

Royal Gift Exchange Between Mycenae and Egypt: Olives as “Greeting Gifts” in the Late Bronze Age Eastern Mediterranean

JORRIT M. KELDER

Abstract

Contact between Egypt and the Aegean during the Late Bronze Age, especially the relationship between Minoan Crete and New Kingdom Egypt, has been the subject of much study. The relationship between the Greek (Mycenaean) mainland and Egypt is generally regarded as a more elusive topic, and most scholars seem to consider interaction between the two a matter of irregular exchange via middlemen (e.g., on Cyprus, in the Levant), rather than direct contact. This paper seeks to stimulate new thinking on this subject by positing the possibility that exchange between the two was more than a haphazard phenomenon, arguing that it was, instead, a highly organized system that involved the active engagement of the ruling elite at Mycenae as well as the pharaonic court. Using both archaeological and paleobotanical data and focusing my examination on the import into Egypt of Mycenaean pottery, particularly stirrup jars, which are known generally as containers for olive oil, I demonstrate that olives and/or olive oil were a crucial part of this Late Bronze Age interstate connection.*

INTRODUCTION

The Egyptian New Kingdom (ca. 1550 B.C.E.–1150 B.C.E.) covers most of the Late Bronze Age in the Aegean; it saw the rise of the Hittite empire in Anatolia, the formation of the Mycenaean palatial states in Greece, and the rise of the Middle Assyrian empire in Mesopotamia.¹ The New Kingdom commences with the expulsion of the Hyksos, a people of Levantine origin who had seized power in the Nile Delta after

the collapse of the Middle Kingdom, under the command of Ahmose, the first king of the 18th Dynasty. Under his successors, Egypt’s borders were pushed south—well into Nubia—and east, with Thutmose III (ca. 1479–1425 B.C.E.) even crossing the Euphrates River. It was during one of his campaigns in the Levant that Thutmose received an envoy coming from a hitherto unknown land across the “Great Green” of the Mediterranean.

The Annals of Thutmose, describing in considerable detail his exploits in the Levant, refer only briefly to the event. Messengers from a land called *Tnj*, usually vocalized as Tanaju, came to the pharaonic court and brought greeting gifts from their king to the great Egyptian conqueror. These gifts included a silver jug in Keftiu style and what is usually translated as three copper cups with silver handles.² Haider, however, reads “iron” cups, which would make the gift even more extraordinary, as iron at this early stage was an extremely rare commodity and difficult to work.³ This reference is the first attested contact between the Egyptian court and Tanaju and should be dated to the 42nd regnal year of Thutmose, ca. 1437 B.C.E. Tanaju only sporadically appears in the Egyptian sources, and its location has been a matter of debate. From a later text at the temple in Kom el-Hetan dating to the reign of Amenhotep III (ca. 1390–1352 B.C.E.), it is known that it was the Egyptian designation for a region in the Aegean, including Mycenae and Nauplion (i.e., the

*I would like to thank Ron Leenheer for proofreading this text, and Matthew Haysom and Jacke Phillips for their useful comments. I am also grateful to the three anonymous reviewers for the *AJA* for their friendly and useful comments. I am indebted to the Netherlands Organization for Scientific Research (NWO) for their grant to conduct the present study.

¹ For the reign of Egyptian kings, this paper follows the chronology presented in Shaw (2000) and that of Warren and Hankey (1989) for Aegean Bronze Age chronology. I am aware of the discussion regarding, especially, Aegean Bronze Age chronology (cf. Manning 1999; Bietak 2004; Manning et

al. 2006), but this seems mainly concerned with the earlier part of the Late Bronze Age and only minimally affects the period investigated here.

² Haider 1988, 10; Latacz 2001. Most of the relevant Egyptian texts regarding Keftiu have been published in Vercoutter 1956. Tanaju appears for the first time in the Egyptian record during the reign of Thutmose III. Almost all Egyptian references to the Aegean (Keftiu, Tanaju, and “the islands in the midst of the Great Green”) are found in Cline (1994, 108–20), the most recent compilation.

³ Haider 1988, 10.

Argolid), Kythera, Messenia, and a number of regions more difficult to identify (fig. 1).⁴ As the annals point to a king of Tanaju (who is sending greeting gifts to the Egyptian court), it appears likely that Tanaju was a state rather than just a geographical region, at least in Egyptian eyes.

Tanaju is referred to in several later texts, but these generally are regarded as copies of geographical lists like the one mentioned above, originally dating to the reign of Amenhotep III.⁵ The Greek mainland in effect only appears in Egyptian written sources in the period between Thutmose III (ca. 1479–1425 B.C.E.) and Amenhotep III (ca. 1390–1352 B.C.E.). Much later, during the reign of Ramesses III (ca. 1184–1153 B.C.E.), the Ekwesh, who are listed as one of the invading Sea Peoples, may represent a group from the Greek mainland, but then we are dealing with a people rather than a state.⁶ Direct contact between Egypt and the Greek mainland is only attested in the textual sources for the period from Thutmose III to Amenhotep III. During this period, contact was—at least on one occasion—of a formal nature, involving the exchange of prestige goods between the king of Tanaju and the king of Egypt. The presence of the well-known faience plaques with the royal cartouche of Amenhotep III on the citadel of Mycenae is more likely than not a marker that these formal contacts continued until the reign of this king.⁷ On the whole, however, there is little if any proof in the archaeological record that there was direct contact between Egypt and the Mycenaean mainland, although it is doubtful that this kind of contact could ever be deduced from the archaeological record alone. Because of the absence of clear archaeological evidence, the idea of direct contact between the Mycenaean world and Egypt has often been criticized. There has been, as a result, a widespread view that any contact between the two lands is more likely to have been a matter of irregular exchange, probably not direct exchange but via middlemen on, for example, Cyprus and in the Levant.⁸ There is perhaps one em-

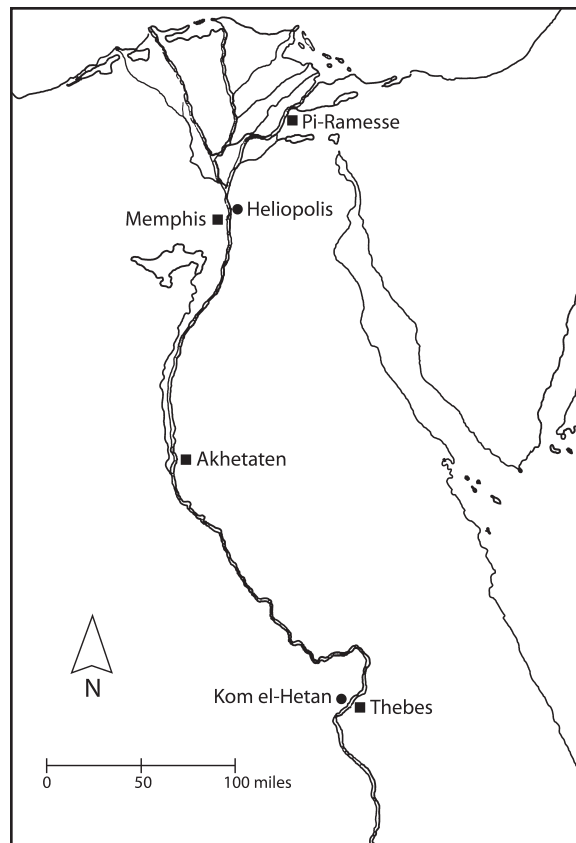


Fig. 1. Map of New Kingdom Egypt. Squares represent major urban centers; dots represent sites yielding textual evidence discussed in this article.

pirical sticking point for such a view: the corpus of Mycenaean pottery at El Amarna, the site of Akhetaten, capital of Egypt's heretical King Akhenaten.

MYCENAEAN STIRRUP JARS IN EGYPT

In 1981, Hankey (now deceased) noted that the corpus of Mycenaean pots at Amarna is exceptional,

⁴Although it has been proposed that *Tnj* refers to a region in northern Syria/Cilicia (cf. Edel 1975, 63), the identification of various Mycenaean centers and regions in the list strongly indicates that *Tnj* should be sought in the Aegean. See Haider (1988, 8) for extensive evaluation of the arguments. That the messengers from Tanaju in the Annals of Thutmose III brought a vessel in Keftiu style may strengthen an Aegean identification of Tanaju. Edel (1966) proposed the following identification for these names: Amnisos, Phaistos, Kydonia, Mycenae, Messenia, Nauplia(?), Kythera, Ilios(?), Knossos, Amnisos, and Lyktos. The enigmatic *dq's* (*di-qa-ê-s*) has been identified by some as Tegea, by some as the upper Helisson Valley, by Helck (1992, 13) as Διπλωϊς, and by Edel (1988, 30) as the Thebaid. The latter identification seems to have been

generally accepted. The identification of Ilios for *wi-î-î-li-ja*, however, is not generally accepted (Helck 1995, 25–6). *Wi-î-î-li-ja* has also been identified as Aulis (Goedicke 1969, 10), which—if correct—would fit nicely with Edel's identification of *dq's*, as Aulis is supposed to have been the principal harbor of Thebes; it has most recently been identified as Elis (Latacz 2001, 163). The identifications of Amnisos, Kydonia, Mycenae, Messenia, Kythera, and Lyktos have not been opposed (cf. Haider 1988, 9).

⁵See discussion in Cline 1998.

⁶Cf. Ekwesh with Hittite Ahhiyawa (Helck 1995).

⁷Phillips and Cline 2005, 327.

⁸Cf. Bass 1967, 14–18; 1998, 184–87; Merrillees 1968, 195; Sherratt 1999; 2001, 224–54.

both in amount and in homogeneity.⁹ She also pointed out that the types of vessels present in the corpus are virtually all closed shapes, with pilgrim flasks and stirrup jars prevailing. It is difficult to extrapolate the precise dimensions of those vessels on the basis of the extant sherds, but most stirrup jars appear to have been relatively small (diam. ca. 30 cm) and of relatively good quality (fine ware) with simple, linear decoration. Large coarse ware stirrup jars appear to have been rare at Amarna.¹⁰

Compared with the then-known corpora in the Levant, the prevalence of closed shapes in the Amarna corpus is remarkable, since the Levantine corpora usually display a more diverse range of shapes, including open-shaped vessels (e.g., kylikes, rhyta, kraters). More recent research elsewhere in Egypt has, however, demonstrated that all corpora in Egypt are dominated by closed-shaped vessels (esp. stirrup jars), and that the Amarna corpus, in this respect at least, does not stand out as much as had been previously thought.¹¹

The Amarna corpus comprises a relatively large number of Mycenaean sherds, estimated between 1,500 and 2,000 and thought to represent at least 600 whole pots. The Amarna corpus also is remarkable because of the archaeological context of most of the sherds, for the bulk of Mycenaean pottery at Amarna has been found in the Central City.¹² By far the majority (more than 1,300 fragments) was found in large rubbish heaps to the east of the police barracks and the offices of the royal scribes (known as the Record Office). Smaller quantities of Mycenaean pottery have been found elsewhere in the Central City, including the magazines, the military and police quarters, the Royal Estate, and the Great Palace. Notably, no fragments of Mycenaean pottery have been found in the Great Temple of Aten or its dependencies or in the Small Temple of Aten. The southern suburb has yielded a small number of fragments of Mycenaean pottery, but to my knowledge, there were no more than

approximately 15 sherds. A slightly larger number of fragments has been found in the northern suburb, but there, too, the total was quite modest. The Royal Palace in the North City may have yielded a small amount of Mycenaean pottery (a distribution map of the city used by Hankey in a 1981 lecture seems to indicate this), but there are no corroborating references in the excavation reports. Mycenaean pottery, then, seems to have been used, to whatever end, in the administrative and ritual heart of Amarna-age Egypt—the Central City of Akhetaten. Its distribution in the surrounding districts seems markedly limited. As a consequence, it appears that Mycenaean pottery at Amarna was closely associated with court display.

Elsewhere in Egypt and in other (later) periods, Mycenaean pottery may have been used more widely. This was noted by Bell, although her argument, which is based on the observation that Deir el-Medina had access to approximately 120 vessels of Late Helladic (LH) IIIA2 and LH IIIB style,¹³ ignores that these vessels may have been imported to the village over the course of more than a century (as opposed to the 20-year period for the 600 vessels or more thought to be present in the Amarna corpus), and that this site (the home of the workmen constructing the tombs of the kings and queens) can hardly be regarded as presenting a normal Egyptian settlement; it seems instead to be closely related to (funerary) court display.

The finds at Amarna do not represent the first examples of Mycenaean pottery to arrive in Egypt, although they are certainly the earliest pieces to appear in large quantities there. The Mycenaean pottery found at Amarna generally follows the style of LH IIIA2, although one or two pots may be dated to LH IIIB1.¹⁴ Earlier attestations of Mycenaean pottery in Egypt include LH IIA/Late Minoan (LM) IB pottery at Saqqara, Abydos, and Dra' Abu el-Naga, and LH IIB pottery at Saqqara, Memphis, Kahun, Gurob, Gurnah, and Malqata.¹⁵ Virtually all these early pieces

⁹ Hankey 1981.

¹⁰ Pendlebury (1951, 237–38, pl. CIX 4.222) identified only two sherds of the larger coarse ware transport stirrup jars at Amarna (but see Hankey 1973, 129).

¹¹ Cf. Podzuweit 1994, 466.

¹² The Mycenaean pottery found at Amarna is first presented in Petrie 1894, 17; see also Borchardt 1913, 23, 29–52; Peet and Woolley 1923; Pendlebury 1933, 1951; Rose 1987, 119. Since then, more Mycenaean material has been found in Amarna, though the general pattern of distribution (with a clear concentration in the Central City) has not changed.

¹³ Cf. Bell 1982. Since Deir el-Medina was deserted during the reign of Akhenaten, it seems most plausible to ascribe the LH IIIA2 material at that site to the reign of Tutankhamun and, perhaps, Aye and Horemheb. The LH IIIB material may have been imported over the course of the 19th Dynasty; see

also Hankey 1993.

¹⁴ For an extensive discussion, see Hankey et al. (forthcoming). The best introduction on Akhetaten and the relations between the various quarters of the city is found in Kemp 1989.

¹⁵ Cf. Hankey 1981, 41–6; 1993, 114. Malqata itself has yielded little, if any, well-documented Mycenaean pottery (a Mycenaean cup attributed to Malqata [Helck 1995, 91] probably was found at nearby Dra' Abu el-Naga [von Bissing 1899]), but Mycenaean pottery has been found just south of and contemporary with Malqata (Kemp 1977, 75); see also Merrillees 1968, 22, 195; Warren and Hankey 1974, 146–47. For Kahun/Lahun, see Hankey and Tufnell 1973. For Sedment, see Petrie and Brunton 1924, 23, pls. XLVIII 1, LIX 59, LXV 79c. For Gurob, see Brunton and Engelbach 1927, 9, pls. XXIX 39, XXX 79b, XIII 4.

were of closed shape (alabastron-shaped jars [FS82], pyxides [FS92], pithoid jars [FS21], or squat, one-handed jars).

Although Mycenaean pottery evidently did find its way to Egypt before the Amarna era, the quantities are very small, rarely including more than a few pots per site. Amarna marks the advent of Mycenaean pottery in the Egyptian archaeological record, after which it is found at sites throughout Egypt until the end of the 12th century B.C.E. Quantities vary, and most sites have yielded only a dozen or so pots, though larger amounts have been found at several major sites.¹⁶ Most notable among these sites are Pi-Ramesse, the Ramesside capital in the eastern Delta, and Deir el-Medina, in the hills near the Theban Valley of the Kings. While the two other major centers of New Kingdom Egypt—Memphis and Thebes—have, unfortunately, suffered as a result of later occupation and rising groundwater, the Necropolis of Memphis at Saqqara has yielded a small corpus of Mycenaean vessels, with material from LH IIA to LH IIIB2.¹⁷

Pi-Ramesse

The Mycenaean pottery from Pi-Ramesse (modern Qantir) has, unfortunately, been only partly published. In 1993, Hankey presented a sample from the corpus that included 97 sherds. Mountjoy and Mommsen, in a more recent study, published 100 sherds and a whole pot from the site.¹⁸ It is difficult to estimate the size of the corpus of Mycenaean pottery at the site, but it may be several hundred sherds.¹⁹ The corpus includes a relatively wide range of shapes. Pusch noted the presence of kylikes and even kraters at Qantir, whereas Hankey identified several stirrup jars.²⁰ Other shapes, including piriform jars, alabastra, jugs, cups, and possibly a rhyton, are also present.²¹ For most of the vessels, an Argive origin has been suggested, although some pots may have come from Cyprus. There is even a suggestion of some local (Egyptian) manufacture of Mycenaean-style pots at the site.²² The material found at Qantir ranges from LH IIIA2 to LH IIIB2 (with possibly some late LH IIIB2). The center of Ramesses' royal city lies under the modern village of Qantir, but the old city stretched farther away, to the nearby village of Tell el-Dab'a.

The site also enjoys some fame as Avaris, the Hyksos capital of Egypt. By the time of Ramesses II, however, Avaris had dwindled in importance and was gradually absorbed by the expanding royal capital nearby, although it was not devoid of, for example, more conspicuous architecture. At least one temple has been uncovered in the area, dedicated to the god Sutek. In the periphery of the temple area, several sherds belonging to stirrup jars were found. Unfortunately, these sherds have not yet been properly published; but Bietak assigned a late 18th- to early 19th-Dynasty date to the temple on the basis of these pots,²³ which suggests we are dealing with LH IIIA2–LH IIIB1 pottery. Excavations in later years yielded more pottery, although most of it also remains unpublished. A small selection of about 20 Mycenaean sherds from Tell el-Dab'a that was kindly shown to me in 2002 consisted mainly of closed shapes and was tentatively dated to LH IIIA1–2. Survey results in the eastern Delta indicate some diffusion of Mycenaean pottery to the hinterland of Pi-Ramesse.²⁴

Stirrup jars are without a doubt the most common Mycenaean vessels found in Egypt, closely followed by pilgrim flasks. It is generally accepted that these vessels served as containers for a liquid, probably perfumed olive oil. It is therefore of interest to take a closer look at the occurrence of the olive and olive oil in the Mycenaean and Egyptian records.

THE OLIVE IN THE AEGEAN AND EGYPT

The wild olive is native to several areas in the Mediterranean, including Greece, but the date of its intensive cultivation is a matter of ongoing debate. Following Renfrew's suggestion that the olive was grown in the Aegean beginning in the Early Bronze Age, questions regarding its domestication and importance in the Aegean have drawn considerable attention.²⁵ Although some scholars have followed Renfrew's model,²⁶ it has attracted criticism. Alternatively, some scholars have suggested that the production of olive oil in the Aegean began in the Cretan Second Palace period (ca. 1700–1450 B.C.E.) and intensified during the Postpalatial period (ca. 1450–1200 B.C.E.).²⁷ Recently however, charcoal analysis from Akrotiri, Thera, has revealed evidence of large quantities of olives present

¹⁶Including Deir el-Medina (supra n. 13), Saqqara (Warren and Hankey 1974, 148–50; Martin 1976), and various smaller sites in the eastern delta (van den Brink 1987).

¹⁷Cf. Warren and Hankey 1989.

¹⁸Cf. Mountjoy and Mommsen 2000.

¹⁹The occurrence of Mycenaean sherds in the hinterland of Pi-Ramesse may suggest that Mycenaean pottery was imported in relatively large numbers (cf. van den Brink 1987).

²⁰Hankey 1993; Pusch 1999, 29.

²¹Mountjoy and Mommsen 2000, 146.

²²Mountjoy and Mommsen 2000, 139.

²³Bietak 1975, 208.

²⁴van den Brink 1987.

²⁵Renfrew 1972, 287; Runnels and Hansen 1986, 301.

²⁶Blitzer 1993, 165.

²⁷Cf. Runnels and Hansen 1986, 302–3; Halstead 1994; Hamilakis 1996, 2.

in Early Bronze Age strata, suggesting the widespread exploitation of the fruit at this early stage in the history of the settlement.²⁸ This thus supports Renfrew's thesis and allows for an even earlier date for the exploitation of the olive on Crete.²⁹ However, evidence that the olive was used at an early stage of the Aegean Bronze Age does not imply early domestication. Thus, Melana proposes a 7:2 ratio of wild vs. domesticated olives in the palatial oil production, suggesting that the Mycenaeans seem to have used wild olives on a far greater scale than the domesticated variety.³⁰

While the date for domestication of the olive remains open for debate, the use of the olive is slightly clearer. Linear B texts indicate that olive oil was used for a variety of purposes. There is good reason to assume that it was used as an unguent (i.e., based on evidence from Pylos),³¹ but more mundane uses, such as cooking oil, cannot be excluded.³² Olive oil, perhaps perfumed, was used for the preparation of special dresses for festivities at the palace of Pylos, sometimes as an offering to a deity (e.g., PY Fr 1225 makes reference to "perfumed oil for textiles" as an offering to *u-po-jo po-ti-ni-ja*).³³ Large quantities were also given to sanctuaries,³⁴ to the point that a practical use of the oil on such a massive scale seems implausible. We know that olive oil in Egypt—perfumed or not—was used to fuel the lamps of temples, which accounts for Egypt's continuous need to import or later produce

oil. A similar scenario may have existed in Greece, in which case the large quantities of oil given to the gods may have been burned.

In Egypt, the picture is clearer. Egypt lies outside the ecological environment of the wild olive, and its arid climate does not favor olive growth. Olives must, therefore, originally have come from elsewhere, and the Levant seems to be the most likely candidate, since there, the use of olives is attested from Chalcolithic times (3700–3500 B.C.E.) onward.³⁵ But there are also some indications for domestication of the fruit in the Levant during the Early Bronze Age.³⁶ The oldest olive remains found in Egypt are thought to have come from the Levant; they have been found in 13th-Dynasty levels at Kom el-Rabi'a (Memphis)³⁷ and, dating to the late Second Intermediate Period, at Avaris in the eastern Delta.³⁸ On the whole, the olive seems to have made its way only very rarely to Egypt before the New Kingdom.

Although sporadically attested at sites from the early New Kingdom, the olive really makes its appearance in the Egyptian record during the reign of Akhenaten (ca. 1352–1336 B.C.E.)³⁹ On the walls of the Great Temple of Aten in his newly founded capital, Akhetaten, the king is shown offering an olive twig to his god, and an olive tree is shown on an Amarna mural painting (fig. 2).⁴⁰ Olive twigs figure prominently in the funerary bouquets found on the coffin of his successor,

²⁸ Asouti 2003, 481.

²⁹ Cf. Moody and Rackham 1996.

³⁰ Melana 1983, 97–103.

³¹ Cf. Shelmerdine 1985, esp. 107–11.

³² But see Melana (1983, 123), who notes that the Mycenaean tablets reflect an interest in olive oil more for industrial purposes than for food.

³³ Cf. Weilharter 2005, 225. In the Linear B tablets, the product of the "unguent/perfume boilers" appears to have been divided into two categories: as a pourable liquid or as an unguent (Bunimovitz 1987, 13). The division of perfumed olive oil into two groups seems reflected in the two groups of closed vessels exported to the Levant. See Leonard (1981), who argues that stirrup jars and flasks contained the thin, pourable oil, while pithoid jars, alabastra, and pyxides served as containers for the thicker, more viscous oil or unguent.

³⁴ Weilharter 2005, 227.

³⁵ Frankel 1999, 37.

³⁶ Zohary and Hopf 2000, 149.

³⁷ Murray 2000, 610.

³⁸ Newton et al. 2006b, 407. More recently, studies based on geometrical morphometry of modern olive cultivars and archaeobotanical remains of olive stones have tried to shed light on the period when olives were introduced in Egypt and on which varieties were selected. The results of these studies, however, are inconclusive and suffer from insufficient quantities of archaeobotanical remains (cf. Newton et al. 2006a).

³⁹ Several olive stones in the Dokki Agricultural Museum are said to come from an early New Kingdom context. Moreover, olives are reported at a few sites with early 18th-Dynasty

strata, such as Gurnah. It has been claimed that the product *b₃k*, attested from the Middle Kingdom onward, was olive oil, but this identification is open to debate; in fact, others claim that it was moringa oil (cf. Serpico and White 2000, 399). There can be no doubt, however, that olives were a very rare commodity, which accounts for the scarcity of references to, or depictions of, olives in New Kingdom Egypt (cf. Schweinfurth 1886; Newberry 1890; Germer 1988, 14, 28). A wreath of olive leaves found on the mummy of Amenhotep II at Deir el-Bahari may or may not date to the 22nd-Dynasty relocation of royal mummies (cf. Germer 1988, 25, fig. 22).

⁴⁰ Frankfort 1929, 25, 45, pl. 9C. The depiction of an olive tree, in combination with the occurrence of olive stones at the workmen's village and the olive wreath elsewhere in the city, raises the possibility that olives were grown in Egypt from the reign of Akhenaten onward. Olive trees stem from cultivars, not seed, and the mural painting at Amarna (see fig. 2 herein), though preserved only as fragments, may depict one of these young olive trees, perhaps originating from the Aegean. Since olive trees take some 20 years to bear fruit, and even then only every other year, the installation of extensive olive orchards for the production of oil must have been a large undertaking. During the reign of Ramesses II, Egypt must have possessed olive orchards that were sufficiently large enough to produce olive oil, as indicated by jar dockets from Deir el-Medina. Prior to that, it appears unlikely that the Egyptians had extensive olive orchards, although there may have been small-scale olive groves, comparable to, e.g., Hatshepsut's garden at her mortuary temple at Deir el-Bahari.

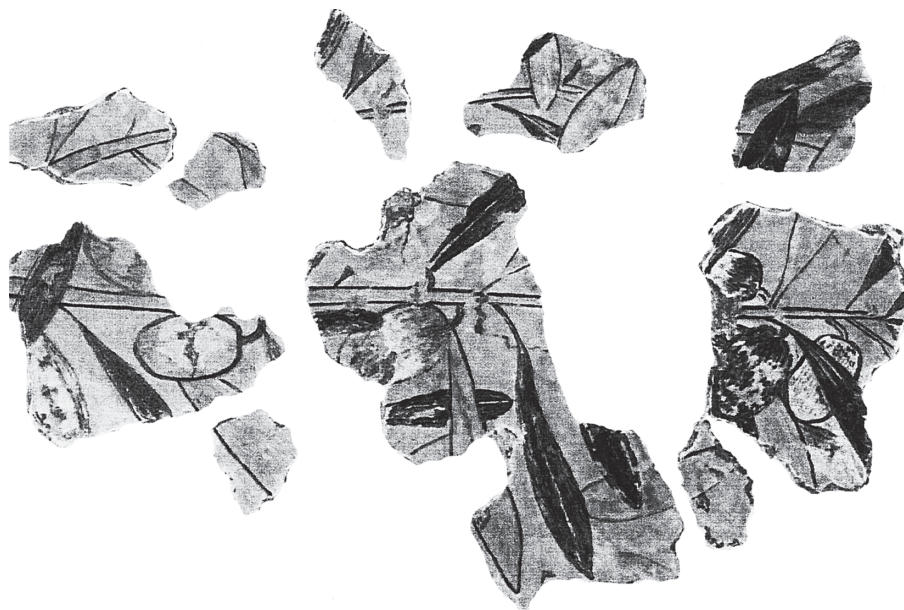


Fig. 2. An olive tree on a mural painting at El Amarna (Frankfort 1929, pl. 9C; courtesy Egypt Exploration Society).

Tutankhamun.⁴¹ Moreover, a wreath of olive leaves was found in a house in the Central City at Amarna.⁴² Olives may have come from other places than Greece, as they are found virtually everywhere in the (eastern) Mediterranean. Because this relief represents the first depiction of an olive tree and olives in ancient Egypt, and because Mycenaean pottery appears for the first time in large quantities in the same city, there is reason to consider the olives offered to Aten as arriving from the Mycenaean world.

Although the absence of Mycenaean pottery in the temple rules out the possibility that the pots or their contents played a religious role in the solar cult, there does seem to be an argument in favor of the olive and its oil as a conspicuous royal commodity. The presence of olive stones at the workmen's village at Amarna⁴³ and later at Deir el-Medina⁴⁴ could arguably be seen in the same royal context. It is at these places, after all, that work on the final resting place of the king took place. The presence of olive twigs in the funerary bouquets on Tutankhamun's sarcophagus demonstrate that olives were important in Amarna-royal display.

Clearly, then, Amarna marks the advent of the olive in Egypt. That does not mean that the Egyptians had

not known the fruit before, or that from that moment, the olive was grown in Egypt, too, but it does mean that the olive was from that point onward part of the Egyptian conceptual world—in iconography, ritual, and daily life. References to olives or olive oil in the Egyptian textual record are scarce. The first is found on the Silsileh Quarry stele, dated to the reign of Seti I (ca. 1294–1279 B.C.E.). Here, olives are part of the rations of that king's messenger and standard bearer.⁴⁵ Apart from this one stele, olives only make their appearance in the textual record in the Harris Papyrus I, which deals with the pious deeds of Ramesses III. Olives or olive oil are mentioned on three occasions: olives (in jars) are noted twice as a gift to the festivities for the god Amun-Ra, and once the king is said to have "made for thee [the God Ra] olive-lands in thy city [Heliopolis]. I equipped them with gardeners and numerous people, to make pure oil, the best of Egypt, in order to light the flame in thy august House."⁴⁶ Although this certainly is the first clear attestation that olives were grown in Egypt, jar docketts from Deir el-Medina, dating to the reign of Ramesses II (ca. 1279–1213 B.C.E.), refer to Egyptian centers where the olives originated, which suggests that by that time, the Egyptians had their own olive groves.⁴⁷

⁴¹ One wreath of olive leaves was found on the sarcophagus, and three more were found elsewhere in the tomb, near the "canopes" of the king (Germer 1989, 90–5).

⁴² Pendlebury 1951, 118, pl. 78.

⁴³ Renfrew 1985, 188.

⁴⁴ Bell 1982, 153.

⁴⁵ Breasted 1906, 3:208.

⁴⁶ Breasted 1906, 3:239, 241; 4:236.

⁴⁷ Bell 1982; Tallet 2003, 265–69.

Before the reign of Ramesses II, it seems that olive oil had to be imported.

THE IMPORTATION OF OLIVES INTO EGYPT

If olive oil predating the reign of Ramesses II had to be imported, there would have been several areas from which the Egyptians could have acquired it. Olives were grown in the Levant, where Egypt ruled various principalities. Yet olive oil does not appear to have been extracted from these Levantine dependencies. There are no references in the Egyptian sources to olive oil coming from the Levant and no lists of tribute with olive oil in it. This does not exclude the possibility that Levantine oil did make its way to Egypt, but it suggests that this did not occur on a great scale. Moreover, the elevated context in which olives and olive oil appear at Amarna indicates that these goods where something of a novelty, a prestigious commodity coming from afar.

If the olive (oil) in Egypt did not come from the Levant, we must ask where it did come from and how it got to Egypt. Cyprus certainly produced olive oil during the Late Bronze Age. Facilities for its production and storage have, for example, been found at Kalavassos-Ayios Dhimitrios.⁴⁸ Monumental ashlar buildings suggest that, here, olive oil was part of a centralized bureaucracy that was more likely than not engaged in (overseas) exchange.⁴⁹ It is thought that Cyprus may well have been the last port of call of the Uluburun ship, and, if true, one might perhaps consider the olive

remains found in the wreck a testimony to Cypriot olive export.⁵⁰ Cypriot products certainly reached Egypt with great frequency, judging from the amount of Cypriot pottery found at various Egyptian sites. Moreover, two Amarna Letters (EA 34, E35) refer to Cypriot “sweet oil” being sent to the Egyptian court in the context of royal gift exchange. At Amarna, however, where the olive makes its first full-blown appearance in the Egyptian record, Cypriot pottery is present but clearly overshadowed by Mycenaean vessels. Consequently, there is reason to consider that the olive depicted on the wall of the Great Temple of Aten at Amarna came not from Cyprus but from Greece.

If so, how did the olive come to Egypt? There are two primary options: via private exchange or via diplomatic/royal exchange. Olives may have come to Egypt via private exchange in different ways: directly, by ship from the Aegean, or indirectly, via Cyprus or the Levant.

In the case of Amarna, the Argive provenance of the Mycenaean vessels suggests that Akhenaten’s olive oil came from the Argolid.⁵¹ The uniformity of the corpus, already remarked upon by Hankey, adds to the impression that the entire corpus represents one shipment sent directly from the Argolid to the Egyptian court.⁵²

Although the nature of the Mycenaean economy and the degree of palatial control over the flow of resources is a matter of discussion,⁵³ it is clear that the Egyptian economy was extremely centralized. The palace controlled what was imported, when, and where.⁵⁴

⁴⁸South 1989; Keswani 1992.

⁴⁹Although Steel (2004, 159–61) argues that there is virtually nothing to suggest such a concept, pointing out the lack of major redistributive centers controlling the agricultural produce of the various inland sites and that there is no evidence for a systematic sealing system (as opposed to the Aegean and the Near East). The recent discovery that the center of Alashiya—known to be a major state from the Amarna Letters—must be situated at an inland site (probably the site known as Alassa), however, contradicts this notion, and there now seems to be a good argument in favor of a strongly centralized, supraregional state in—perhaps encompassing all of—Cyprus during the Late Bronze Age (cf. Goren et al. 2003; 2004, 45–75).

⁵⁰Although in this specific case, the export of Cypriot olives was directed to the Aegean, rather than to Egypt (cf. Haldane 1993). Bachhuber (2006, 347) notes that Cyprus is likely to have been the last port of call of the ship before it sank off the coast of Lycia.

⁵¹Podzuweit (1994) argues for Berbati as the center of manufacture of the stirrup jars.

⁵²Cf. Hankey 1981. Despite unsubstantiated claims that exchange between the Greek mainland and Egypt was always indirect, via Rhodes, Cyprus, and/or the Levant (cf. Merillees 1972, 180–81), there is really nothing to support that minimalist scenario (as had already elegantly been noted by Podzuweit [1994, 468 n. 68]: “Diskutiert bei R.S. Merillees . . . wo

man für keine These, sei es Syrien, Zypern oder Rhodos, Argumente erkennen kann”).

⁵³For various discussions on the extent and nature of palatial control over the hinterland, see Galaty and Parkinson 1999; see esp. Halstead 1999; Parkinson 1999; Small 1999.

⁵⁴During the New Kingdom, the word *shwty* (trader) always designates a state employee, and as such, all trade outside Egypt is done on behalf of—and under strict supervision by—the palatial administration. Unofficial contacts and exchange of goods between members of the entourage of visiting potentates and common Egyptians cannot be excluded, but it must have occurred on an extremely limited scale (cf. Shaw and Nicholson 1995, 294–95). There are, however, some indications that some (esp. coastal) communities may have had access to imported goods without strict palatial supervision during the 19th Dynasty. At a recent conference at the Netherlands-Flemish Institute in Cairo, Steven Snape presented some of the finds from the excavations at the fortress at Zawiyet Umm el-Rakham on the Egyptian west coast, which included quantities of Mycenaean pottery. It appears likely that the Mycenaean pottery at Zawiyet Umm el-Rakham was the result of “private exchange,” rather than royal supplies for the local garrison. Similarly, the distribution of Mycenaean sherds in the eastern delta might suggest that, at least by the time of Ramesses II, Mycenaean imports were more widely available in Egypt than had hitherto been the case.

Though it can be argued that some degree of private exchange, with little or no palatial interference, took place in the Aegean, this seems highly unlikely in the case of Egypt. Moreover, the strikingly royal connection of virtually everything related to olives or olive oil (or, for that matter, anything Aegean) at Amarna makes the concept of private exchange, in this case at least, extremely unlikely.

ATTESTED ROYAL MISSIONS BETWEEN THE MYCENAEAN WORLD AND EGYPT

The olive's emphatically royal connection does make the scenario of a diplomatic mission attractive. In 1981, Hankey suggested a scenario in which Amenhotep III, residing in his palace at Malqata (near Thebes), sent messengers on an official mission to Mycenae. Here, they left the famous faience plaques with his cartouches on them as a greeting gift and returned with an extraordinarily large shipment of olive oil, stored in simple stirrup jars and flasks. Upon their return to Malqata, these messengers would have found that the king had died, and that his son had moved his seat to the new capital of Akhetaten. Thus, they sailed back north to deliver their goods to the new capital but not before leaving a description of their itinerary on the base of a colossal statue of the old king, at his mortuary temple at Kom el-Hetan.⁵⁵

Hankey's scenario has been criticized, most fully by Wachsmann, who argues that there is no evidence that the faience plaques at Mycenae arrived there as greeting gifts.⁵⁶ He suggests that these objects might have arrived at Mycenae as collectors' items, probably not even en masse but one by one. His critique is, I believe, overcautious and ignores the important fact that the plaques at Mycenae are unique.

Excavations at Mycenae have uncovered various fragments of these faience plaques bearing (various parts of) the name of the Egyptian King Amenhotep III. Recent studies indicate that the fragments represent at least 11 plaques, found in various deposits on the slope of the citadel. The faience fragments (Tsoun-

tas 1–7, Mylonas 1a–2, Taylour 1–2) take their names from their excavators (Christos Tsountas, George E. Mylonas, and Lord William Taylour).⁵⁷ None of the published plaques has been found in a context contemporary with Amenhotep III, and although it has been proposed that the plaques originally adorned an Egyptian room (embassy?) on the Mycenaean acropolis, there is no compelling evidence for a single original context on the citadel. Most of the plaques appear to have been found in fill levels, possibly originating from the citadel.⁵⁸

There are no direct comparanda for the plaques, not even in Egypt, although bricks with the royal cartouches of 18th- and 19th-Dynasty pharaohs have been found as temple/building deposits within Egypt. Those bricks were, however, stamped on only one side, not on both sides, as is the case with the plaques at Mycenae. As a result, some scholars have proposed that the plaques might not be of Egyptian manufacture at all but perhaps of Levantine or even Mycenaean origin, although the quality of the paleography on the plaques seems to suggest an Egyptian origin.⁵⁹ The sheer uniqueness of these plaques and their clear reference to Egypt seems to suggest that Egypt was of particular interest to the elite of Mycenae, while the Kom el-Hetan text indicates Egyptian interest in the Mycenaean world.

This is not to say that the Egyptians actually installed an embassy at Mycenae, as Helck has proposed.⁶⁰ It does mean, at least in this case, that direct diplomatic contact between Mycenae and the Egyptian court is extremely likely. Despite all that, Hankey's theory is not without flaws. It is especially the "return" part that seems unlikely, if only because the returning Egyptian messengers would surely have heard upon their return to Egypt that the political situation had changed. Moreover, on their way to Thebes, they would actually have passed the newly built capital of Akhetaten and surely would have stopped there. Thus, a connection between the text at Kom el-Hetan and the Mycenaean vessels is improbable. As a result, the Kom el-Hetan

⁵⁵ Hankey 1981 (with references). See supra n. 4 for the Kom el-Hetan text. Hankey's proposal has been taken up and expanded by Cline 1994, 38–9; 1998, 244–45.

⁵⁶ Wachsmann 1987, 113.

⁵⁷ Mylonas 2 is a recent addition, found in the storerooms of the excavation at Mycenae, and was most probably found during excavations and cleaning operations at the "Cult Center" in the 1970s (cf. Phillips 2007, 481–82). See Phillips and Cline (2005) for the newly found Mylonas fragment. Recent excavations at Mycenae, directed by Kim Shelton, have yielded another fragment of a faience plaque. The plaque was found in a well at the Petsas House, in an LH IIIA context (AR 2005–2006, 33). The reference to an LH IIIB2 context appears to be

wrong (J. Phillips, pers. comm. 2008), and as such represents the first piece found in a stratum more or less contemporary with Amenhotep III. As a result, it can now be safely assumed that the plaques were sent to Mycenae no later than the reign of Akhenaten (contemporary with LH IIIA2).

⁵⁸ A large fragment was found by Taylour in a crumpled lead alabastron on the LH IIIB (middle) floor of the "room with the fresco," whereas the two barely joining fragments of Mylonas 1 were found in an LH IIIB (late) deposit next to an internal structure against the north wall of Room 2, in the north of the citadel (Phillips 2007, 482–83).

⁵⁹ Cf. Lilyquist 1999; Phillips 2007, 488–89.

⁶⁰ Helck 1995, 80.

text and the Mycenaean vessels at Amarna represent two different missions: one sent during the reign of Amenhotep III and one sent during the reign of his successor, Akhenaten. That interest in the Aegean persisted in Akhenaten's time is documented by a papyrus found at Amarna depicting Mycenaean warriors,⁶¹ as well as by the numerous Aegean features in Amarna art, especially wall painting.⁶²

As a result, it is possible to tentatively identify three separate diplomatic missions between the Aegean and Egypt (table 1):

1. Messengers from *Tnj* reach the court of Thutmose III on campaign in the Levant, bringing precious metal vessels as a greeting gift (attested in the Annals of Thutmose III).
2. Messengers sent by Amenhotep III visit *Tnj* and bring faience plaques to its capital at Mycenae as a greeting gift (extremely plausible, considering the uniqueness of the faience plaques and the clear Egyptian interest in the Aegean, as reflected in the Kom el-Hetan text).
3. Messengers (whether Egyptian or Mycenaean cannot be established) bring a large quantity of Argive vessels containing (perfumed) olive oil to Akhetaten as a greeting gift.

The last admittedly remains hypothetical, but it appears to be a plausible explanation for the sudden presence of the large collection of Mycenaean pottery at Amarna and the equally sudden appearance of references to the Aegean in Egyptian iconography.

Immediately after Amarna, there is no clear indication of ongoing diplomatic contact between Egypt and the Mycenaean world. This does not necessarily mean that contact was severed, although one could imagine that the Egyptian court was, at that time, preoccupied with its influence in the Levant, which was threatened. It is only during the reign of Ramesses II that there may be an argument for resumed diplomatic contact. In her tomb in the Valley of the Queens, Nefertari—the Great Wife of Ramesses II—is shown four times wearing precious silver earrings of Aegean type (fig. 3). Koehl suggests that these may have been part of a greeting gift from the Aegean, donated to the queen on the occasion of her husband's coronation.⁶³ This would imply ongoing diplomatic contact between Egypt and an Aegean court until the reign of Ramesses II. Although this is an intriguing possibility, there is no reference to the Aegean in texts dating to Ramesses' reign (apart from texts dealing with invading Sea Peoples, most notably the Ekwesh, but here we are dealing with roving bands rather than states).

Thus, there are strong indications in the Egyptian record for direct missions to and from the Aegean from the reign of Thutmose III until the reign of Akhenaten. It is also possible that direct contacts between Mycenae and the Egyptian court endured until the reign of Ramesses II. The argument for the latter is the substantial amount of Mycenaean pottery that was—and still is—found at present-day Qantir, the former Pi-Ramesse and once capital of Ramesses II. As

⁶¹ The papyrus fragments were found by Pendlebury, in December 1936, in House R43.2, on the eastern edge of the Central City at Amarna, in association with (the remains of) a wooden shrine, various cultic items, a complete Mycenaean vase, and an inscription mentioning the "great statue which the King caused to be made" (Pendlebury 1951, 140–41). It is likely that the building served as a chapel for the divine king (Amenhotep III or Akhenaten), and that the artifacts found inside the building played some role in that context. Although the papyrus survived only in fragments, it appears to have been purely pictorial, showing a battle between Egyptians and Libyan warriors. Coming to the aid of the Egyptians are a number of warriors, who, while wearing typical Egyptian white kilts, are equipped with helmets and various types of what is likely leather armor. Both the helmets and the two identifiable types of armor are not present elsewhere in the Egyptian iconographical record, and they seem to identify a people other than those usually shown in Egyptian paintings. It has been forcefully argued that the helmets portrayed on the papyrus should be identified as boar's tusk helmets, and that the armor worn by the warriors has close parallels with known Aegean types of armor (Parkinson and Schofield 1994, 1995). As a result, the warriors on the papyrus most likely represent Mycenaeans, apparently in the service of the pharaoh. This identification is strengthened by the find of a piece of boar's tusk, with perforations for attaching it to a leather frame, dur-

ing excavations at Qantir, the site of the Ramesside capital, Pi-Ramesse, in the eastern delta (Pusch 1985, 254). It seems that this piece was part of the famous boar's tusk helmets worn by the Mycenaean elite. If one accepts that the papyrus depicts Mycenaean warriors coming to the aid of Egyptian soldiers, it follows that Mycenaeans were actually settling in Egypt, in the service of the pharaoh's military. That the kings of the 18th Dynasty had a distinct interest in the Aegean, not only for oil but possibly also for seaborne military support, has already been proposed by Cline (1998, 250) and is now stressed by the attested presence of Minoan shipwrights at Peru-Nefer (Haider 1990, 19–22; 1996, 144–45), formerly seen as the harbor town of Memphis but now demonstrated to be the harbor town of Avaris (Bietak 2005, 17). The concept of Mycenaeans fighting for the pharaoh is not new, as, e.g., the wealth in the shaft graves at Mycenae has (incorrectly) been seen as evidence for early Mycenaean nobility working as mercenaries for the first kings of the 18th Dynasty in their struggle against the Hyksos. This view has now been abandoned, but Rameside inscriptions mentioning Sherden mercenaries fighting for the Egyptian kings indicate that the concept of foreigners from afar fighting in the pharaoh's service is not wholly hypothetical.

⁶² Cf. Crowley 1998, 177 (with references).

⁶³ Koehl 1999, 424.

Table 1. Attestations of Olives and Related Events in the Egyptian Record, Following the Chronology of Shaw 2000.

Years	Ruler	Iconography	Text	Botany	Archaeology
1479–1425	Thutmose III	–	<i>Tnj</i> envoys	–	–
1425–1400	Amenhotep II	–	–	–	–
1400–1390	Thutmose IV	–	–	–	–
1390–1352	Amenhotep III	–	<i>Tnj</i> references, mainly at Kom el-Hetan	olive stones at the Dokki Museum?	11 plaques with royal cartouches at Mycenae
1352–1336	Akhenaten	olive twig on wall of Great Temple of Aten	–	olive leaf wreath in the Central City of Amarna	numerous Mycenaean vessels at Amarna; Mycenaean warriors on a papyrus
1338–1336	Nefernefruaten	–	–	–	–
1336–1327	Tutankhamun	–	–	4 olive leaf wreaths in the royal tomb	–
1327–1323	Aye	–	–	olives at Deir el-Medina	numerous stirrup jars at Deir el-Medina
1323–1295	Horemheb	–	–	–	–
1295–1294	Ramesses I	–	–	–	–
1294–1279	Seti I	–	olives in the rations of high courtiers	–	–
1279–1213	Ramesses II	Nefertari's Aegean earrings depicted in her tomb	olives (Egyptian?) at Deir el-Medina	–	–
1213–1203	Merenptah	–	–	–	collapse of Mycenaean palatial society
1203–1200	Amenmesse	–	–	–	–
1200–1194	Seti II	–	–	–	–
1194–1188	Siptah	–	–	–	–
1188–1186	Tausret	–	–	–	–
1186–1184	Sethnakht	–	–	–	–
1184–1153	Ramesses III	Aegean amphoras on walls of the royal tomb	olive groves at Heliopolis	–	–

is the case elsewhere in Egypt, the corpus comprises predominantly closed shapes, although the total range of shapes, including vessels that cannot have served as containers, is far wider than usual in Egypt.

CONCLUSION

The combination of archaeological data and textual evidence strongly suggests that there was direct diplomatic contact between Mycenaean Greece and Egypt between the reigns of Thutmose III and Akhenaten. It is possible that this contact continued thereafter, until the reign of Ramesses II. During this period, three separate missions can be tentatively identified, and there may have been more.

During the earliest contacts, the Mycenaeans clearly followed the Near Eastern practice of bringing high-valued metal objects, such as the drinking set mentioned in the Annals of Thutmose III, as greeting gifts. During the Amarna age, the focus clearly had shifted toward olives and olive oil, the local produce of the Aegean. The point of origin for the stirrup jars at Amarna suggests that the shipment came from the Argolid, from the kingdom of Mycenae, which, according to the Kom el-Hetan text, represented the core of the kingdom of *Tnj*.

Although olive oil clearly was of importance in the diplomatic contacts and exchange of goods between Amarna and Mycenae, other goods may also have been exchanged at the same time. In addition to prestige goods, these might have included elite troops, as in sixth-century Egyptian-Aegean contacts. This may explain the appearance of Mycenaean warriors on an Amarna-age papyrus.

Olive oil from the Aegean, transported in stirrup jars, continued to be imported in Egypt after the Amarna period, as indicated in the deposit at Deir el-Medina and later at Pi-Ramesse. It remained a product for the elite, although it may have lost its exclusively royal connotation at some point, for olive wreaths are found on nonroyal mummies from the late 19th Dynasty onward. That it was an exclusive product is attested by the few references to olives, olive groves, or olive oil production, which are all directly related to the king or his entourage. At the same time, the royal interest in olives and olive oil from the Amarna age onward, the appearance of an olive tree and an olive twig on the temple walls at Amarna, and the presence of olive leaves in the wreaths on and near Tutankhamun's sarcophagus clearly suggest that olive trees were planted on the banks of the Nile beginning in the reign of Akhenaten. The very Mycenaean connotation of anything related to the olive at Amarna suggests that the introduction of the olive in Egypt was Aegean-inspired, if not facilitated.



Fig. 3. Queen Nefertari wearing Aegean-type earrings, as depicted on the walls of her tomb.

That is not to say that with the installation of olive groves in Egypt, the pharaoh lost his interest in importing Mycenaean olive oil. Mycenaean perfumed olive oil remained a valued luxury item until the final years of the Bronze Age in the entire eastern Mediterranean, while Egypt never produced enough oil to cover even its basic demands—a situation that persisted well into the Classical period. Consequently, a case can be made for a connection between the sudden installation of large olive groves at Heliopolis in the reign of Ramesses III and the collapse around the same time of the Mycenaean palatial society that ended the import of Mycenaean olive oil.

In sum, a plausible case can be made for regular, direct contact between Egypt and Mycenae during the 18th Dynasty. This contact continued until the end of the Mycenaean palatial world, ca. 1200 B.C.E. Beginning in the reign of Akhenaten (ca. 1352–1336 B.C.E.), the Mycenaeans brought (perfumed) olive oil and possibly living olive trees to Egypt, where these Mycenaica became closely associated with Egyptian court display. The introduction of the olive in Egypt and the installation of large “olive-lands” during the reign of Ramesses

III (ca. 1184–1153 B.C.E.) may well have been the result of these early Aegean-Egyptian contacts.

LOUISE DE COLIGNYLAAN 8
1623 MD HOORN
THE NETHERLANDS
JORRITKELDER@GMAIL.COM

Works Cited

- Asouti, E. 2003. "Wood Charcoal from Santorini (Thera): New Evidence for Climate, Vegetation and Timber Imports in the Aegean Bronze Age." *Antiquity* 77(2):471–84.
- Bachhuber, C. 2006. "Aegean Interest on the Uluburun Ship." *AJA* 110(3):345–63.
- Bass, G. 1967. "Cape Gelidonya: A Bronze Age Shipwreck." *TAPS* 57(8):3–177.
- . 1998. "Sailing Between the Aegean and the Orient in the Second Millennium B.C." In *The Aegean and the Orient in the Second Millennium*, edited by E. Cline and D. Harris-Cline, 183–92. *Aegaeum* 18. Liège and Austin: Université de Liège and University of Texas Press.
- Bell, M. 1982. "Preliminary Report on the Mycenaean Pottery from Deir el-Medina (1979–1980)." *ASAE* 68:143–63.
- Bietak, M. 1975. *Der Fundort im Rahmen eines archäologischen Untersuchung über das ägyptische Ostdelta*. Tell el Dab'a 2. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- . 2004. "Review of Manning—A Test of Time." *BibO* 51(1–2):200–22.
- . 2005. "The Thutmose Stronghold of Perunefer." *Egyptian Archaeology* 26:13–17.
- Blitzer, H. 1993. "Olive Cultivation and Oil Production in Minoan Crete." In *La production du vin et de l'huile en Méditerranée*, edited by M.C. Amouretti, J.P. Brun, and D. Eitam, 163–75. *BCH Suppl.* 26. Athens: École Française d'Athènes.
- Borchardt, L. 1913. "Ausgrabungen in Tell el Amarna 1912/13." *MDOG* 40:1–55.
- Breasted, J.H. 1906. *Ancient Record of Egypt*. 5 vols. Chicago: University of Illinois Press.
- Brunton, G., and R. Engelbach. 1927. *Gurob*. London: Egypt Exploration Society.
- Bunimovitz, S. 1987. "Minoan-Mycenaean Olive Oil Production and Trade: A Review of Current Research." In *Olive Oil in Antiquity*, edited by M. Heltzer and D. Eitam, 11–15. Haifa: University of Haifa.
- Cline, E. 1994. *Sailing the Wine-Dark Sea*. *BAR-IS* 591. Oxford: Tempus Reparatum.
- . 1998. "Amenhotep III, the Aegean, and Anatolia." In *Amenhotep III: Perspectives on His Reign*, edited by D. O'Connor and E. Cline, 236–50. Ann Arbor: University of Michigan Press.
- Crowley, J. 1998. "Iconography and Interconnections." In *The Aegean and the Orient in the Second Millennium*, edited by E. Cline and D. Harris-Cline, 171–81. *Aegaeum* 18. Liège and Austin: Université de Liège and University of Texas Press.
- Edel, E. 1966. *Die Ortsnamenlisten aus dem Totentempel Amenophis III*. Bonner Biblische Beiträge 25. Bonn: Peter Hanstein.
- . 1975. "Neue Identifikation entopografischer Namen in den konventionellen Names Zusammenstellungen des Neuen Reiches." *Studien zur Altägyptischen Kultur* 3: 49–73.
- . 1988. "Der Name di-qj-j-s in der minoisch-mykenischen Liste En li 8 gleich Θηβαίς?" *ZÄS* 115:30–5.
- Frankel, R. 1999. *Wine and Olive Production in Antiquity in Israel and Other Mediterranean Countries*. Sheffield: Sheffield University Press.
- Frankfort, H. 1929. *The Mural Painting of El-Amarna*. London: The Egypt Exploration Society.
- Galaty, M.L., and W.A. Parkinson, eds. 1999. *Rethinking Mycenaean Palaces*. Los Angeles: Cotsen Institute of Archaeology.
- Germer, R. 1988. "Katalog der Altägyptischen Pflanzenreste der Berliner Museen." *Ägyptologische Abhandlungen* 47: 1–72.
- . 1989. "Die Bluthalskragen aus RT 54." In *Miscellanea Aegyptiologica*, W. Helck zum 75. Geburtstag, edited by H. Altenmüller and R. Germer, 89–96. Hamburg: Archäologisches Institut der Universität Hamburg.
- Goedicke, H. 1969. "Ägäische Namen in ägyptischen Inschriften." *WZKM* 62:7–10.
- Goren, Y., S. Bunimovitz, I. Finkelstein, and N. Na'aman. 2003. "The Location of Alashiya: New Evidence from Petrographic Investigation of Alashiyan Tablets from El-Amarna and Ugarit." *AJA* 107(2):233–55.
- Goren, Y., I. Finkelstein, and N. Na'aman. 2004. *Inscribed in Clay: Provenance Study of the Amarna Letters and Other Ancient Near Eastern Texts*. Tel Aviv: Tel Aviv University.
- Haider, P.W. 1988. *Griechenland-Nordafrika: Ihre Beziehungen zwischen 1500 und 600 v. Chr.* Darmstadt: Wissenschaftliche Buchgesellschaft.
- . 1990. "Ägäer in ägyptischen Diensten zwischen ca. 1550 und 1200 v. Chr." *Laverna* 1:18–49.
- . 1996. "Menschenhandel zwischen dem ägyptischen Hof und der minoisch-mykenischen Welt?" *Ägypten und Levante* 6:137–56.
- Haldane, C. 1993. "Direct Evidence for Organic Cargoes in the Late Bronze Age." *WorldArch* 24(3):348–60.
- Halstead, P. 1994. "The North-South Divide: Regional Paths to Complexity in Prehistoric Greece." In *Development and Decline in the Mediterranean Bronze Age*, edited by C. Mathers and S. Stoddart, 195–219. Sheffield Archaeological Monograph 8. Sheffield: J.R. Collis Publications.
- . 1999. "Towards a Model of Mycenaean Palatial Mobilization." In *Rethinking Mycenaean Palaces*, edited by M.L. Galty and W.A. Parkinson, 35–42. Los Angeles: Cotsen Institute of Archaeology.
- Hamilakis, Y. 1996. "Wine, Oil and the Dialectics of Power in Bronze Age Crete: A Review of the Evidence." *OJA* 15(1):1–32.
- Hankey, V. 1973. "The Aegean Deposit at El Amarna." In *Acts of the International Archaeological Symposium: "The Mycenaeans in the Eastern Mediterranean," 27th March–2nd April 1972*, edited by V. Karageorghis, 128–36. Nicosia: Department of Antiquities of the Republic of Cyprus.
- . 1981. "The Aegean Interest in El Amarna." *Journal of Mediterranean Anthropology and Archaeology* 1:38–49.
- . 1993. "Pottery as Evidence for Trade: Egypt." In *Wace and Blegen: Pottery as Evidence for Trade in the Aegean Bronze Age, 1939–1989*, edited by C. Zerner, P. Zerner, and J. Winder, 109–15. Amsterdam: J.C. Gieben.

- Hankey, V., and O. Tufnell. 1973. "The Tomb of Maket and Its Mycenaean Import." *BSA* 68:109–10.
- Hankey, V., J.M. Kelder, A. Leonard, Jr., and G.J. van Wijngaarden. Forthcoming. "Vronwy Hankey and the Mycenaean Pottery from El Amarna."
- Helck, W. 1992. "Amnisos in einem ägyptischen Text Amenophis' III." In *Amnisos: Nach den archäologischen, historischen und epigraphischen Zeugnissen des Altertums und der Neuzeit*, edited by J. Schäfer, 13–18. Berlin: Gebr. Mann.
- . 1995. *Die Beziehungen Ägyptens und Vorderasiens zur Ägäis bis ins 7. Jahrhundert v. Chr.* 2nd rev. ed. *Erträge der Forschung* 120. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Kemp, B. 1977. "A Building of Amenophis III at Kôm el-'Abd." *JEA* 63:71–82.
- . 1989. *Ancient Egypt: Anatomy of a Civilization*. London and New York: Routledge.
- Keswani, P.S. 1992. "Gas Chromatography Analyses of Pithoi from Kalavassos-Ayios Dhimitrios: A Preliminary Report." In "Kalavassos-Ayios Dhimitrios 1991," edited by A.K. South. *RDAC*:141–46.
- Koehl, R.B. 1999. "The Creto-Mycenaean Earrings of Queen Nofretari." In *Meletemata: Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He Enters His 65th Year*, edited by P.P. Betancourt, V. Karageorghis, R. Laffineur, and W.-D. Niemeier, 421–25. *Aegaeum* 20. Liège and Austin: Université de Liège and University of Texas Press.
- Latacz, J. 2001. *Troia und Homer: Der Weg zur Lösung eines alten Ratsels*. Munich: Koehler & Amelang.
- Leonard, A., Jr. 1981. "Considerations of Morphological Variation in the Mycenaean Pottery from the Southeastern Mediterranean." *BASOR* 241:87–101.
- Lilyquist, C. 1999. "On the Amenhotep III Inscribed Faience Fragments from Mycenae." *JAOS* 119(2):303–8.
- Manning, S.W. 1999. *A Test of Time: The Volcano of Thera and the Chronology and History of the Aegean and East Mediterranean in the Mid Second Millennium BC*. Oxford: Oxbow.
- Manning, S.W., C.B. Ramsey, W. Kutschera, T. Higham, B. Kromer, P. Steier, and E.M. Wild. 2006. "Chronology for the Aegean Late Bronze Age, 1700–1400 B.C." *Science* 312:565–69.
- Martin, G. 1976. "Excavations at the Memphite Tomb of Horemheb: 1975 Preliminary Report." *JEA* 62:13.
- Melana, J.L. 1983. "Olive Oil and the Other Sorts of Oil in the Mycenaean Tablets." *Minos* 18:89–123.
- Merrillees, R.S. 1968. *The Cyprote Bronze Pottery Found in Egypt*. *SIMA* 18. Lund: Paul Åströms Förlag.
- . 1972. "Mycenaean Pottery from the Time of Akhenaten in Egypt." In *The Mycenaeans in the Eastern Mediterranean*, edited by V. Karageorghis, 175–86. Nicosia: Department of Antiquities of the Republic of Cyprus.
- Moody, J., and O. Rackham. 1996. *The Making of the Cretan Landscape*. Manchester: Manchester University Press.
- Mountjoy, P., and H. Mommsen. 2000. "Mycenaean Pottery from Qantir-Piramesse, Egypt." *BSA* 96:123–55.
- Murray, M.A. 2000. "Fruits, Vegetables, Pulses and Condiments." In *Ancient Egyptian Materials and Technology*, edited by P. Nicholson and I. Shaw, 609–55. Cambridge: Cambridge University Press.
- Newberry, P. 1890. "The Ancient Botany." In *Kahun, Gurob, and Hawarra*, edited by W.M.F. Petrie, 46–50. London: K. Paul, Trench, Trübner.
- Newton, C., T. Gonon, and M. Wuttmann. 2006a. "Un jardin d'oasis d'époque romaine à Ayn-Manawir (Kharga, Egypte)." *BIFAO* 105:167–96.
- Newton, C., J.-F. Terral, and S. Ivorra. 2006b. "The Egyptian Olive (*Olea europaea* subsp. *europaea*) in the Later First Millennium BC: Origins and History Using the Morphometric Analysis of Olive Stones." *Antiquity* 80:405–14.
- Parkinson, R.B., and L. Schofield. 1994. "Of Helmets and Heretics." *BSA* 89:157–70.
- . 1995. "Images of Mycenaeans: A Recently Acquired Papyrus from El-Amarna." In *Egypt, the Aegean and the Levant: Interconnections in the Second Millennium BC*, edited by W.V. Davies and L. Schofield, 125–26. London: British Museum Press.
- Parkinson, W.A. 1999. "Chipping Away at a Mycenaean Economy: Obsidian Exchange, Linear B, and Palatial Control in Late Bronze Age Messenia." In *Rethinking Mycenaean Palaces*, edited by M.L. Galaty and W.A. Parkinson, 73–86. Los Angeles: The Cotsen Institute of Archaeology.
- Peet, T.E., and L. Woolley. 1923. *The City of Akhenaten*. Pt. 1. London: Egypt Exploration Society.
- Pendlebury, J.D.S. 1933. *The City of Akhenaten*. Pt. 2. London: Egypt Exploration Society.
- . 1951. *The City of Akhetaten*. Pt. 3. London: Egypt Exploration Society.
- Petrie, W.M.F. 1894. *Tell el Amarna*. London: Methuen.
- Petrie, W.M.F., and G. Brunton. 1924. *Sedment*. Vol. 2. London: Egypt Exploration Society.
- Phillips, J. 2007. "The Amenhotep III 'Plaques' from Mycenae: Comparison, Contrast and a Question of Chronology." In *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium BC III*, edited by M. Bietak and E. Czerny, 479–94. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Phillips, J., and E.H. Cline. 2005. "Amenhotep III and Mycenae: New Evidence." In *Autochthon: Papers Presented to Oliver Dickinson on the Occasion of His Retirement*, edited by A. Dakouri-Hild and S. Sherratt, 317–28. *BAR-IS* 1432. Oxford: British Archaeological Reports.
- Podzuweit, C. 1994. "Bemerkungen zur mykenischen Keramik von Tell el-Amarna." In *Festschrift für Otto Herman Frey zum 65. Geburtstag*, edited by C. Dobiat, 457–74. Marburger Studien für Vor- und Frühgeschichte 16. Marburg: Hitzeroth.
- Pusch, E.B. 1985. "Ausländisches Kulturgut in Qantir-Piramesse." In *Akten des 4. Internationalen Ägyptologenkongresses*. Vol. 2, *Archäologie, Feldforschung, Prähistorie*, edited by S. Schoske, 249–56. Hamburg: Helmut Buske.
- . 1999. "Vorbericht über die Abschlußarbeiten am Grabungsplatz Q IV 1997." *Ägypten und Levante* 9:17–37.
- Renfrew, C. 1972. *The Emergence of Civilization: The Cyclades and the Aegean in the Third Millennium BC*. London: Methuen.
- Renfrew, J. 1985. "Preliminary Report on the Botanical Remains." In *Amarna Reports II*, edited by B.J. Kemp, 175–90. London: Egypt Exploration Society.
- Rose, P.J. 1987. "The Pottery Survey." In *Amarna Reports IV*, edited by B.J. Kemp, 115–31. London: Egypt Exploration Society.
- Runnels, C.N., and J. Hansen. 1986. "The Olive in the Prehistoric Aegean: The Evidence for Domestication in the Early Bronze Age." *OJA* 5:299–308.
- Schweinfurth, G. 1886. "Les dernières découvertes botaniques dans les anciens tombeaux de l'Égypte." *Bulletin de l'Institut Égyptienne* 6:256–83.
- Serpico, M., and R. White. 2000. "Oil, Fat and Wax." In

- Ancient Egyptian Materials and Technology*, edited by P.T. Nicholson and I. Shaw, 390–429. Cambridge: Cambridge University Press.
- Shaw, I. 2000. *Oxford History of Ancient Egypt*. Oxford: Oxford University Press.
- Shaw, I., and P. Nicholson. 1995. *The Dictionary of Ancient Egypt*. London: British Museum Press.
- Shelmerdine, C.W. 1985. *The Perfume Industry of Mycenaean Pylos*. Göteborg: Paul Åströms Förlag.
- Sherratt, S. 1999. "E pur si muove: Pots, Markets, and Values in the Second Millennium Mediterranean." In *The Complex Past of Pottery*, edited by J.P. Crielaard, V. Stissi, and G.J. van Wijngaarden, 163–211. Amsterdam: J.C. Gieben.
- . 2001. "Potemkin Palaces and Route-Based Economies." In *Economy and Politics in the Mycenaean Palace States: Proceedings of a Conference Held on 1–3 July 1999 in the Faculty of Classics, Cambridge*, edited by S. Voutsaki and J. Killen, 214–54. Cambridge: Cambridge Philological Society.
- Small, D.B. 1999. "Mycenaean Politics: States or Estates?" In *Rethinking Mycenaean Palaces*, edited by M.L. Galaty and W.A. Parkinson, 43–9. Los Angeles: The Cotsen Institute of Archaeology.
- South, A.K. 1989. "From Copper to Kingship: Aspects of Bronze Age Society Viewed from the Vasilikos Valley." In *Early Society in Cyprus*, edited by E. Peltenburg, 315–24. Edinburgh: Edinburgh University Press.
- Steel, L. 2004. *Cyprus Before History*. London: Duckworth.
- Tallet, P. 2003. "Les circuits économiques." In *Deir el Medineh et la Vallée des Rois*, edited by G. Andreu, 253–73. Paris: Éditions Khéops and Musée du Louvre.
- van den Brink, E. 1987. "A Geo-Archaeological Survey in the Eastern Delta." *MDIK* 43:7–31.
- Vercoutter, J. 1956. *L'Égypte et le Monde Égéen Préhellénique*. Cairo: L'Institut Français d'Archéologie Orientale.
- von Bissing, F. 1899. "Funde und Erwerbungen in und aus Ägypten 1897–1898/99." *AA* 14:57.
- Wachsmann, S. 1987. *Aegeans in the Theban Tombs*. *Orientalia Lovaniensia Analecta* 20. Louvain: Peeters.
- Warren, P., and V. Hankey. 1974. "The Absolute Chronology of the Aegean Late Bronze Age." *BICS* 21:142–52.
- . 1989. *Aegean Bronze Age Chronology*. Bristol: Bristol Classical Press.
- Weilhartner, J. 2005. *Mykenische Opfergaben nach Aussage der Linear B-Texte*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Zohary, D., and M. Hopf. 2000. *Domestication of Plants in the Old World*. 3rd ed. Oxford: Oxford University Press.