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Considerations of Morphological Variation in the Mycenaean Pottery From the Southeastern Mediterranean

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The product of the Late Bronze Age Greek ceramic workshops is a technically excellent fabric that enjoyed considerable popularity from Sicily to Syria and from Anatolia to the Nile Valley.¹ The primary study of this pottery was made by A. Furumark, who divided the then-known material into 336 vessel shapes (FS = Furumark Shape) and the painted decoration into 78 motifs (FM = Furumark Motif).² These typological and decorative elements, and their variations, were each assigned a place within a framework of relative chronology, which, in one of its simplest forms, produced the following sub-divisions:

Mycenaean I
Mycenaean II A
Mycenaean II B
Mycenaean III A
III B
III C

Absolute dates were then added (Furumark 1941b), primarily through association with Near Eastern material(s),³ thereby producing a chronological yardstick that has been widely applied to archaeological deposits throughout the central and eastern Mediterranean world.⁴

Mycenaean pottery is well known to archaeologists working in Syria-Palestine, having been found at more than 70 sites between the Orontes River and Gaza.⁵ Excavators encountering LB strata have especially welcomed the presence of imported Mycenaean III A (14th century B.C.) and III B (13th

century B.C.) pottery since it seemed to provide a convenient chronological peg upon which to hang the associated local ceramics.⁶ In addition to the possible chronological importance of Mycenaean pottery in extra-Aegean archaeological deposits, this pottery has also been examined with an eye toward the reason for its presence. In particular, open and closed forms are represented, which have the potential for helping us to define the nature of one facet of the international commerce that flourished in the Mediterranean during the Late Bronze Age. This study attempts to contribute to that definition through an examination of the morphological variants of the Mycenaean export ware.

Methodology

To date, over 60 of Furumark's shapes have been identified in Syro-Palestinian deposits.⁷ Some of these forms occur only once or twice, but at least one-half are represented much more frequently, and several appear with almost predictable regularity. These regularly occurring vessel shapes are examined here in order to test a simple hypothesis: Can the morphology of the vessels themselves contribute to our knowledge of why such vessels were traded so widely? In an attempt to catch the mainstream of the commercial activity indicated by this pottery, the present study will concentrate on those vessel types that appear in Syro-Palestinian contexts more than an arbitrarily selected five times (fig. 1).

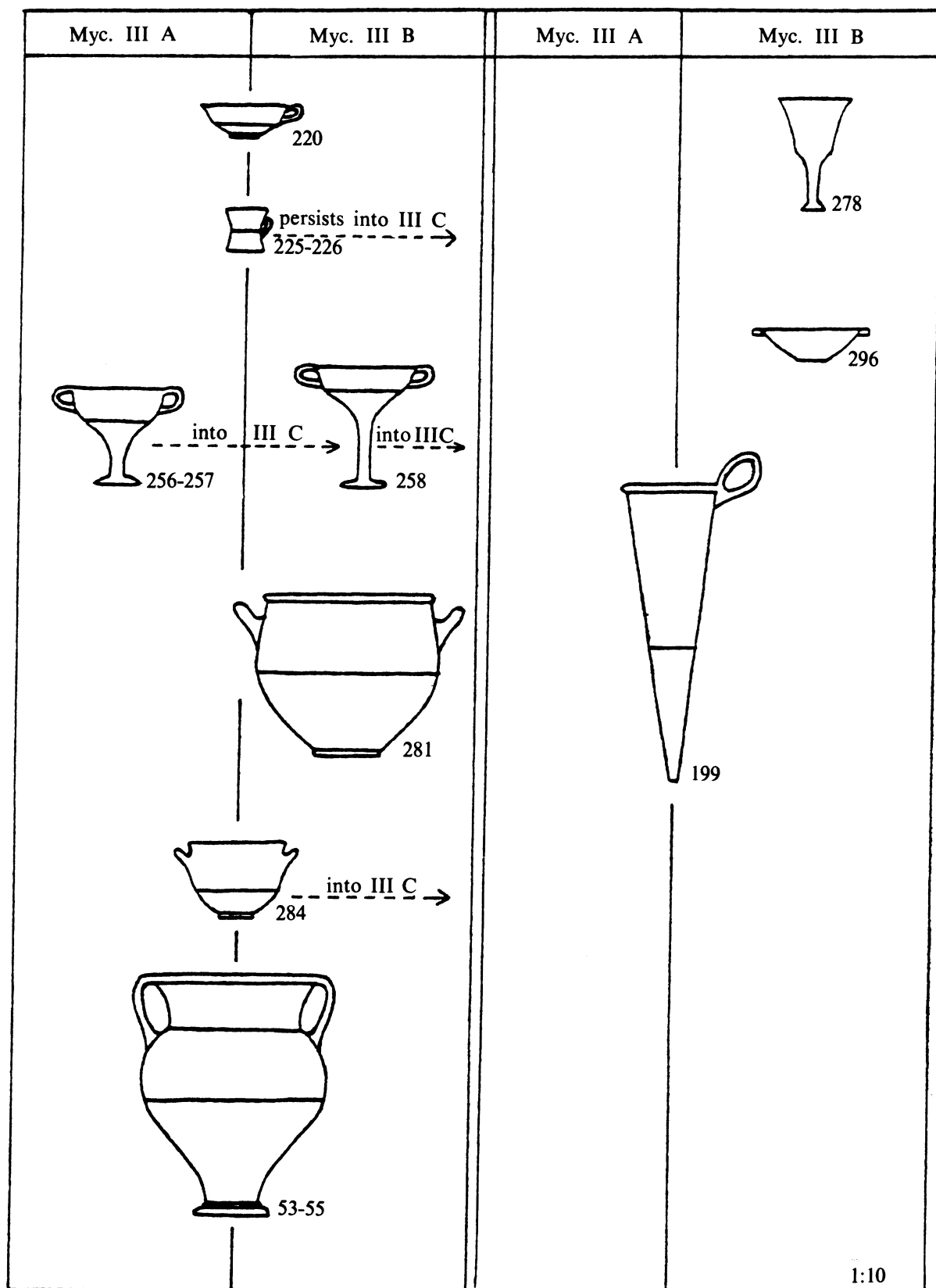


Fig. 1. Mycenaean ceramic forms occurring in Southeastern Mediterranean deposits more than five times. A: the open forms; B: the closed forms.

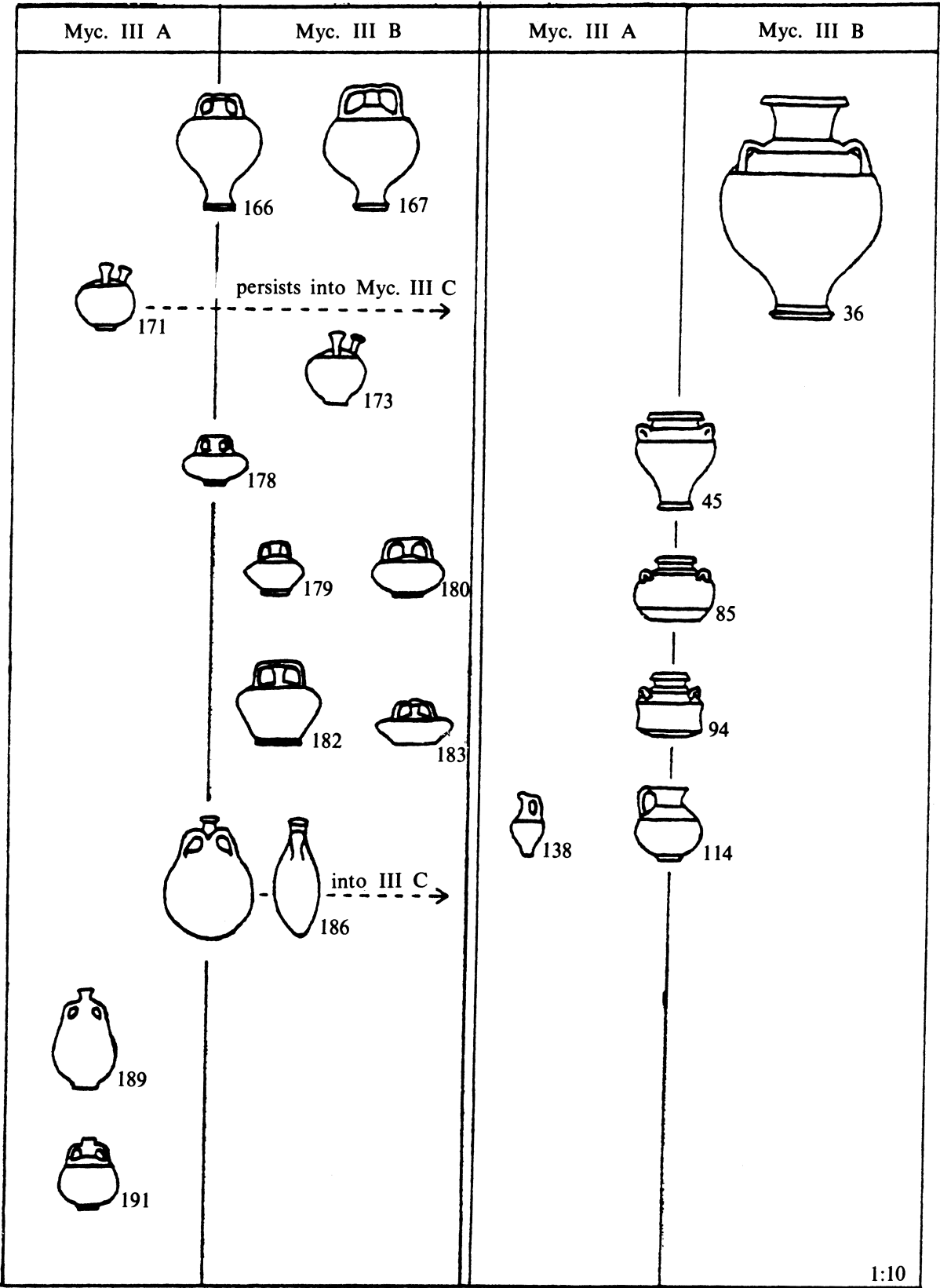


Fig. 1B.

The Evidence

Open Forms (fig. 1a)

Open forms, which are less frequent than closed forms in Syro-Palestinian deposits, can be divided by size into two subgroups: small vessels, including the chalice, cup, and mug; and large vessels, including the deep bowl and krater.

As anyone who has worked with sherd material containing these forms can attest, the one-handled cup (FS 219, 220) is closely related morphologically to the chalice (FS 256-257, 258), differing only in the absence of the high-stemmed base and the additional handle that visually "balances" the shape. Functionally they are identical: both served as drinking vessels. Comparison of the Mycenaean and LB Syro-Palestinian vessels immediately demonstrates the superiority in craftsmanship and appearance of the imports, but this was not the sole reason for their appeal, for there is nothing in the repertoire of the local potter to compete morphologically with the imports.⁸ Footed drinking vessels do occur, but those that appear to have been more than a simple elaboration of the plain hemispherical bowl seem to be the exception (Amiran 1970: pl. 40), while stemmed vessels with handles are rare (Amiran 1970: phot. 130) and may in fact be a reaction to the popularity of the import. Furthermore, small one-handled cups are completely alien to the native tradition, and it is difficult to see their function being served by the large, thicker-walled, biconical "mugs" of local production (Amiran 1970: pl. 47). The same can be said for the FS 225-226 and FS 230 types.

The other handled cups of Mycenaean fabric in Syro-Palestinian deposits differ from those already discussed in that their handles are attached horizontally rather than vertically (FS 244, 283; fig. 2). These shapes rarely occur on the Greek mainland, and Furumark, noting their eastern distribution, assigned them to a separate "Levanto-Mycenaean" category (Furumark 1941a: 9-10). The obvious source of inspiration for the FS 244 and 283 types is the Cypriot "milk bowl," one of the major type-fossils for LB contexts in the eastern Mediterranean, a form not only imported in quantity into Syria-Palestine but also imitated by local craftsmen. Traditionally, the milk bowl has been interpreted as a container, and, while Åström's suggestion (1972: 770) that "perhaps they were cherished because they were hand-made and home-made at a time when most pots were wheel-made" may be true, it is here posited that the vessel's shape—and the complementary role that it

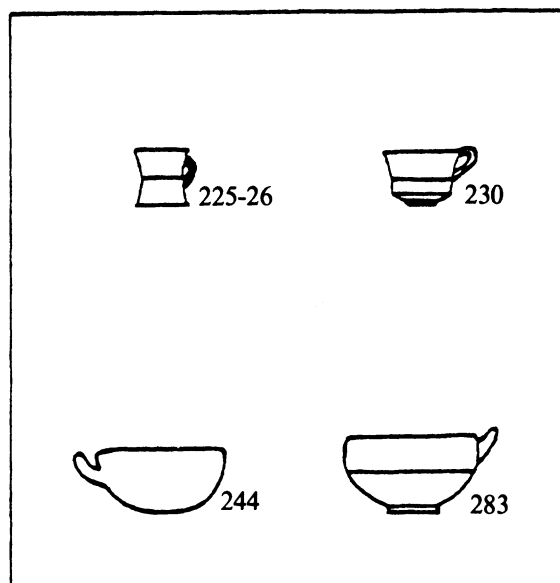


Fig. 2. Mycenaean vertical-handled (FS 225-226 and FS 230) and horizontal-handled (FS 244, FS 283) cups from the Southeastern Mediterranean.

played in the local Syro-Palestinian ceramic repertoire—was equally important in establishing its popularity in the Levantine markets.

Of the subgroup of larger, open forms, the deep bowl (FS 281) differs from the krater (FS 284) only in terms of size. Both of these forms represent further examples of fine tableware imported to fill the requirements of an appreciative Syro-Palestinian consumer. The deep bowl is a vessel of personal size, while the krater can be thought of in more communal terms.⁹ Whether the function of the krater was the same in the Late Bronze Age as it was in later Greek times, i.e., a vessel for mixing wine and water (Richter 1974: 321-22), cannot be determined with any degree of certainty, but the painting of horizontal bands on the interior of these vessels would have been a futile exercise if their inner surfaces had not been meant to be seen and appreciated. Thus, even if the krater originally came into the Syro-Palestinian markets as a container for imported goods, it also would have carried with it the potential, secondary function of use as fine tableware.

As can be demonstrated with the other imported Mycenaean shapes, the deep bowl and krater served as inspirations to the local ceramicists, especially in the use of the opposing horizontal handles, which is the exception in the Syro-Palestinian repertoire until this period of acquaintance with the products of the Mycenaean Greek workshops.¹⁰

The amphoroid krater (FS 53-55) is truly a specialty piece with a basically eastern distribution

(Furumark 1941a: 593). In fact, before fragments were found at Berbati on the Greek mainland, it was considered to have been the product of some unidentified workshop in the east (Stubbings 1951: 87; Vermeule 1974: 204).

The form is characterized by an ovoid body, high collar-neck,¹¹ horizontally outplayed rim, and two wide strap handles placed vertically between the rim and shoulder. Decoration usually, although not exclusively, consists of a scene of robed figures in a chariot, often with rather humorously juxtaposed filling motifs such as "prodding" fish.¹² The preponderance of chariot representations on the FS 53-55 types, which has often caused them to be simply designated as "chariot kraters," combined with the fact that chariot motifs rarely appear on other Mycenaean shapes,¹³ raises speculation that this almost canonical association of form and decoration holds some key to its specific function, and thus the vessel's popularity in eastern markets.

Morphologically the shape is, in many ways, problematic, for it can be considered either an open or a closed form. The vessel's "mouth" is almost as wide as the greatest width of the body, but a sharp constriction in the upper shoulder zone separates these two features. The horizontally outplayed rim (see below) also seems to be more suited to a closed, rather than an open, form.¹⁴ Since its true attribution is moot, the amphoroid krater is somewhat arbitrarily included here with the open forms.

This review of the open forms of Mycenaean export wares has suggested that it was the vessels themselves that were desired by the peoples of the Late Bronze Age Levant. With the possible exception of the amphoroid krater, they are all morphologically ill-suited to function as containers, and, as comparison with equivalent Syro-Palestinian shapes has shown, the most popular imported forms reflect specific gaps in the repertoire of the local workshops.

That Mycenaean tableware should have been traded as far east as the emporia of the Syro-Palestinian coast is really not surprising. Mycenaean vessels or sherds, as do their Cypriot fellow-travellers, stand out distinctly from the local ceramics in any archaeological assemblage, and we must assume that they were equally as distinctive in the markets and households of the Late Bronze Age. Whether the relative accessibility of the imported Mycenaean and Cypriot vessels stimulated the decline in the quality of the local pottery,¹⁵ or whether the increased presence of imported

pottery in Syria-Palestine during the 14th and 13th centuries B.C. reflected that decline, is a point that can only be debated.

Closed Forms (fig. 1b)

If the presence of Mycenaean open forms in Syro-Palestinian contexts is correctly identified as indicative of a trade in fine tableware, then perhaps the corollary that the closed forms represent transport containers can be posited. Literally, to qualify as a "container" a vessel need only be able to hold an object or commodity, and in such a strict interpretation even the open forms reviewed above could be viewed as containers. For the purpose of this paper, however, the word "container" is understood in a more extended sense, as a vessel able to perform two basic functions: the protection of its contents and the transportation of that commodity to the consumer in an acceptable condition.

The "stirrup jar" (also known as the false-necked jar) is, in its several typological variants, the most frequent of the Mycenaean closed forms imported into Syria-Palestine and is represented at almost every site that has produced imported Aegean wares. It has long been suggested as a container for olive oil, a fact supported by the vessel's identification as the *ka-ra-re-we* of the Linear B texts (Ideogram 210; Ventris and Chadwick 1973: 324, fig. 16). That the stirrup jar is a shape admirably suited to containment, transport, and dispensing of oil is shown by the specific morphological features of the upper portion of the form: the "stirrup" or "false spout," consisting of the solid central post with two antithetic handles at the top of the vessel; and the true spout, which is offset at, or slightly above, the shoulder. This distinctive arrangement is exclusive to this vessel type and remains so for several centuries, affected neither by the passage of time nor the change in the shape of the lower portion of the body. Obviously, such a unique and canonical shape is not the product of accident or whimsy but appears rather to have been specifically designed by the potter to facilitate the extraction of the contents from the container, in this case a thin, pourable oil (fig. 3).

During his excavations at the "House of the Oil Merchant" at Mycenae, Wace discovered 30 large stirrup jars "which from the oily condition of their fabric had obviously once contained oil" (Wace 1950: 7). These vessels had been stoppered with a mushroom-shaped lump of clay secured by a piece of cord. Over both the stopper and the neck of the



Fig. 3. The Mycenaean stirrup jar showing how the specific elements of the upper portion of the vessel facilitate the pouring of its contents.

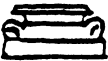
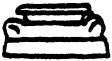
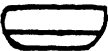
vessel a "cap of clay" had been molded, subsequently impressed with a signet. Whether a sufficiently air-tight seal could have been obtained with clay alone to preserve the freshness of the contents, or whether it was also necessary to utilize wax as did the Hittites (GAB.LAL; cf. Hoffner 1974: 124), is unfortunately not the type of information that survives in the archaeological record.

The flask is another vessel that is well suited for the transporting and dispensing of oil. Although Furumark noted several sub-categories in this form (FS 186-193; 1941a: 616-17), only three appear in sufficient quantity in southeastern Mediterranean contexts to warrant consideration here. They are the FS 189, the vertical type of globular flask with concentric rings painted in a bull's-eye design on the two "faces" of the vessel; FS 191, the horizontal type of globular flask decorated with painted line groups and bands; and a two-handled variant of FS 186, the lentoid flask. Both types of globular flask find exact parallels for their lower body profiles in

true stirrup jars of Furumark's "depressed globular" and "weighed-down" variants (Furumark 1941a: 32; cf. FS 191, 178) and differ morphologically from them only in the placement of the spout (fig. 4). The spout of the flask is not offset, but rather is placed at the top of the vessel, flanked by a pair of handles, in the exact position occupied by the "false" spout of the stirrup jar. The lentoid flask, often referred to as the "pilgrim flask," is basically an eastern form but was executed in Aegean clays and is well represented among the Mycenaean exports to Syria-Palestine.

The spouts of the flasks, despite the difference in placement, are similar to those of the stirrup jar in size, shape, and diameter of opening. The functions of these two vessel types, therefore, must have been identical: they must both have contained a thin oil, and the contents of both must have been secured in the same manner.

Another very common Mycenaean vessel type found in Syro-Palestinian contexts is the pithoid

Piriform Body  +	Narrow Mouth  =	 FS 166
	Wide Mouth  =	 FS 45
Wide Mouth  +	Piriform Body  =	 FS 45
	Alabastron Body  =	 FS 85
	Pyxis Body  =	 FS 94
Globular Body  +	Stirrup Jar Top  =	 FS 171
	Flask Top  =	 FS 191

1:10

Fig. 4. Apparent equations of the morphological variations in Mycenaean export pottery.

jar. It appears in our list of popular imports in larger (FS 36) and smaller (FS 45) variants, the latter being by far the more frequent. Specific morphological elements in, and above, the shoulder zone are also common to all of the variants of the pithoid jar: a wide, open mouth with horizontally extended rim; and three (but occasionally two) horizontal or vertical "handles." Furumark's selection of the term "handle" for the subsidiary elements on the shoulder of the pithoid jar was, in this author's opinion, a poor one, for such an appellation raises the question of whether handles would be required on a vessel such as the FS 45, whose average height of ca. 15 cm. makes it easily carried and used in one hand. The same objection can be raised concerning the larger FS 36 whose "handles" are quite small in proportion to the overall size (and hence weight) of the vessel.

In connection with the FS 45 pithoid jar, two things should be noted (fig. 4).

(1) the lower portion of the vessel is almost identical to that of the FS 166-167 stirrup jars, which, like other variants of this form, were designed to contain and dispense a thin liquid. Only in the upper portion of these two forms is there any morphological differentiation. If the design of the stirrup jar was created to facilitate the pouring of oils, might it not be suggested that the wide-mouthed FS 45 was designed for thicker, more viscous substances, which by their very nature were not poured but *extracted* by either the fingers or a hand-held utensil?

(2) Two other vessel types that are commonly found in extra-Aegean deposits, the alabastron (FS 84-85) and the pyxis (FS 94-95), appear to be functionally identical with the pithoid jar, exhibiting the extended rim, the distinct neck, and the three "handles" and should, therefore, have been utilized for substances of similar viscosity.

The morphology of all three of these shapes—the pithoid jar, alabastron, and pyxis—raises a problem that can be stated by three questions: Why are the "handles" necessary, why are they so small, and why are there normally three of them? Basically, the morphological elements of any ceramic vessel may be interpreted as either decorative or functional. The two interpretations are certainly not mutually exclusive, but the genesis of a particular feature must be considered to lie at one of these two poles.

Although some Mycenaean vessels did have handles that appear to have been primarily decorative (Furumark 1941a: fig. 3; FS 15), the

Mycenaean potter seems to have taken his task quite seriously, i.e., producing vessels of functional, albeit very pleasing, form. Decoration of the vessel appears, on the whole, to have been left to the pot painter (if not a different person, at least a different stage of production) whose work was also streamlined, especially on the export shapes. The shoulders of the vessels were highlighted with a cursory representational or geometric pattern, while the remainder of the body was most often filled with bands and line groups executed while the pot spun on a turntable.

The "handles" must therefore be functional, but their size and number (fig. 5) would argue against their having been designed or utilized to *manually* hold, turn, lift, or carry the vessel. An alternative suggestion offered here would identify these appendages as elements specifically designed to aid in the securing of the contents of the vessel. In this hypothesis, a (waxed?) cloth was first placed over the opening and secured by a cord below the pronounced, outplayed rim. This string would then have been anchored to the "handles" (figs. 6 and 7). The fact that three handles are the norm on these forms is thus easily explained by the fact that three points would give the minimum number of points to retain the maximum amount of tension on the cord. This or a similar sealing mechanism would have been mandatory for the protection of any commodity transferred, even locally, in a pithoid jar, alabastron, or pyxis.

We have, therefore, two groups of closed forms that share some features but differ in others, and we have seen that these morphological differences pertain basically to the method by which the contents were either secured or removed from the vessel, a factor which appears to be dependent on the consistency of the product that it contained. If the "stirrup jar" held pourable oil, it should follow that the wide-mouthed pithoid jar, alabastron, and pyxis held a thicker, more viscous oil or unguent.

It is known from the Linear B texts that the production of specialty oil(s)—olive oil combined with a fragrant plant or spicy herb—was a trade practiced on the Greek mainland. Of the perfumed oils, those scented with sage are the most popular on the extant tablets, but rose, cyperus and mixtures of these fragrances are also known. The flavored oils were a combination of olive oil plus coriander, cyperus, and possibly fruit, wine, honey, or must. The task of producing this special class of oil(s) was in the hands of a specialist, the



Fig. 5. A Mycenaean alabastron, illustrating the comparatively small size of its "handles."



Fig. 6. A Mycenaean alabastron, illustrating the use of the "handles" to secure its contents.

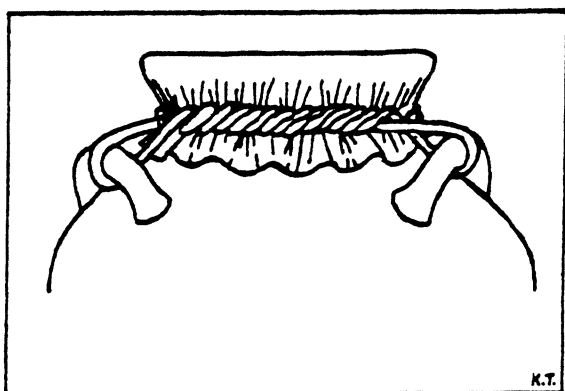


Fig. 7. Mycenaean wide-mouthed vessel with suggested mechanism for securing its contents. Drawing by Kevin A. Thompson.

a-re-pa-zo-o (aleiphazoös): “unguent boiler” or “perfume maker” (Ventris and Chadwick 1973: 223-25, 441-42, 534). The names of three men employed in such a capacity—Thuestes, Kokalos, and Philaios—are known from the Pylos tablets (Ventris and Chadwick 1973: 224-25, 441, 481), and, what is important for the present study, we read that their product appeared in either of two “grades” (Ventris and Chadwick 1973: 573, 590; cf. 477): *po-ro-ko-wa* (προχοή): “outpouring,” a pourable liquid; *we-a-re-pe* (ἄλοιφή): “for smearing on,” an unguent. This is precisely the situation that has been implied independently by our study of the morphological variants present in the closed forms of the Mycenaean export pottery.

The artifactual and textual evidence, therefore, combine to suggest that thin, pourable specialty oils were exported from the Greek mainland in stirrup jars and flasks, while unguents (or thicker variants of similar substances) were shipped abroad in pithoid jars, alabastra, and pyxides (fig. 8).

These Mycenaean oil-based products must have exhibited considerable distinctiveness in the Late Bronze Levantine markets, for specialty oils were produced, and presumably exported, by other major eastern Mediterranean powers.

The Hittites, for example, were very familiar with the olive “which holds oil in its heart” and used it in ceremonial rites as well as in the normal diet (Hoffner 1974: 117-18). In some Hittite texts olive oil is modified by the adjective *pittalwa(nt)*, which has been translated by Goetze (1962: 33) as “plain,” thus implying the existence of “non-plain” or special variants, perhaps similar to the specialty oils mentioned in the Linear B texts. Such a possibility is further strengthened by the Hittite *Ī.DUG.GA/ĪA.DUG.GA*. Although this is usually translated

as “sweet oil,” (Hoffner 1974: 124), Landsberger has interpreted it as a scented or perfumed oil (in Friedrich 1952: 277). This was a costly and desirable commodity,¹⁶ and the lack of it was of prime concern to one Hittite prince who began a letter to his mother the Queen, “Behold I have no *Ī.DUG.GA* for anointing.”¹⁷ The fact that such products were not limited to domestic consumption is reflected in the Papyrus Anastasi IV, where “the finest *kḏwr*-oil of Khatti” is included among the items used to “anoint” the army and chariotry of the 19th-Dynasty Pharaoh Sety II (Caminos 1954: 200, 209).

Most of the textual evidence for the existence of specialty oils in the Late Bronze Age comes from Egypt, which, although it produced a large variety of oils from both vegetal and animal matter, did not possess the oil-laden olive until the 18th Dynasty (Lucas and Harris 1962: 327-36). The Egyptian requirements for good oils at times appear insatiable. Thutmose III lists “sweet oil and green oil” brought back from Syria as booty after his 9th, 13th, and 14th campaigns.¹⁸ The distinction made between the sweet and the green oil would suggest flavored or scented oils, as mentioned in the Linear B tablets and inferred from the Hittite texts. That Syrian oil was of high quality is illustrated by the more than 1800 jars of *ḥ-rw* (“oil of Syria”) claimed to have been presented to the god Amon by Ramesses III (Papyrus Harris, cf. Breasted 1927: no. 233).

The clearest example of the truly international character of the specialty-oil trade in the Late Bronze Age Mediterranean world is recorded in Papyrus Anastasi IV, which, as noted above, dates to the reign of Sety II. Here the command is given to:

Apply yourself with extreme zeal, firmness and efficiency to have things ready before (the arrival of) Pharaoh (l.p.h.). . . *dft*-oil of Alašiya, the finest *kḏwr*-oil of Khatti, *inb*-oil of Alašiya, *nkḏr*-oil of Sangar, *knni*-oil of Amor, *gt*-oil of Takhsy, and *moringa*-oil of Naharin; namely the many oils of the Port to anoint his army and chariotry.

(Papyrus Anastasi IV, 15: 1-5; Caminos 1954: 200)

Despite the fact that most of these oils are not mentioned elsewhere in Egyptian documents (Caminos 1954: 207-8, on *tpsy*) and thus the scribe appears to be showing off his knowledge of mercantile trivia, this list does indicate that the importation of specialty oils from such a wide

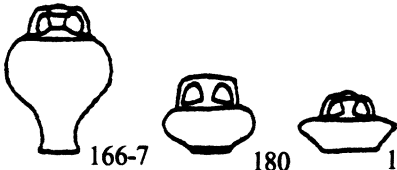
	po-ro-ko-wa "outpouring"	A pourable liquid
	we-a-re-pe "for smearing on"	An unguent

Fig. 8. An hypothetical subdivision of popular Mycenaean export forms according to the difference in viscosity of oil products noted in the Linear B texts.

geographical area as Cyprus (Alašiya), Khatti, Babylonia (Sangar), and Syria-Palestine (Takhsy, Amor, and Naharin) was at least a believable situation at the beginning of the XIX Dynasty and may reflect conditions that existed in the empire days of the 18th Dynasty.

The above discussion of oils and unguents exported to the eastern Mediterranean in ceramic containers has been predicated on the hypothesis that the Mycenaean products consisted of olive oil (*e-ra-wo/e-ra-wa*), embellished with certain flavors or scents. The Linear B texts, however, include other plants from which it is possible to derive an oil, and, for the sake of completeness, the *ka-na-ko* (safflower) and *sa-sa-ma* (sesame) should be considered briefly.

Ka-na-ko, translated as "safflower," appears in the Ge series of Linear B texts from Mycenae, where it is described as both red (*e-ru-ta-ra*, referring to its flowers) and white (*re-u-ka*), referring to its seeds; (cf. Ventris and Chadwick 1973: 226; Bennett 1950: 108-10). What we refer to as safflower is actually *Carthamus tinctorius*, false saffron, a member of the thistle family that is native to an extensive area ranging from present-day Ethiopia through the Middle East into central India.¹⁹ The carthamic acid obtained from the flowers of this plant was utilized in antiquity both as red and yellow dyeing agents for textiles, while cold-processing of the seeds produced an oil that could be used either as a food product or as a surface coating for wood, since it is a drying oil that does not turn yellow with age. The function of the safflower in the Linear B texts is not specified, but its presence among lists of

condiments, and in small quantities, would argue for its use mainly as a flavoring agent in the Aegean world. True saffron, *Crocus sativus*, was apparently used exclusively for the dyeing of textiles.²⁰

Safflower grew abundantly in ancient Egypt, having been used as a red dye at least as early as the 21st Dynasty and as a yellow dye as early as the 12th Dynasty (Lucas and Harris 1962: 153). Although in Pliny's time the Egyptians grew safflower chiefly for its oil (Lucas and Harris 1962: 336), such a use cannot be found in any of the Pharaonic documents nor in contemporary records from Khatti (Anatolia) or Syria-Palestine.

There is presently a controversy over whether or not the commodity identified by modern philologists as sesame was really that plant, or whether it was another, similar plant, possibly linseed. The problem can be stated simply: ancient records describe a large amount of a substance identified as "sesame," but not one trace of the plant has yet been found in any excavated Late Bronze Age site in the Near East. On the other hand, linseed has been identified among the floral remains at many sites in the same geographical area, although it has not yet been recognized in the relevant textual material. The paleobotanical side of the dilemma is summarized by Helbaek " . . . the early name translated as sesame actually applied to linseed. And the name was transferred to Sesamun where, about a thousand years ago that commodity was introduced, replacing linseed as an important element in Near Eastern cooking."²¹

The *sa-sa-ma* of the Linear B spice tablets (Series Ge), found in the House of the Sphinx at Mycenae,

has been identified as sesame by Ventris and Chadwick, who note that the word is Semitic in origin, the closest form to the Greek being the Ugaritic *ššmn*.²²

Unfortunately, we do not have sufficient evidence to decide between sesame and linseed in the Aegean area. Ventris and Chadwick's rejection, however, of Palmer's suggestion that the *SA* in the Linear B texts stood for linseed oil, on the basis that it would "need to have been boiled to render it non-toxic" (1973: 471), does not necessarily follow, since cold-processing of the seeds would not render the product toxic. That cold-processed linseed oil may have served as the base for some of the Aegean specialty oils and unguents cannot be completely ruled out, for it has been identified by Winter as one of the "reasonable possibilities" for the residue sampled from the Abbot Jug, a Late Minoan vessel found in Egypt and now in the Brooklyn Museum (in Merrillees and Winter 1972: 130).

In light of the sesame/linseed conflict in the archaeological and literary records, and considering the small quantities (between one and five liters) mentioned in the extant Linear B texts, it is perhaps best at this time to assume that *sa-sa-ma* was not intended for oil production and that its use solely as a spice is the correct interpretation.

Safflower and sesame/linseed do not, then, appear to have been utilized in the production of oil in the Aegean area during the Late Bronze Age. If the interpretation that the Mycenaean export containers were filled with specialty oils and unguents is accepted, therefore, we must be dealing basically with olive oil and/or products derived from an olive oil base combined with herbs and spices.

Specialty oils, as we have seen, were widely traded in the eastern Mediterranean during the Late Bronze Age. In fact, the Mycenaean products were but a single, intrusive element in a pattern of trade that had existed in the Levant since at least as early as the Egyptian Old Kingdom (Emery 1961: 204). What was the attraction of these Greek imports? What were the distinctive qualities that gave them the ability to compete, evidently quite successfully, with generically similar products from the established eastern production centers? In an attempt to answer these questions we must turn to the Linear B textual material, specifically to those tablets mentioning consignments to unguent-boilers, and those listing dedications or transfers of specialty oil products.

Perhaps the most instructive and informative of the former category is Un267 from Pylos (Ventris and Chadwick 1973: 223-24):

Thus A(r)xotas gave spices to Thuestes the unguent-boiler, for unguent which is to be boiled:

coriander seed 720 l.
cyperus seed 720 l.
... 16 units
fruits (?) 300 l.
wine 720 l.
honey (?) 72 l.
wool 6 kg.
must (?) 72 l.

We seem to have on this tablet the ingredients that, when processed with olive oil, would have produced the kinds of products that have here been posited as the contents of the Mycenaean closed forms exported to the eastern Mediterranean. Of the commodities listed above, the wine and its by-product "must," as well as the unspecified fruits, would not have been exclusive to the Aegean area and thus were probably not the distinctive ingredients in the Mycenaean product.

Honey is a natural sweetener that was widely used in the ancient world. Already in the Late Bronze Age, bee-keeping had a long tradition in both Khatti and Egypt (Hoffner 1974: 123-24; Lucas and Harris 1962: 25-26), while the fact that contemporary Syria-Palestine offered a competitive product can be inferred from the inclusion of honey from *Djahy* and *Retenu* in "tribute" lists of the 18th-Dynasty pharaohs (Lucas and Harris 1972: 25). Honey, however, derives much of its flavor from the flora of the area in which it is produced, and it is possible that this factor may have given a special quality to the Aegean exports.²³

Coriander and cyperus seeds are the only identifiable dry ingredients that are listed in large amounts and, with wine, appear in the largest quantities (720 l. each). This coupled with the fact that they occur at the head of the consignment, indicates their relative importance among the commodities and therefore deserves closer attention.

Ko-ri-a₂-da-na, which appears on tablets from Knossos, Mycenae, and Pylos, has been identified as coriander, the flavorful *Coriandrum sativum*, a plant that enjoyed wide popularity in the eastern Mediterranean.²⁴ We do not, however, know whether other Mediterranean peoples utilized coriander in the same manner as did the Aegeans,

for the Hittite texts reveal only that coriander (*še-lu^{sar}*) was roasted and eaten (Hoffner 1974: 104), while in the Egyptian records coriander (*šzw(t)*) occurs only in Rameside commodity lists (Camino 1954: 118), without further explanation of its function.

The condiment *ku-pa-ro* has been identified as *Cyperus* and, possibly, more specifically as *Cyperus rotundus* (Ventris and Chadwick 1973: 223-24, 557-58). The identification of the genus is not questioned here, but a caveat is offered regarding our ability to identify the species. *Cyperus* is but one of about 70 genera of the *Cyperaceae*, a family of sedgelike grasses of which genus *Cyperus* alone consists of almost 600 species, making it difficult to identify with any degree of certainty the exact species of this plant on the basis of the Aegean tablets. *Cyperus* does not appear as a condiment in other Near Eastern sources, although the Knossian text qualifies its entry of *ku-pa-ro* with the form *ku-pi-ri-jo*, which Ventris and Chadwick (1973: 223) at first suggested may mean "of the Cypriote variety," an identification which Chadwick now believes to be less tenable.²⁵

With the possible exception of the *ku-pa-ro*, then, there is nothing in the extant list of commodities consigned to the Pylian unguent-boilers that would betray the special quality that made the Aegean products so welcome in the eastern markets.

The second category of Mycenaean Greek textual sources relevant to this discussion consists of references to the transfer or dedication of scented oil or unguent, which, when identifiable, was made to a deity, a sanctuary, or for a religious event (Bennett 1958: 37-38). The majority of these commodities are either "sage-scented" or "rose-scented," but a combination of "Cyperus- and rose-scented" does occur.²⁶ When a specific function, as opposed to a simple delivery, of these products is given, it is "for anointing" or "ointment for robes."²⁷

Oddly enough, the perfuming agents *pa-ko* (sage) and *wo-do* (rose), so prevalent in the Greek texts, do not appear in other Near Eastern literary sources,²⁸ and thus these two scents may have provided the Aegean oils and unguents with the special character that made them so distinctive in the east.

Historically, sage (*Salvia officinalis*) has been used for medicinal and culinary purposes, but its aromatic properties have not gone unnoticed

(Hylton 1974: 559-60). Modern references to sage in connection with oil are scarce but do exist (Bennett 1958: 19, n. 11). The rose (the various species of genus *Rosa*), on the other hand, has been mainly utilized as an aromatic, and only secondarily used in medicine and cooking (Hylton 1974: 545). Oil of roses, moreover, has been quite popular over the centuries. A standard recipe instructs one to:

. . . collect a half-pound of rose buds. Use a mortar and pestle to crush them fine, place them in an earthenware crock, and add a quart of olive oil. Place the crock in a sunny location for three to four weeks stirring daily. At the end of this period, heat the roses and oil in a bowl until warm, force the warmed mixture through a fine sieve . . . Filter through four layers of cheesecloth before storage (Hylton 1974: 172-73).

Such a procedure is probably quite similar to the manner in which the flavored oils were made at Pylos, and perhaps the perplexing six kilograms of wool issued with the spices on Pylos tablet Un267, quoted above, when placed in the end of a Mycenaean rhyton (FS 199) would have functioned as the filter required in the modern recipe. The rhyton, or conical filler, is widely distributed in the Aegean area and has been found in Syria-Palestine at Ras Shamra/Minet el-Beidha, Tell Kazel, Askalon, Tell Abu Hawam, Tel Sera', and Kamid el-Loz.²⁹

Whether the rose-scented and sage-scented oils and unguents were utilized locally for domestic purposes is unknown, but the tablets clearly indicate that they were literally "fit for the gods." A product of such quality would have traded well in the emporia of the eastern Mediterranean. If we are correct in assuming that these products came in scents unavailable elsewhere in the Levant, we can understand their desirability even more readily. Memory of the worthiness of these products doubtlessly inspired Homer to place "rosy immortal oil" (ροδόεντι ἐλαίῳ ἀμβροσίῳ) in the hands of Aphrodite with which to protect the body of her beloved Hector, as he was dragged around the walls of Troy.³⁰

This study has advanced the hypothesis that the morphological variations in the Mycenaean export ware can indeed contribute to our knowledge of Aegean commerce with the southeastern Mediterranean. A review of the open forms has indicated that they represent a trade in fine tableware, particularly of shapes that complement the short-

comings of the local Syro-Palestinian ceramic repertoire. Analysis of the closed forms has demonstrated a trade in specialty oils and unguents which, as the textual evidence seems to indicate, complimented a pre-existing trade in similar commodities. The fact that only about 15-20% of the total Mycenaean vase forms are found in the

southeastern Mediterranean is not an accident, for the simple reason that sustained trade is never accidental. Those products are shipped that will meet a specific demand. The modern business axiom "find a need and fill it" was as true in the Bronze Age as it is today.

NOTES

¹Basic reading on the geographic distribution of Mycenaean pottery should include Stubbings 1951; Hankey 1967; Taylour 1958.

²For Mycenaean pottery of specific periods, see the series of articles by E. French in the *Annual of the British School at Athens* throughout the 1960s.

³For a more recent analysis of the status of Aegean chronology, cf. Hankey and Warren 1972.

⁴The reader should note the nature of the contexts available to Furumark, as well as the basically circular argument of dating Near Eastern material on the basis of Aegean finds, which are themselves dated by their occurrences in Near Eastern deposits.

⁵For a convenient map of most of these sites see Hankey 1970: 24-26. A complete index to the Aegean pottery in this region is being completed by the present author.

⁶For the mechanics of this process, see Amiran 1970: 179-81.

⁷They are FS 16, 24, 34, 36, 44, 45, 46, 47, 48, 53-55, 83, 84, 85, 94, 95, 113-114, 134, 139, 151, 159-161, 164, 166, 167, 171, 173, 174, 176, 178, 179, 180, 182, 183, 186, 189, 191, 198, 199, 211-214, 219, 220, 225-226, 230, 244, 254, 255, 256-257, 258, 258B, 262, 278, 281, 283, 284, 290, 295, 296, 300 and 310.

⁸A good review of Late Bronze Age local and imported pottery can be found in Amiran 1970: 124-90.

⁹The average height of the deep bowl is 7-15 cm., while that of the krater is 25-30 cm.

¹⁰Amiran 1970: pl. 57: 12, 13. Both of these vessels are considered to be local by the present author.

¹¹The term "collar-neck" is not used here in accordance with Furumark's understanding of the term in 1941a: 43.

¹²For chariot compositions, see Furumark 1941a: 433-37. For the "prodding" fish, cf. Vermeule 1974: pl. 32:D.

¹³For its appearance on the more open FS 7 (deep krater with two vertical handles) and FS 281 (deep rounded bowl with horizontal handles), see Furumark 1941a: 433.

¹⁴It is possible that the painted "loops" that join the base of the handles to the solid painting of the neck may indicated some arrangement by which the wide mouths of these vessels were secured. These loops were often added after the pictorial decoration had been completed and in some instances actually cover portions of the major scene.

¹⁵That the craft of the Syro-Palestinian potter definitely declined during the Late Bronze Age is clearly demonstrated in Amiran 1970: 124-90.

¹⁶The price of one container of this oil is known to have been

two shekels of silver: cf. Friedrich 1959: 81: 66. It is mentioned in stone containers among a series of gifts from Amenhotep III to Tarhundaraba (Tarkhunda-radu) in Arzawa letter "A", 11. 34ff.; cf. Knudtzon 1907: I: 274-75.

¹⁷*Keilschrifttexte aus Boghazköi* 18, 2, 11. 6ff. The same oil is also used for anointing a lamb, in the Ritual of Papanikri; see Sommer and Eheloff 1924: 13. Translation as a perfumed oil would not be at odds with Hoffner's reference (1974: 124) to the pouring of *l.DUG.GA* and honey on bread, since, in this particular instance, it was definitely a ritual performance, and the product was not intended for human consumption (*Keilschrifttexte aus Boghazköi* 6, 46.40ff.).

¹⁸Breasted 1927: II: nos. 491, 509, 518. Possibly arguing against this interpretation, however, would be the mention of "sweet oil of gums" (II: 497 and 498) during the later reign of Ramses IX.

¹⁹For this plant and its uses, see Knowles 1955: 273-99.

²⁰Evans 1935: 718-20; but against Evans' reading of "saffron" see Ventris and Chadwick 1973: 35.

²¹Helbaek 1966: 618. An opposing opinion is offered by Kraus 1968: 112-19.

²²Ventris and Chadwick 1973: 227; cf. also Hoffner 1965: 535.

²³That the New Kingdom Egyptians appreciated fine honeys can be seen in the inclusion of two small clay pots marked "honey of good quality," included with the provisions for the afterlife of Tutankhamon; Lucas and Harris 1973: 26.

²⁴Ventris and Chadwick 1973: 222. See also under *kisibirru* in the *Chicago Assyrian Dictionary*, Vol. 8 ("K"), pp. 420-21.

²⁵Ventris and Chadwick 1970: 441. For a full discussion of *ku-pi-ri-jo*, see Godart 1968: 64-70.

²⁶Bennett 1958: 42, sage-scented (Fr 1202); p. 44, rose-scented (Fr 1204); and p. 43, cyperus- and rose-scented (Fr 1203).

²⁷Bennett 1958: 49-50, oil for anointing (Fr 1218); and pp. 55-56, ointment for robes (Fr 1225).

²⁸The rose has evidently been known in Syria-Palestine since Graeco-Roman times; but for the difficulty in translating the Hebrew *הַרְבֵּלִית* as a "true" rose, cf. Buttrick 1962: 128-29; Hastings 1963: 864.

²⁹Several of the rhyta from Ras Shamra/Minet el-Beidha are illustrated in Schaeffer 1949; for Tell Abu Hawam, Hamilton 1935: pl. 19: 306p., 306u, pl. 20:307m; Tell Kazel, Hankey 1967: 114, fig. 2c; Askalon, Pythian-Adams 1921: pl. 3: 8; Tel Sera', Oren 1974: 265; Kamid el-Loz, unpublished, Beirut Museum.

³⁰Homer, *The Iliad*, XXIII: 186; cf. Latimore 1967: 455.

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