

Bronze Age Flower Power: The Minoan Use and Social Significance of Saffron and Crocus Flowers

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While iconography of the natural world abounds in the art of the Bronze Age Minoan culture, one plant seems particularly prevalent; represented on ceramics, in wall-paintings, and on votive objects are numerous depictions of the crocus flower. The saffron spice, a product of the flower, was carefully recorded in Linear B texts, testifying to its importance as a valuable economic commodity, but its inclusion in highly detailed iconographic representations and the contexts within which they were found attest to a significance that extended beyond commercial import. Particularly associated with women in the spheres of Minoan industry, medicine, and religion, the pervasive importance of saffron and the crocus flower made it not only a valuable commodity throughout the Bronze Age Mediterranean world, but also an integral part of culture and identity for Minoan women.

Introduction

With floral scrolls, marine motifs, animal iconography, and vast landscapes evident in much of Minoan art, a connection between Minoan art and nature has been noted by scholars since Sir Arthur Evans first uncovered the remains of this Bronze Age culture in 1900.¹ Indeed, the interpretation of the natural world's significance to the Minoans has been perpetuated by the numerous depictions of Aegean flora and fauna, even exaggerated to the extent that the Minoans are sometimes referred to as the “hippies of the ancient world.”² As overstated as this characterization may be, the natural world was clearly of great significance for the Minoans, and further investigation reveals that specific plants and animals were regarded with particular esteem.

The crocus flower is an intriguing example of one of those plants. The crocus and the saffron spice derived from this flower appear in a myriad of contexts within the archaeological record of the ancient Aegean. Each one held meaning for Bronze Age peoples, and “it is the specific social context in which this meaning operate[d] which is important,”³ from iconographic representations to Linear B texts. This evidence sheds light on saffron's status as a substance particularly revered by Minoan women, employed in the creation of a female social identity. Celebrated for its medicinal benefits, used in the dyeing and perfuming industries, and traded throughout the Mediterranean, the versatility of the plant led to the inclusion of saffron and crocus iconography in ritual and symbolic contexts, becoming a distinct symbol of Minoan women and the feminine sphere. By exploring its presence in the decorative iconography of ceramics, wall-paintings, and votive objects, amongst others, the prominence of the crocus plant within the industrial, medicinal, and religious realms of Minoan society can be revealed.



Figure 1: Map of the Aegean with significant Late Bronze Age sites. Inset highlights the important sites of the Argolid (courtesy of the Ashmolean Museum, Oxford)

Terminology and Chronology

Before embarking on discussions concerning Aegean cultures, it is pertinent to note the challenges inherent in the nomenclature. “Minoan,” in its proper sense, refers only to the Bronze Age peoples of Crete.⁴ The chronological period of Late Minoan (LM) IA, however, saw a spread of Minoan cultural traits and objects throughout many previously-independent Cycladic islands. Given the heavily Minoanized nature of sites such as Akrotiri on Thera and Ayia Irini on Kea, it is tempting to consider the effect that a “Minoan thalassocracy” may have had on Crete's island neighbours (fig. 1).⁵ While emulation does not necessarily imply political control,⁶ the discovery at Akrotiri of approximately seventy sealings made of Knossian clay and stamped with a Cretan seal suggests an administrative connection between the two islands, one which may have extended to other Minoanized Cycladic sites.⁷

“Mycenaean” is a similarly difficult term. Though named for the central site of the period, the heartland of the Mycenaean world is considered to be the mainland of Greece, specifically the Argolid (Fig. 1 inset).

Mycenaean material culture, however, can be found throughout the Mediterranean, and its dominance on Crete from LMII to LMIIIB is termed the “Mycenaean period.”⁸ Although Crete’s political situation at this time is unclear, it is likely that mainland Mycenaeans exerted authority over the island, contributing to a decrease in traditionally “Minoan” culture and a rise in mainland trends.⁹

With these terminological problems acknowledged, this paper will use “Minoan” to refer to the peoples of the pre-Mycenaean Aegean at large, and “Mycenaean” to discuss the mainland culture which dominated LMII-LMIIIB Crete when examining the evidence found in the textual and archaeological records.

Saffron in the Bronze Age Aegean

Today, saffron is familiar as a spice with a subtle yet distinctive flavour, produced by drying the stigma of the crocus plant. As the fragility of the crocus flower and the fine-motor work required to separate the stigmas demand that

this process be done by hand, saffron continues to be one of the few crops in the world whose manufacture is non-mechanized.¹⁰ Estimates hypothesize that about 400 hours of labour is needed to produce just one kilogram of saffron.¹¹ The visual motifs and detailed written records of Bronze Age crocuses and saffron, however, indicate that such labour was deemed to be a worthwhile endeavour.

The earliest representation of a crocus flower can be seen on an Early Kamares cup from Knossos dating to MMIA-IB (fig. 2).¹² Trifoliate became more popular as a decorative motif in MMIB-II, but it is the prominently protruding stigmas of the crocus

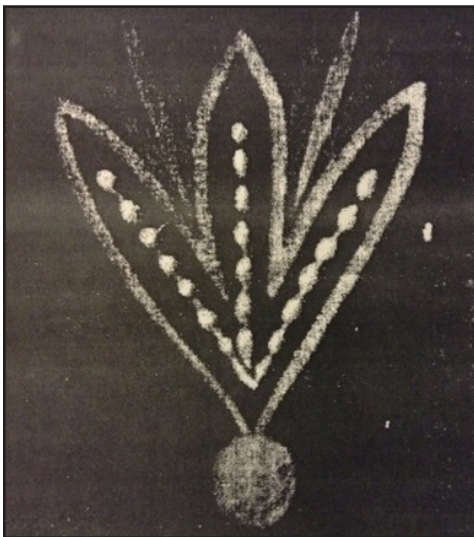


Figure 2: The earliest depiction of a crocus in the Bronze Age Aegean, painted on a Kamares Cup from the Town Drain at Knossos (Negbi and Negbi 2002:269, Fig. 2).

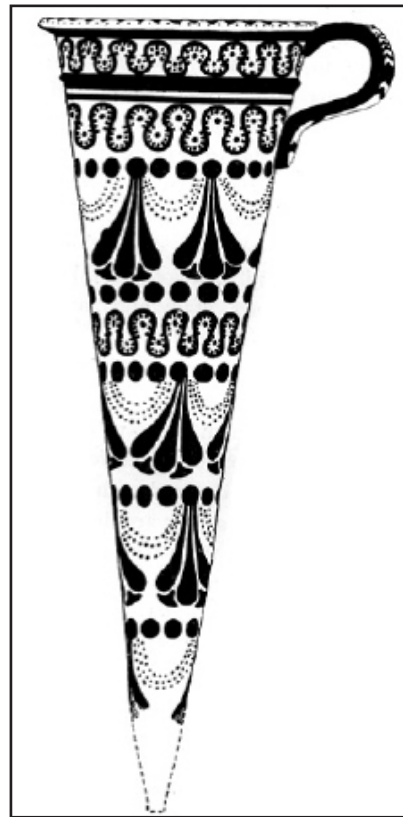


Figure 3: Conical rhyton from Palaikastro decorated with the ‘Crocus and Festoon’ LM IB Floral Style motif (Betancourt 1985:143, Fig. 108).

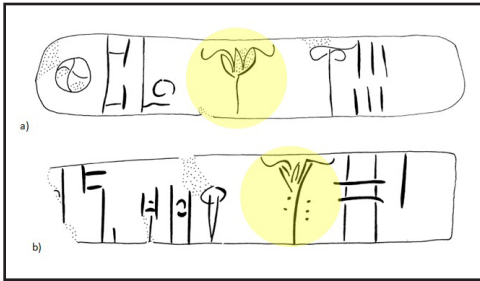


Figure 4: Linear B tablets Np 85 from the Room of the Chariot Tablets (a) and Np 856 from the North Entrance Passage (b) at Knossos. The saffron ideogram is highlighted in yellow (after Day 2011a:374, Fig. 2 and 375, Fig. 3).

which allow for its specific identification.¹³ Perhaps more than a visual cue, this emphasis may reflect the importance of the stigmas to those who harvested the crocus flower, for it is the stigmas which are made into saffron.¹⁴ By LMIA, the crocus appeared in naturalistic ceramic motifs that bore similarities to its synchronous appearance in frescoes, particularly the exaggeration of the stigmas.¹⁵ In LMIB, crocus iconography reached its peak, its artistic height visible in the detailed ‘crocus and festoon’ motif found on *rhyta* and vases in Crete and Cycladic islands (fig. 3).¹⁶ The flower shapes themselves are strikingly similar to crocus forms in contemporaneous wall-paintings, revealing the interconnected relationships between artistic media.¹⁷

By LMIII, the crocus flower became less popular as a decorative motif, but continued to be represented iconographically in the ideograms of Linear B, the written language of the period. The appearance of the saffron ideogram (CROC) on 59 whole or partial tablets like those in Figure 4 is therefore indicative of its economic and, as the evidence below reveals, industrial importance. The additional fact that it was the only spice to be measured by weight, in the same small, intricate values used for gold, suggests that it was considered to be a valuable commodity, carefully monitored by the palace.¹⁸ Why, however, was saffron so valuable? Although its

use continued into the Mycenaean period, its value appears to have been rooted in the social significance assigned to it by the Minoans. Artistic and archaeological evidence suggests that saffron came to be a prominent feature in Minoan industry, medicine, and religion, and that its pervasive importance made it and the crocus flower particularly integral aspects of culture and identity for Minoan women.

Saffron in the Dye and Perfume Industries

Saffron’s function as a dye is immediately apparent when handling crocuses, for when contact is made with the pollen and stigmas, a brilliant yellow colour is left behind. The powerful yellow pigment of the styles is both water-soluble and resilient to light, colouring up to 100,000 times its volume when diluted.¹⁹ Although the lack of written evidence from the Bronze Age Aegean and the near-impossibility of textile preservation in this period render conclusive evidence non-existent, historical and iconographic evidence can shed light on what must have been an important industry for the Minoans.

Saffron-coloured clothing is well-attested in Classical Greece where the plant was the primary dye used to produce yellow cloth and pigments. It was, however, an expensive luxury because its time-consuming manufacture was set against its popular demand. As such, yellow came to be regarded as a symbol of wealth and power, undoubtedly due to the ability of the wearer to purchase such an expensive dye.²⁰ The epithet “*kroko-*,” popular in describing various Greek heroes and heroines, may reflect this connection, conferring authority and status upon the wearer. Homer uses the epithet in relation to a divine being; by describing Eos’ garment as a “*krokoeplos*,” he connects the yellow-red garment of the goddess of dawn with the colours of her personification (*Iliad* 8.1). Indeed, this symbolism seems to have extended beyond the Greek world, and in Mesopotamia, yellow was regarded as a colour of divinity.²¹



Figure 5: The 'Saffron Gatherers' fresco from the upper storey of Xeste 3 at Akrotiri (Doumas 1992:152, Fig. 116).

In the Bronze Age, saffron-dye and the textile industry as a whole appear to have had particular connections with the Aegean, specifically Thera.²² Theran textiles were especially prized in the ancient world, and Pliny verifies that the island's saffron was thought superior to all others.²³ The plausible existence of a dye and textile industry at Akrotiri is supported by the discovery of more than 950 loomweights and many broken murex shells.²⁴ The concentration of these finds within specific houses and their absences in others suggests that residents of Akrotiri were engaged in localized craft specialization.²⁵

The specific connection between Thera and a saffron-centred industry is particularly interesting in light of the wall-paintings preserved at the island's main town of Akrotiri. One particular scene from the upper storey of the Xeste 3 building, aptly named the 'Saffron Gatherers' fresco (fig. 5), depicts two girls picking crocuses amongst a rocky landscape. Though interpretations vary, the painting could represent a potentially female-dominated dye industry in which women were the designated manufacturers.²⁶ This interpretation is corroborated by the fact that the figures shown in Aegean scenes with crocuses and saffron are predominantly female. Furthermore, while women are often depicted wearing yellow clothing in frescoes, the colour is absent from depictions of male attire.²⁷

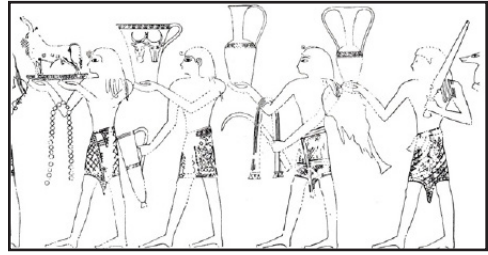


Figure 6: Drawing of Register I in the foreign tribute scene from the tomb of Mencheperresonb at Thebes (Wachsmann 1987, Plate XXXVI, Fig. A).

Though not particularly famous for its saffron, Crete was home to a thriving textile industry. Knossian wall-paintings from the Minoan period reveal images of striking garments with complex woven patterns,²⁸ and by the Postpalatial period it is clear from Linear B documents that Cretan palaces were concerned with breeding sheep for wool to use in textile manufacture. Indeed, the largest group of Linear B tablets from Knossos, Series D, relates to the tallying of sheep and their yields.²⁹

Textiles, it seems, were a major export for the Aegean, valued and desired as they were by neighbouring cultures throughout the Mediterranean. In Egypt, Theban tomb reliefs depict Aegeans in procession carrying textiles to be presented as tribute (fig. 6),³⁰ while Aegean-style wall-paintings reflect artistic motifs derived from Minoan textiles.³¹ In similar fashion, Assyrian kings had Phoenician traders supply their courts with saffron-dyed materials, presumably taking pride in both the quality of the fabric and the implications of its valuable colour.³² Supported by this widespread market, the Aegean was able to tap into a profitable industry.

It is interesting to note that a product as seemingly ordinary as cloth could hold such economic importance, but Peregrine Horden and Nicholas Purcell remind us of the unique position held by textiles as a commodity that sits on the threshold of luxury and necessity, enabling it to become a coveted product subject to the perceptions of external markets.³³ The presence of dyed animal hairs and textile fibres



Figure 7: The ‘Young Priestess’ from the east door jamb of the West House at Akrotiri (courtesy of The Thera Foundation).

alongside valuable materials such as faience and copper ingots in the LBA Uluburun shipwreck demonstrate the commodity’s importance and attest to the inclusion of textiles within pan-Mediterranean trade networks.³⁴

Most discussions surrounding the use of saffron as a dye have restricted themselves to textiles, but Joanna Day believes that further investigations into its cosmetic uses are warranted. Near Eastern cuneiform tablets attest to the use of saffron, turmeric, and sumac as decorative stains for hands,³⁵ and many of the females depicted in the frescoes from Akrotiri, including the “Priestess” from the West House (fig. 7), are shown with red and orange-tinted body parts, suggesting that they perhaps applied a dye such as saffron or henna for cosmetic or ritual reasons.³⁶

Saffron was also an important component of perfume manufacture. When dried, the spice emits a pleasant aroma described by Aristophanes as a “sensuous smell” (*Clouds* 51) admired by the Greeks.³⁷ The scent was undoubtedly used in Classical perfumes, for Dioscorides’ description of an ὀλμός vessel references its use in the mixing of saffron perfume with myrrh (*De Material Medica* I.54).³⁸ From her study of the perfume industry at Pylos, Cynthia Shelmerdine has observed close correlations between Classical and Bronze Age perfumery, supporting the probability that saffron was used in earlier periods of this industry as well.³⁹

Saffron’s powerful pigment would also have served as a natural colouring for the perfumes. Indeed, it seems to have been common in antiquity to enhance perfumes with both colour and scent, and the inclusion of *po-ni-ki-jo*, or alkanet, as a red perfume dye on Linear B documents indicates that this was common practice in the Bronze Age Aegean.⁴⁰ The appearance of ἐρτις within Mycenaean texts lends additional support; usually translated as henna, ἐρτις appears in contexts which indicate that it may have been added for both colour and smell. The henna flower was, however, foreign to Greece and must therefore have been imported from its native lands of Southeast Asia or North Africa,⁴¹ implying the trade of dried plants throughout the Mediterranean.

Evidence for a perfume industry is difficult to uncover without written documentation because of the organic materials used in manufacture, but the many *askoi* (flasks) and stirrup jars found decorated with crocus iconography at Akrotiri are suggestive of such an industry. Further chemical analysis may help to identify perfumed substances, but at present it seems likely that saffron was a useful ingredient in both textile and perfume manufacture.⁴²

Saffron in Medical Treatments

Saffron's function as a panacea was certainly not unknown in the ancient world. In Assyria it was used as a treatment for a wide range of ailments and diseases, from stomach aches to urinary disorders.⁴³ Likewise, Egyptian *djaret* seems to have referred to saffron with which it shared many similarities, including its medicinal use as a treatment for infections and inflammations, a remedy for diarrhea, and as a contraceptive.⁴⁴ Classical Greek writers also recognized the benefits, including saffron in various remedies from antiaging treatments to aphrodisiacs.⁴⁵ Pliny believed saffron to be beneficial overall, noting that it improved the efficacy of medicines: "All these perfumes are rendered still more pungent by the addition of *costus* and *amomum*...and saffron makes them better adapted for medicinal purposes" (*Naturalis Historia* 13.2.62). Even the ancient belief that saffron could treat ailments of the eyes has been upheld by modern scholars, for its high levels of carotenes and Vitamin A may benefit ocular health.⁴⁶ These treatments would undoubtedly have been shared amongst the interacting cultures of the Mediterranean, as they exchanged medical knowledge and remedies.⁴⁷

Amongst medicinal plants known in the Near East and Mediterranean, saffron can claim the largest number of applications, with 90 ethnomedical parallels.⁴⁸ Of these applications, 14% are obstetrical-gynecological, supporting the validity of the spice's most common ancient reference as a pain-reliever for menstrual cramps and childbirth.⁴⁹ Also known to be an

emmenagogue, saffron can act as an abortive in high doses, and may have functioned as an early form of birth control.⁵⁰ Indeed, Robert Arnott notes the prominent role that herbal healing would have played within the ancient Aegean, particularly amongst ancient midwives and female healers.⁵¹ The fact that women, rather than men, are shown in scenes involving crocuses and saffron has led many scholars to suggest that the Minoans were aware of the gynecological benefits of saffron, and thus exploited the plant's medicinal properties.⁵²

One of the most notable examples of the relationship between women and crocuses is found on the walls of the Xeste 3 building at Akrotiri. Known as the 'Adorants Fresco,' this painting originally decorated the walls surrounding a lustral basin on the ground floor (fig. 8). Three girls are depicted along the north wall, seemingly headed toward a possible shrine on the east wall.⁵³ Crocuses and saffron stigmas are conspicuous symbols in the scene, represented on the colourful garments of all three females. The mature woman on the left side of the scene walks in the direction of the shrine wearing a blue blouse emblazoned with crocus flowers and a garland of crocus stigmas around her neck and shoulders (fig. 8).⁵⁴ Beside her, the seated figure wears a belt embroidered with crocus flowers as she nurses a wounded foot.⁵⁵ The young figure on the right is the most enigmatic, partially covered by a translucent yellow veil sprinkled with red, and wearing a crocus-decorated bodice.⁵⁶



Figure 8: The 'Adorants Fresco' from the north wall of the ground floor lustral basin in Xeste 3 at Akrotiri (Doumas 1992:136, Fig. 100).

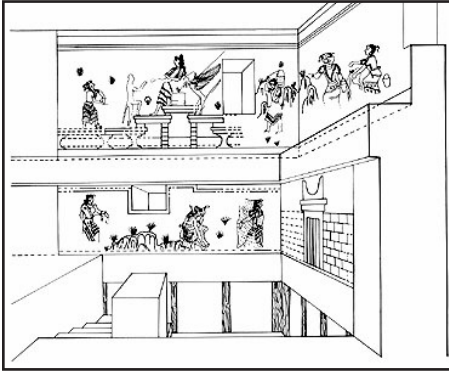


Figure 9: Reconstruction of the artistic program on the ground and upper storeys of Xeste 3 at Akrotiri (Immerwahr 1990:60, Fig. 20).

Speculative theories regarding the interpretation of the overall scene, ranging from the depiction of a female initiation ceremony to a mythological narrative, are thus far inconclusive.⁵⁷ The conflation of saffron's gynecological benefits, the crocus imagery seen in the Adorants' costumes, and the prominence of women does, however, suggest more than mere coincidence. Ellen Davis' astute observation that shaved hair was a symbol of youth in the Bronze Age Aegean makes it possible to identify the differing ages of the figures, decreasing in maturity from left to right.⁵⁸ Nanno Marinatos has therefore suggested that initiatory rites took place in the lustral basin, with the frescoes providing a visual metaphor for the maturation of initiates.⁵⁹ This theory, however, remains conjectural; instead it is Paul Rehak's hypothesis that the figures represent stages of female development which seems more reasonable.⁶⁰ This notion that the figures embody the celebration of womanhood, the pain and bloodshed which accompanies female maturation, and the transition from girlhood to womanhood, is particularly persuasive given the scientific evidence for the health benefits of the plant, the textual evidence regarding its use in early medicine, and the ancient tendency to conflate health and religious intervention, represented here by the shrine painted on the east wall.⁶¹ Indeed, Susan Ferrence and Gordon Bendersky believe the medicinal

benefits of saffron to have been the primary focus of its use in Xeste 3, suggesting that the building may have housed therapy rooms concerned with medical treatments.⁶² Although it is impossible to know for sure, the frequent connections made between health and divine intervention in the ancient world does suggest that the Adorants Fresco reflects the beliefs of the time, interweaving female health and sexual development with spiritual convictions.

Saffron in Religious Contexts

The appearance of crocus and saffron iconography in religious contexts has prompted many scholars to speculate on the connection between the plant and Aegean religion.⁶³ Without an understanding of the science behind agriculture, medicine, biology, and nutrition, all spheres which saffron was capable of affecting, it is likely that the Minoans "made less of a distinction between secular and religious spheres than we do today."⁶⁴

The most common references for the meeting of these spheres are the wall-paintings from Xeste 3 at Akrotiri. While the Adorants discussed above graced the walls of the ground storey, the adjacent upper storey was similarly decorated with detailed frescoes, creating an extensive artistic program spanning the two levels of the structure (fig. 9). Given the iconography, symbolism, and themes shared by the scenes, the ritual connections of the images are understood to extend throughout the building.

The scene on the eastern wall has been identified above as the so-called 'Saffron Gatherers' fresco, in which two girls undertake the time-consuming task of handpicking crocus flowers. The connection between this activity and the finished product, saffron, is reinforced by the continuity of the scene from the east wall onto the north, where a third girl carries a basket towards the central figure.⁶⁵



Figure 10: The enthroned goddess and young worshipper from the north wall of the upper storey of Xeste 3 at Akrotiri (Doumas 1992:158-159, Fig. 122).

Although the representation of this activity may reflect aspects of an important industry within the Minoan world, the north wall's fresco advocates for an additional ritual element to be considered in its interpretation. Here, enthroned on an elevated, tripartite structure and flanked by a heraldic griffin, sits an ornately adorned goddess (fig. 10), identified as such by her iconographic affinities with other Minoan deities.⁶⁶ Though her back is to the saffron gatherers, she is involved in the harvest through the gift she is being offered; at the far left, a young girl wearing brilliant yellow garments empties a basket of crocuses into a receptacle.⁶⁷ The laborious stigma-separation and drying processes are not shown, but the significance of the final product, saffron, is emphasized by the presentation of red crocus stigmas to the goddess by a blue monkey, commonly seen as a divine attendant in Minoan art.⁶⁸ The invocation of a deity in order to enhance the potency of a medicine was common practice in the Eastern Mediterranean, and supernatural touch was thought to imbue worldly materials with divine powers.⁶⁹ Thus it may have been believed that the goddess' acceptance of the saffron enriched the potency of the medicine.

The religious contexts of saffron at Akrotiri are not limited to Xeste 3. The West House features a prominent depiction of a woman usually regarded as a priestess because of her ceremonial dress and the incense-burner or brazier she holds before her (fig. 7). Scholars have suggested that the substance she burns is saffron,⁷⁰ and indeed, such a religious context

would make sense, given not only Xeste 3's depiction of the plant as an offering, but also the priestess' yellow robe and dyed eyes, lips, and eyebrows.⁷¹ The religious function of the flower is further corroborated by its appearance on offering tables and altars, at Akrotiri and throughout the Mediterranean. This religious tradition continued even to the 7th century BCE, when the altar to Apollo Karneios at the Theran colony of Cyrene was decorated with a crocus motif.⁷²

The depiction of the priestess is not the only connection between this particular building and saffron; the West House's impressive

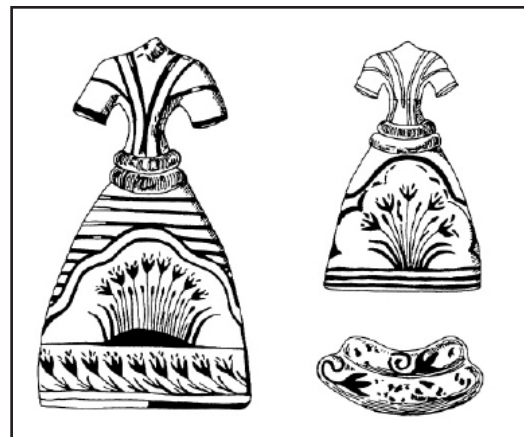


Figure 11: Drawings of the faience models of two female dresses and one girdle, all decorated with representations of crocus flowers, found in the Temple Repositories at Knossos (Rehak 2004:95, Fig. 5.9).

artistic program includes the elaborate Miniature Fresco, a painted frieze which wraps around the upper walls of Room 5. This scene depicts a vibrant maritime expedition, and amongst the many ship decorations rendered in colourful detail are crocus-shaped festoons hung from one of the largest ships. Similarly, crocus decorations appear on one of the *ikria*, or ship cabins, painted on the walls of Room 4. It is significant that, when represented elsewhere, *ikria* are always shown in ritual contexts.⁷³

In the early 20th century CE, Arthur Evans made an illuminating discovery at Knossos when the Temple Repositories were unearthed and dozens of objects were found in a ritual context. Within this collection of MMIIIB faience objects were faience crocuses and models of female garments decorated with crocuses (fig. 11).⁷⁴ The garment models are particularly significant because they support a connection between the flowers and female dress, and if Evans' interpretation of the faience models as votive offerings is correct, then here again is evidence for significant links between women, textiles, crocuses, and the divine.⁷⁵

Conclusion

It is clear from the iconographic evidence that crocuses and saffron were regarded as more than mere crops by the inhabitants of the Bronze Age Aegean. As a functional ingredient within the dyeing and perfuming industries, an effective medical treatment, a meaningful cultural symbol most likely used in cultic activities, and a profitable commodity, the plant was revered by the Minoans as a multifunctional resource engrained within many facets of their society. The numerous correlations between the valuable plant and Minoan females, seen both in iconographic representations and archaeological find contexts, suggests that saffron was held in particularly high esteem by women of the time who utilized its pharmaceutical benefits and embraced it as a symbol of female identity and culture.

By the Mycenaean period, saffron's value and versatility were well-established, and its detailed recording in Linear B documents reflects its status as a treasured commodity worthy of palatial attention. Interestingly, however, crocus imagery became a rare motif in Mycenaean art throughout the Aegean, suggesting that the plant lost some of its symbolism in this later period, even as its economic importance remained. The Mycenaean use of saffron and crocuses lies beyond the scope of this paper, but it is worthwhile to note that its disappearance from the artistic record appears to reflect its corresponding loss of social and religious significance within Mycenaean society.⁷⁶

Today, the Minoan legacy lives on. In modern Greece, saffron continues to be manufactured by the Cooperative of Saffron Producers of Kozani, an association of 40 northern villages which maintains exclusive rights for the harvesting and distribution of Greek red saffron.⁷⁷ Krocus Kozanis Products now offers at least seven types of saffron herbal teas, marketing the traditional health benefits of the plant,⁷⁸ as well as newly discovered attributes such as its antioxidant properties, ability to neutralize free radicals, and memory improvement.⁷⁹ While there is far more to the Minoans than their stereotype as peaceful, flower-loving hippies, it seems that their belief in the 'flower power' of the crocus was well-founded, creating a legacy that has lasted across the millennia.

Endnotes:

- 1 cf. Evans 1928, 468-512.
- 2 Gere 2009, 16.
- 3 Hamilakis 2000, 57.
- 4 Shelmerdine 2008, 3.
- 5 Hägg and Marinatos 1984, 221-222; Wiener 1990, 152.
- 6 Wiener 1984, 17.
- 7 Karnava 2010, 87.
- 8 Preston 2008, 311.
- 9 Preston 2008, 311-312.
- 10 Day 2011a, 377.
- 11 Day 2011a, 382.
- 12 Walberg 1992, 244.
- 13 The stigmas are the long, delicate pollen receptacles which protrude from the centre of the flower. Negbi and Negbi 2002, 268; Day 2011b, 342.
- 14 Porter 2000, 618; Day 2005, 51.
- 15 Day 2011b, 354.
- 16 Furumark 1941, 181.
- 17 Betancourt 1982, 34; 1985, 146.
- 18 Ventris and Chadwick 1973, 51; Driessen 2000, 207; Day 2011a, 371.
- 19 Sarpaki 2001, 204; Day 2011b, 365.
- 20 Douskos 1980, 141.
- 21 Sarpaki 2001, 236.
- 22 Young Forsyth 1997, 49.
- 23 Negbi and Negbi 2002, 268.
- 24 The hypobranchial gland of the *Murex* species was used in the Aegean and Eastern Mediterranean from the Early Bronze Age to the late Roman period to create a purple or deep blue dye for textiles. Similar to saffron, the immense effort and length of time needed to create this dye, as well as its great market demand, contributed to high costs. Purple therefore came to be considered a colour of wealth and royalty. Ruscillo 2005, 100 and 105; Douskos 1980, 144; Tzachili 1990, 381.
- 25 Tzachili 1990, 385.
- 26 Marinatos 1984b, 175; Amigues 1988, 241-242; Sarpaki 2000, 661-662.
- 27 Day 2011b, 364.
- 28 Tzachili 1990, 387.
- 29 Killen 1964, 1.
- 30 Wachsmann 1987, 75; 1998, 85-86.
- 31 Shaw 1970, 28-30.
- 32 Basker and Negbi 1983, 230.
- 33 Horden and Purcell 2000, 354.
- 34 Haldane 1993, 349.
- 35 Campbell Thompson 1924, 109; Day 2011b, 366.
- 36 Rehak 2004, 92; Earle 2012, 771-72; Day 2013, 9.
- 37 Basker and Negbi 1983, 230-231.
- 38 Shelmerdine 1985, 47.
- 39 Shelmerdine 1985, 17.
- 40 Foster 1977, 61-65; Shelmerdine 1985, 29.
- 41 Shelmerdine 1985, 28-31.
- 42 Young Forsyth 1997, 49; Porter 2000, 615.
- 43 Campbell Thompson 1949, 160; Young Forsyth 2000, 150.
- 44 Young Forsyth 2000, 161-162.
- 45 Celsus *De medicina* 5.11; Pliny *Nat.* 21.81; Young Forsyth 2000, 152-153.
- 46 Pliny *Nat.* 21.81; Young Forsyth 2000, 159; Rehak 2002, 48; Bisti, Maccarone, and Falsini 2014, 360-361.
- 47 Arnott 1999, 265.
- 48 Ferrence and Bendersky 2004, 206 and 211.
- 49 Ferrence and Bendersky 2004, 214.
- 50 Young Forsyth 2000, 153; Rehak 2002, 48.
- 51 Arnott 1997, 277-278.
- 52 Marinatos 1987, 132.
- 53 Marinatos 1984a, 74.
- 54 Porter 2000, 623; Rehak 2002, 41.
- 55 Rehak 2002, 40.
- 56 Rehak 2004, 90.
- 57 Chirassi 1968, 5; Marinatos 1984a, 65.
- 58 Davis 1986, 399-406; Rehak 2004, 87.
- 59 Marinatos 1984a, 79-84.
- 60 Rehak 2004, 86.
- 61 Ferrence and Bendersky 2004, 211.
- 62 Ferrence and Bendersky 2004, 205 and 220.
- 63 Marinatos 1984a, 1987; Rehak 2004, 85-100.
- 64 Rehak 2002, 47.
- 65 Marinatos 1987, 123.
- 66 Marinatos 1987, 123; Rehak 1995, 104-105.
- 67 Marinatos 1987, 123.
- 68 Marinatos 1987, 125-127.
- 69 Ferrence and Bendersky 2004, 212.
- 70 Marinatos 1984a, 46; Wachsmann 1998, 86.
- 71 Young Forsyth 1997, 79.
- 72 Chirassi 1968, 125.
- 73 Betts 1973, 334; Wachsmann 1998, 118.
- 74 Evans 1928, 469; Day 2011b, 358.
- 75 Rehak 2004, 95.
- 76 Day 2011a, 381.
- 77 A short history of the Cooperative and its work can be found on the official website for *Krocus Kozanis Products* (2014, <http://www.krocuskozanis.com/>).
- 78 A brief overview of the beneficial properties of saffron can be found on the official website for *Krocus Kozanis Products* (2014, <http://www.krocuskozanis.com/>).
- 79 Abdullaev 2004, 433; Akhondzadeh et al. 2010, 582.

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