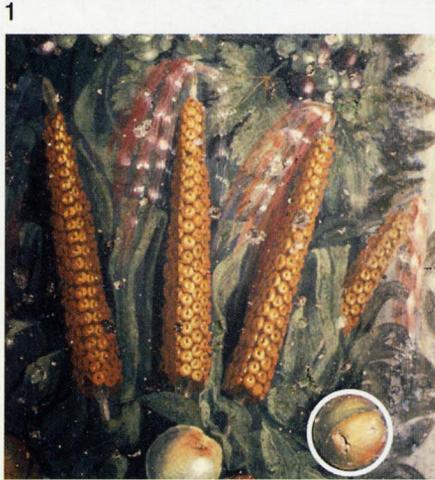
FIGURE 2 - The Loggia of Psyche in the Villa Farnesina (A) and Raphael's Loggia in the Vatican Palace (B).

TABLE 1 - Summary of maize image data from the festoon.

Group	Length (mm)	Diam. (mm)	L/D ratio	Ear data				No. ears	Location in spandrel
				Silk color	No. rows	No. kernels longest row	Kernel orientation		
Farnesina									
1	264	43	6.16	Reddish	12	21	Interlocking	4	Side
2	258	35	7.34	Reddish & white	12	28	Interlocking	5	Top
3	256	36	7.15	White & yellow	12	21	Interlocking	4	Top
4	174	38	4.58	White, yellow, reddish	10	18	Interlocking	3	Top
5	162	37	4.32	Reddish	12	21	Jumbled	2	Side
6	157	40	3.95	None	10, 12	16	Paired	3	Side
7	150	40	3.73	Yellow & reddish	12	17	Paired	4	Side
8	139	35	3.96	None	10	16	Paired	3	Side
Vatican									
9	174	49	3.54	Yellow	12	20?	Interlocking	3*	
10	118	30	3.87	Reddish	10	13	Paired	2	

* Two ears obscure.

Farnesina



Vatican



FIGURE 3 - Maize images in the festoon from the Loggia of Psyche in the Villa Farnesina attributed to Giovanni da Udine from longest to shortest. Image size is based on nearby apple fruit (estimated as 76 mm in diameter). Images of maize from the Vatican painted by Giovanni da Udine prior to 1520. Image size is based on pomegranate or quince fruit (estimated as 100 mm in diameter).

the most prominent ear. A description of the groups is shown below; the order is based on estimated ear length. Restoration activity occurred during the centuries and some images close to the bottom of the festoons were partially repainted. Thus, the ears in group 6 may have been altered from the original. Two ears in group 9 are difficult to distinguish.

Group 1. Four long, thin, tapered, 12-rowed ears (264 × 43 mm; L/D ratio of 6.16), three with light red silks. Leaves resemble those of maize and three ears have reddish silks. One thin, shank, untypical of maize is partially indicated. There are 21 kernels per row and kernels are interlocking. Note similarity to groups 2 and 3.

Group 2. Five thin, long, tapered, 12-rowed ears (258 × 35 mm; L/D ratio of 7.34), two with white silks and three with reddish silks. Leaves resemble those of maize; kernels, 28 per row, are dimpled and some kernels are interlocking or nested. Note similarity to groups 1 and 3.

Group 3. Four, thin, long, tapered, ears, (256 × 36 mm; L/D ratio of 7.15), three of which are fully represented, are 12-rowed with 21 kernels per row. The left ear has white silks while the central and right ear show yellow silks. The interlocking kernels show very prominent dimples. The ears in this group are very similar to group 1 and 2. Shanks are not visible, the unpollinated ear tips appear normal in contrast to groups 1 and 2.

Group 4. Three cylindrical ears (174 × 38 mm; L/D ratio of 4.58); ears are 10-rowed, 18 interlocking kernels per row. There are yellow silks on the left ear, white silks on the central ear, and reddish silks on the right ear. Many leaves are shown which closely resemble maize. The central ear could be considered to be enclosed in a husk. Kernels are dimpled. The tips of the ear show a spike-like extension untypical of maize.

Group 5. Two, 12-rowed, conical ears (162 × 37 mm; L/D ratio of 4.32) both with reddish silks. The kernels, 21 per row, are not uniform, suggesting incomplete pollination.

Group 6. Three small, conical ears (157 × 40 mm; L/D ratio of 3.95) with 10 rows and one perhaps with 12. There are at least 16 kernels per row and are twinned although the kernels are jumbled on the left side of the middle ear. Silks are not indicated. Ears have a three parted structure at the tip as in group 8.

Group 7. Four ears, two cylindrical resembling cornbelt maize, and two conical (150 × 40 mm; L/D

ratio of 3.73) with 12 parallel rows of kernels; about 17 or 18 kernels in the longest row; three ears with indications of white silks. A maize leaf is shown between the middle two ears. The ear at the far left may indicate a husk.

Group 8. Three small conical, 10-rowed ears (139 × 35 mm; L/D ratio of 3.96) with three parted structure at the tips, resembling rudimentary tassels. No silks are indicated. The kernels, 16 per row, are not clearly defined and appear immature. The shanks are very long and slender and do not resemble those of maize.

In the Vatican frescoes painted about two years later there are five maize ears in two groups (Fig. 3): a group of three ears in which two are damaged and difficult to distinguish (group 9) and group of two ears (group 10). The quality of the images are not as clear as those of the Farnesina. Their size is based on a pomegranate or quince which is assumed to be 100 mm in diameter.

Group 9. Only 1 cylindrical ear is clear enough to evaluate; 12 rows of about 20 kernels (174 × 49 mm; L/D ratio of 3.54), yellow silk; resembles group 7.

Group 10. Two 10-row, conical ears (174 × 49 mm; L/D ratio of 3.87) with reddish silks; resembles group 6.

Are these images maize?

Since some of the Farnesina images have features atypical of maize it is reasonable to ask first if these are truly maize. Some reservations have been expressed by a number of maize experts for groups 1, 2, 3, 4, and 8 but there is general agreement that group 5, 6, 7, 9, and 10 represent maize. Classifying species from painted images, especially when the images are not strictly intended to be botanical illustrations, is often perilous and not an exact science. However, the images of the festoon were carried out by the great artists of Raphael's workshop and we respect their integrity. The fidelity of the pictures is evident by the accuracy of depictions of other species in this festoon which include such details as disease symptoms in apple fruits (*see* CANEVA, 1992b).

We are also cognizant of the fact that the maize images also serve a decorative purpose. Artistic license was undoubtedly used for features that may have been unknown. As fresco paintings are carried out in fresh plaster, time is of the essence. Thus, we

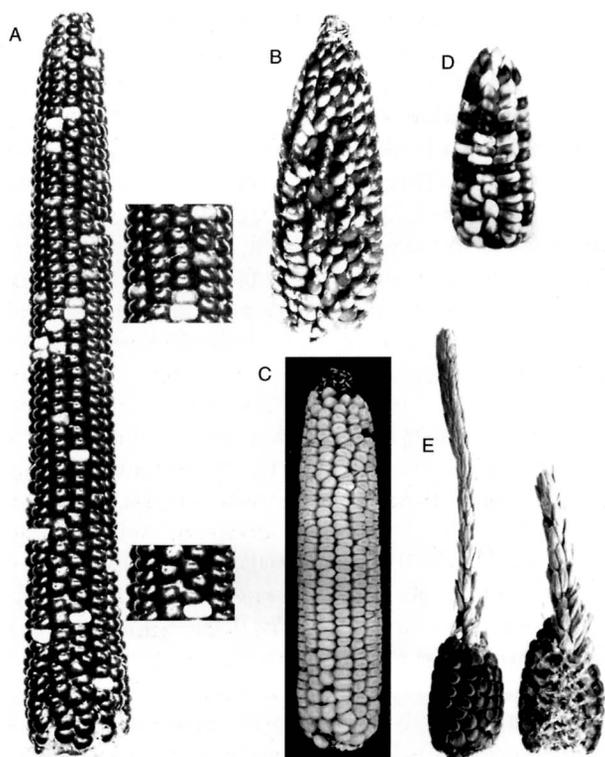


FIGURE 4 - Ears of maize races.

- A. Semi-dent ear from Jémez Pueblo showing "dimples" and some interlocking kernels. Source: WEATHERWAX (1954), Fig. 60. This ear is 33 cm long.
- B. Ear with Irregular rows. Source: WEATHERWAX (1954), Fig. 56.
- C. Inbred A158. Source: MANGELSDORF (1974), Fig. 19.2.
- D. Ear from Peruvian highlands. Source: WEATHERWAX (1954), Fig. 59.
- E. Reconstructed maize ear terminating in staminate spikes. Source: MANGELSDORF (1974), Fig. 8.10. Compare with group 7.

assume drawings of ears were used as a guide and some groups may have been based on the same prototype ear. This explains the uniformity of ears within each between certain groups (especially 1, 2, and 3). Because the images are based on maize cultivated between 1493 and 1517 in the New World we have compared them with landraces from the Americas, principally those in the books of WEATHERWAX (1954) and MANGELSDORF (1974) and from Spain (SANCHEZ-MONGE Y PRELLADA, 1962), Portugal (COSTA-RODRIGUES, 1971), and Italy (BERTOLINI *et al.*, 2002).

Our conclusions based on the totality of the images is that the festoon images displayed in Fig. 3 are depictions of maize but painted with some artistic license. This determination is based on the com-

bination of maize characters including kernel size and color, ear type (10 and 12 rows are depicted), the presence of white, yellow, and reddish silks, and the long narrow leaves typical of maize. In addition the historical evidence is supportive of our conclusion, as indicated below. The presence of other New World plants in the festoon is powerful supporting evidence. We are aware of similar claims of preColombian images that have been presumed to be maize in India (JOHANNESSEN and PARKER, 1989) and in Scotland (ROBERTS, 2001) and we include ourselves as skeptics based largely on the lack of historic evidence. An analysis of the early introduction of maize to Europe and Asia is reviewed by DESJARDINS and MCCARTHY (2004).

The depiction of leaves suggests that maize was grown and seen by the artist, probably in the garden at Chigi's villa called the *viridarium*, a repository for rare plants although the original drawings were no doubt made from detached ears. It seems obvious that most of the multiple ears within the same group are copies of a detached prototype ear. All of the groups may not have been painted by the hand of the master, but we attribute the images on the top of the triangular spandrel in the Farnesina and all the Vatican images to be by Giovanni da Udine. This surmise, more than speculation, is based on the complexity of the images, the balanced nature of the composite, and the presence of at least one erotic image which is attributed directly to Udine by the art historian Giorgio Vasari (1511-1574) (see MOREL, 1989; JANICK, 2004). Clearly groups 1, 2, and 3 are copies of the same drawing despite the fact that some have white and some red silks. We conclude that the shank depictions are invented since there appears to be an attempt to hide them in most images and those that are drawn are obviously botanically incorrect. The strange tripartite extensions of the ear tips in image 6 and 8 are suggestive of rudimentary tassels (Fig. 4E) while the irregular kernel orientation of images 1, 2, 3, and 5 are all expressed in maize (see Fig. 4). The Vatican images are likely based on the images of the Farnesina.

Analysis of the anomalies in the images

A decent respect to the opinion of others has led us to address head-on the reservation of some of our colleagues on particular images. For example doubt has been expressed principally on the dimpled kernels, interlocking kernel arrangement, and ear shape in groups 1, 2 3, and perhaps 4 with sug-

gestions that they may be cycads or Araceae species. The cycad identification, was not confirmed by a cycad authority and we cannot find any pictures of species of Araceae that resemble the festoon images. Furthermore, images of *Arum italicum* with spadix and spathe in the festoon, make it clear that none of the images in Fig. 3 are *Arum*.

The dimpled kernels, especially in groups 1, 2, 3, and 4, closely resemble photographs (Fig. 4A) of the semi-dimpled kernels in ears from Jémez Pueblo, New Mexico (WEATHERWAX, 1954); this slender ear, 33 cm long, is similar in size to those ears of groups 1, 2, and 3, and furthermore shows some indication of interlocking kernels on the lower part of the ear. An alternate explanation is that these ears are immature, based on the colored silks, and the dimples are silk scars.

Since maize ears have paired spikelets, the preponderance of interlocking kernels is disconcerting (see especially group 3 in Fig. 3). One explanation is that a lack of synchrony of silk receptivity and pollen shed in these nonadapted exotics could cause pollination gaps leading to plump round seed, and where the artist filled in the voids in an attempt to portray perfection.

We surmise that all the ears in groups 1, 2, and 3 are based on single prototype ear with either semi-dimpled kernels or silk scars, and a high proportion of interlocking kernels. The unmaize-like shanks are only explainable by artistic license as we suspect the images were drawn from detached ears. In most of the images the shank is hidden and when portrayed (group 1, 2, and 8) we suspect it was probably invented to portray an attached ear to complete the image.

We conclude that there are at least three different phenotypes of maize in these festoons:

- A. Long slender, tapered 12 row ears with dimpled kernels, that resemble ears from Jémez Pueblo (group 1, 2, and 3). Compare with Fig. 4A.
- B. Short 10 or 12 row cylindrical or conical ears (groups 4, 5, 7, and 9) resembling cornbelt maize. Compare with Fig. 4B and C. Note that ears of group 4 with 10 rows have dimpled kernels and interlocking rows, while groups 5, 7, and 9 have non-dimpled kernels, and paired rows
- C. Short, conical, 10 row ears, resembling Conico landrace in shape (MANGELSDORF, 1974), with non-dimpled kernels (groups 6, 8, and 10). Compare with Fig. 4D. Groups 6 and 8 show evidence of tassel ear (Fig 4E).

THE RACES OF MAIZE IN SPAIN, PORTUGAL, AND ITALY

Maize has been cultivated in Spain, Portugal, and Italy for five centuries and selection and isolation have produced various races differing in maturity and phenotype. Characteristics of the maize ear phenotypes depicted in the images from the Farnesina and Vatican can be found in races from Spain (SANCHEZ-MONGE Y PARELLADA, 1962), Portugal (COSTA-ROGRIGUES, 1971), and Italy (BERTOLINI *et al.*, 2002). The long tapered ears in groups 1, 2, and 3 (A) resemble those of the Spanish race Nortleño Largo (20 to 25 cm in length, 3.3 to 3.9 cm in diameter, 8 to 10 rows with yellow kernels). Other long-eared types include Tremesino of Spain, Large Eared (Espiga Grande) of Portugal, and Ottofile (VA61) of Italy. The shorter, mostly 12-rowed ears of groups 5, 7, and 9 (B) resemble various races including Enamo, Levantino, Gallego, and Queixalet of Spain; Microsperma and Conico of Portugal; and Cinquantino (VA42), Giallo Agostanello (VA59), and Scagliolo (VA1210) of Italy. The very short 10 row conical ears of groups 6, 8, and 10 (C) resemble the Norteño of Spain, Small Conico of Portugal, and Locale di Rho (VA51) of Italy. The resemblance of the maize images painted in Italy between 1515 and 1519 to races of maize in Spain, Portugal, and Italy is confirmatory evidence for the early origin of some of these races.

THE ORIGINS OF MAIZE IN EUROPE

The dissemination of maize to Europe was very rapid. How and when did maize enter Italy? Although there were probably various routes at different times, literary sources provide evidence of a direct route from Spain to Italy as early as 1493. Letters of Pedro Martyr de Angleria (MACNUTT, 1912), an Italian teacher connected with the Spanish court, to Cardinal Ascanio Sforza, Vice-Chancellor of the Papal court, describe the voyages of Columbus in a series of letters later incorporated in a Latin work *De orbe novo* in 1511. The first letter based on the first voyage of Columbus and dated November 13 (ides), 1493 specifically mentions maize.

"The islanders also easily make bread with a kind of millet, similar to that which exists plentifully amongst the Milanese and Andalusians. The millet is a little more than a palm in length,

ending in a point, and is about the thickness of the upper part of a man's arm. The grains are about the form and size of peas. While they are growing, they are white, but become black when ripe. When ground they are whiter than snow. This kind of grain is called maiz"

Based on reports from the second voyage, the following statement, dated May 3, 1494, is made in a second letter to Cardinal Sforza:

"My messenger will also deliver to Your Eminence some of those black and white seeds out of which they make bread."

This letter is evidence that maize reached Rome as early as 1494!! In the case of Portugal, the first introductions are believed to have been made by Portuguese sailors on the second voyage and there is evidence of other early introductions of seed (COSTA-RODRIGUES, 1971).

Maize could have entered Turkey very early through Italy. The momentous year 1492, the date of the "discovery" as well as the expulsion of the Jews and Moors of Spain, was also the date for election of the Spaniard Rodrigo Borgas, *nee* Borjas, to the papacy under the name of Alexander VI and it seems likely that the seed sent to Cardinal Sforza in 1494 come to his attention. In that year, fearing the invasion of Italy by Charles VIII in an attempt to restore Naples to French rule, Alexander VI solicited help from the Sultan of Turkey, Bajazet II, by sending a papal secretary, Giorgio Bocciardo, to Constantinople who was received with great courtesy (DURANT, 1954). One could speculate that the Sultan might have received seed as a gift from the Pope. More likely, extensive trade between Turkey and Venice could have been responsible for the introduction of maize to Turkey and perhaps reintroduction to Germany as well as Spain. This could explain the terms *Türkisch korn* used by Leonhard Fuchs of Germany and *blat de Moor* (wheat of the Moors), still used for maize in Catalonia.

In 1514, animals and exotic plants from India and America ("New Indian Colonies") were sent to Rome, as a gift of the Portuguese King Manuel I to Pope Leo X (DACÒS, 1969; CANEVA, 1992b). There was a ceremonial procession of gifts led by Tristão da Cunha, the Portuguese navigator that attracted 30,000 spectators, probably attracted by the presence of a white elephant (named Hanno) that had historical resonance for Romans based on their use by Hannibal in the Punic wars (BEDINI, 2000). Han-

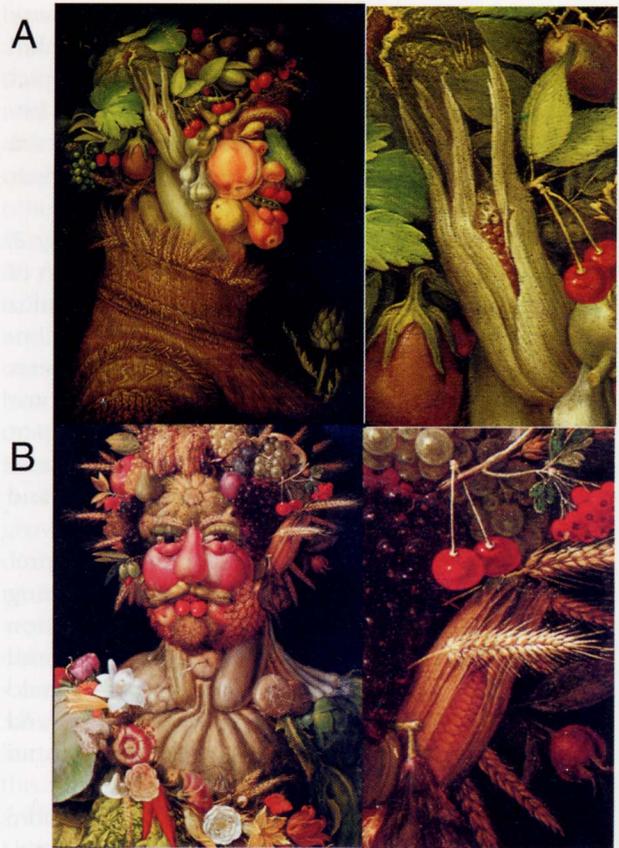


FIGURE 5 - Maize from Arcimboldo. A. Summer 1573; B. Portrait of Rudolf II as Vertumnus, 1590. Note interlocking kernels. Source: PIEYRE DE MANDIARGUES (1977).

no was adopted by Leo X who wrote a poem about his pet when he died in 1516. The new plants carried in this occasion, are not specifically mentioned but could have included the main food plants of the Americas: maize, beans, and various cucurbits.

Maize was spread throughout Italy in the 1500s and became a staple part of the Italian diet in the form of polenta. Maize was reported to be present in an herbarium specimen collected by Gherardo Cibo in 1532 probably at the University of Bologna (ARBER, 1938; DESJARDIN and MCCARTHY, 2004) and was grown in Venice about 1535 (D. Duvick, personal correspondence). By 1554 there were extensive cultures of maize in North Italy, especially in the Polesine area in the Po and Adige river valleys (BETTOLO and BATTISTA, 1981). Images of maize also became prevalent in art: the entire plant was paint-

ed in Venice about 1540 in the Palazzo Grimani (Santa Formosa), again by Giovanni da Udine. Reliefs of maize were sculptured in the wooden door of the Ducal Palace (CANEVA, 1992b) and maize appears in a fresco by Giambattista Zelotti in the Villa Emo near Venice built in 1559 (FAVERO, 1972). Later in the century, Giuseppe Arcimboldo incorporates maize in two fantastic portraits made up of fruits – Summer, 1572 and Portrait of Rudolf II as Vertumnus, 1590 – as shown in Fig. 5 (Note that Vertumnus is the Etruscan God of Mutation!)

The extensive use of *Zea mays* in Europe as a popular food is clearly evidenced by Pier Andrea MATTHIOLI (1568) and Castore DURANTE (1585). Pellegra, a disease due to the deficiency of niacin, increased due to the exclusive consumption of maize by the poor.

SUMMARY

The first images of maize in Europe occur in 1515-1517 in the festoons painted by Giovanni da Udine surrounding Raphael's frescoes (Cupid and Psyche) in the Roman villa of Agostino Chigi, a wealthy banker influential in the affairs of the popes and kings, and deeply involved with trade involving Venice, Seville, London, Alexandria, and Turkey (GILBERT, 1980). Chigi was also a humanist and patron of poets and artists. His interest in including the plants of the New World into the enormous collection of plants decorating the Loggia of Psyche appears as an attempt to display a world view of the richness and lushness of nature, to show off his wealth and position, and to increase the spectators awe and admiration for his home. Giovanni da Udine between 1517 and 1519 also included maize images in his decorations for the Vatican loggia designed by Raphael. These early images of maize include long and short ear types and demonstrate genetic diversity of the early introductions from the New World that have been captured in the races of maize in Spain, Portugal, and Italy. Chigi, in whose villa the images of maize were first displayed, may be a pivotal figure in the dissemination of maize in the Mediterranean Basin. He had a garden of rare plants (viridarium), was well known to Cardinal Sforza and Pope Alexander VI, was influential in the affairs of the Vatican and the Republic of Venice, and was directly involved in trade between Venice and Turkey through his monopolies concerning alum and cereals.

ACKNOWLEDGEMENTS - We are pleased to dedicate this paper to the outstanding career of Professor A.C. Fasoulas and to his two talented daughters, Dionysia and Vasilia, who have carried on in his footsteps as plant breeders. It is appropriate that this paper concerns maize, a subject of great interest to Professor Fasoulas, and also is connected with a Greek myth that involves love and procreation between the mischievous God of Love and the beautiful mortal Psyche whose name derives from the Greek word for mind or soul. We point out that the daughter of Cupid (Eros) and Psyche was named Voluttà (Pleasure). We acknowledge the assistance of our colleagues (John Doebley, Donald Duvick, Mary Eubanks, Wilfried Galinet, Candice Gardner, Major Goodman, Hugh Iltis, Mark Millard, Marty Sachs, David Timothy, and William Tracy) who helped us in our quest for the identification of these images, but who may or may not agree with our conclusions, and Lauren DuCharme, student assistant, who helped locate documents. Thanks to Accademia dei Lincei and Direzioni Musei Vaticani for permission to publish photographic documentation.

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