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Egyptian Amethyst in the Bronze Age Aegean

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Abstract

Though the fashion for amethyst in Egypt and the Near East had, by the mid-eighteenth century BC, dried up along with the Wadi el-Hudi mine, the stone's popularity persisted in the Aegean well into the twelfth century. Though amethyst-colored glass was sometimes substituted, an abundance of genuine, high-quality amethyst nevertheless made its way to the Aegean during a period when even pharaohs settled for subpar specimens. Some of these examples (scarabs in particular) were certainly completed pieces by the time they left Egypt, even if later recut in Aegean workshops. Other examples seem to have been crafted entirely in the Aegean from Egyptian raw materials of dimensions unattested in Egypt itself, even before the Wadi el-Hudi source was mined out. The exceptional quantity and quality of amethyst jewelry in the Aegean suggests avenues of legitimate trade with Egypt must have existed at some point; later tomb-robbing alone is unlikely to account for so much high-grade material dispersing so far afield.

That Egyptian material was imported into the Bronze Age Aegean has long been demonstrated by the recovery there of the artifacts themselves. They are initially found on the island of Crete, in contexts as early as the Early Minoan IIA ceramic phase, which is generally contemporary with the later Second through Fourth Dynasties in Egypt. However, Egyptian material on the Greek mainland first appears much later, in contexts at the end of the Middle Helladic ceramic phase, which is generally contemporary with the later Second Intermediate Period. The majority of material is from the site of Mycenae in the Argolid, but other material is found in widely disparate areas of the mainland, and more is recovered annually. I am presently collating and cataloging this Egyptian material found in the Bronze Age mainland, attempting to identify any related "Egyptianizing" material there.[1] My ultimate aim in this wider project is to consider the degree to which the mainland was influenced by Egyptian material culture and iconography, whether directly or through intermediaries (and what aspects the Mycenaeans considered relevant to themselves), as well as to compare the situation there with that on Crete to its south.[2]

Amethyst stone is one focus of Mycenaean as well as Minoan attention. This paper examines some Egyptian and Egyptianizing objects of amethyst recovered in the Aegean world as well as other amethyst artifacts of unique character, and discusses some inferences and conclusions that may be drawn from the evidence they present. It builds on earlier work by my friend Olga Krzyszkowska,[3] an Aegeanist scholar whose research focuses on Bronze Age Aegean seals and ivory. I began my amethyst search in large measure to see whether the chronological and geographical pattern of its exploitation in the Aegean fit the overall distribution pattern I am finding in my larger project. I have found that it does, and very much so. This, if nothing else, supports the long-held assumption that the amethyst found in the Aegean ultimately originated in Egypt.

Considerable quantities of amethyst, including raw stone and finished Egyptian artifacts, have been recovered over a wide expanse of Greece, the latter mostly as jewelry elements of one form or another. I have so far documented nearly 1,650 published or exhibited individual pieces of amethyst from Greek sites. Undoubtedly many more relevant amethyst pieces also exist that are not yet excavated, not yet published, not specifically identified in publication as amethyst, not exhibited, or otherwise not yet known to me; we might ultimately even double this figure.[4] The vast majority are recovered in burials, but some have been found in habitation contexts and a small number in both workshop and religious contexts. Artifact color ranges from the virtually colorless "amethystine quartz" to the uniformly deep dark purple found on Middle Kingdom royal amethyst jewelry, the majority tending toward the darker range. Both recognizably imported Egyptian and clearly indigenous Mycenaean artifacts of amethyst have been recovered, as have amethyst objects originating from elsewhere in the eastern Mediterranean, clearly indicating importation of both finished artifacts and the raw stone itself for manufacture in Aegean workshops into indigenous items. However, the origin of many objects, chiefly spherical or flattened spherical

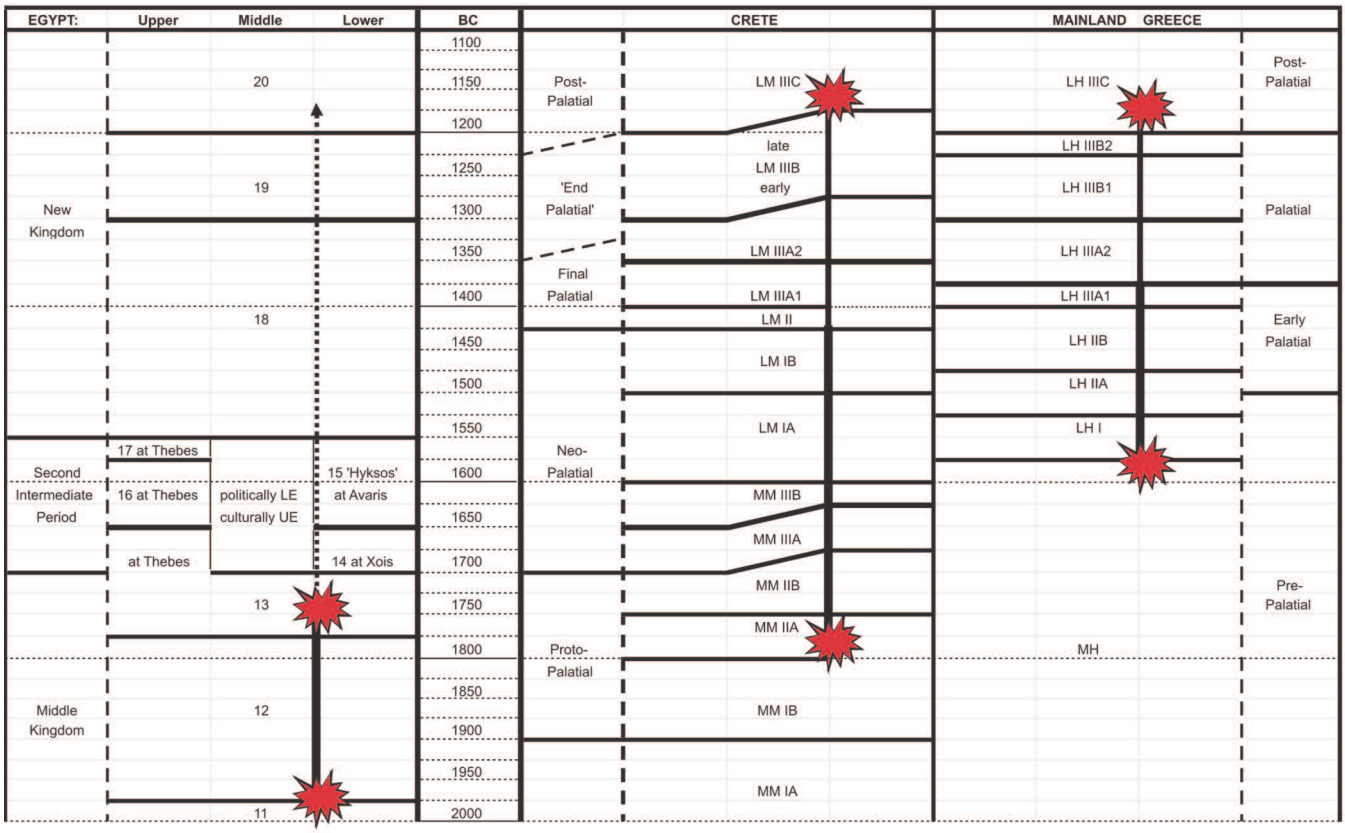

Figure 1. Chronological chart of Egyptian, Minoan, and Helladic timelines, indicating the appearance and use of amethyst in each of the three cultures.

beads, cannot be determined with certainty, and the total quantity of such beads and other similarly indeterminate types likely represents both imports and local manufacture. There is no ancient source of amethyst in the Aegean.[5]

Chronologically, the Aegean distribution pattern of amethyst finds differs considerably from the pattern of amethyst exploitation in Egypt itself (see Figure 1). Amethyst was extremely popular for jewelry use in the very late Eleventh through early Thirteenth Dynasties and again popular in Roman times, although it is also found sporadically in other periods.[6] The only other suggested source in the Bronze Age world lies somewhere in the northern Iraq/southeastern Anatolia/Syria highlands, an area that may have been sporadically exploited in the fourth and third millennia BC, as evidenced by the occasional object in Mesopotamian contexts of that date range at sites in that region.[7] Use and popularity of the stone in both Mesopotamia and Syro-Palestine otherwise follows the Egyptian pattern almost precisely,[8] strongly suggesting that most of the raw material was obtained from Egypt rather than from any assumed northern source. Thus, the *stone* found in Greece also must have originated at the same source—Egypt, not northern Iraq—even if the artifact itself was produced in the Aegean or the Near East, or elsewhere.[9]

The Aegean pattern begins in a generally similar manner, albeit after a time lag, for the earliest finds on Crete *might* date as early as the Middle Minoan IB ceramic phase, approximately contemporary with the later Twelfth Dynasty. Hard stone is first exploited for seal manufacture sometime in MM IB, although no amethyst object is definitively MM IB in date either through stylistic or contextual evidence. Hard stone is the preferred medium for seal manufacture during MM II (approximately contemporary with the end of the Twelfth and early Thirteenth Dynasties), by which time amethyst certainly was in use for seals. Among early amethyst imports to Crete are two Egyptian scarabs upon which Minoan artisans have carved face designs; the faces were likely blank originally. These scarabs are of the late Twelfth to early Thirteenth Dynasty type, but their face designs are Proto-Palatial Minoan, dating to MM IB–II, while entirely Minoan seals are also known.[10] It has long been assumed that these are individual pieces of dismantled jewelry, probably looted from Middle Kingdom tombs. Many other Egyptian artifacts, chiefly stone vessels dating from as early as the Early Dynastic period and certainly through the Eighteenth Dynasty, have been recovered in later contexts at locations both beyond and within Egypt,[11] with a surprising number of them in the Aegean.

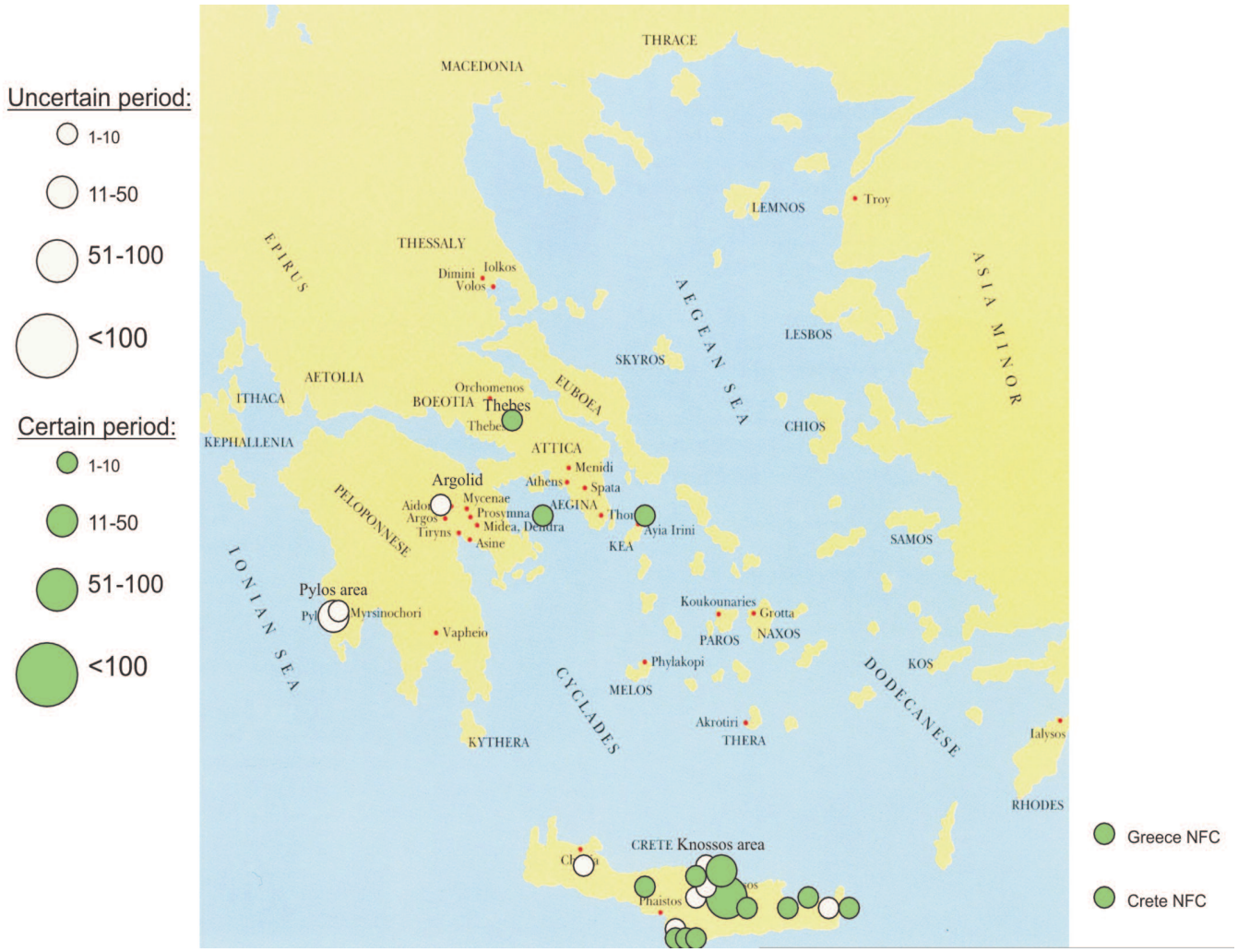

Figure 2. Amethyst finds in the Aegean during the Middle Helladic/Middle Minoan periods (generally earlier than the Seventeenth Dynasty). "NFC" (No Find Context) indicates finds without provenance; "uncertain period" indicates material from broader contexts, including the period indicated.

Other amethyst objects, wholly Minoan types, can also be dated to this Proto-Palatial period by their stylistic date, both at Crete and elsewhere in the Aegean, where Minoan objects have been found and Minoan émigrés perhaps had even settled (see Figure 2). Many are stylistically dated seals of one form or another, usually amygdaloid or discoid in shape, or three-sided forms of these shapes, along with a surprising number of beads—mostly spherical but occasionally amygdaloid—dated by their context limitations. Whether these beads were fashioned at Crete from imported raw amethyst or were made in Egypt and imported as finished objects is often debatable. I shall return to this question below.

A surprising contrast to these Minoan pieces is the discovery of six small spherical amethyst beads in a late Middle Helladic *pithos* (jar) burial of a twelve-year-old girl excavated at Boeotian Thebes,[12] a mainland location fairly distant inland with no other known connection to the Minoan world at this time. The otherwise ordinary grave, which predates Schliemann's famous Shaft Graves at Mycenae, appears to be the earliest evidence for a wholly *mainland* connection with Egypt, however this was achieved (and some intermediary means is much more likely than direct contact). By this time, the mid-Hyksos period in Egypt, the fashion for amethyst already had long waned in both Egypt and the Near East.

Beginning in the Late Helladic period on the mainland, roughly contemporary with the later Second Intermediate Period in Egypt, there is a fair explosion of amethyst recovered throughout southern mainland Greece, especially in tombs. On Crete, it also continues to appear in quantity, in complete contrast to Egypt and the Near East. Multiple individual amethyst jewelry elements have been recovered in the larger élite tombs, while fewer or even singletons are found in less wealthy graves (see Figure 3). The main latest "Pre-Palatial" (LH I–IIA) and "Early Palatial" (Late Helladic IIA–IIIA1) concentrations on

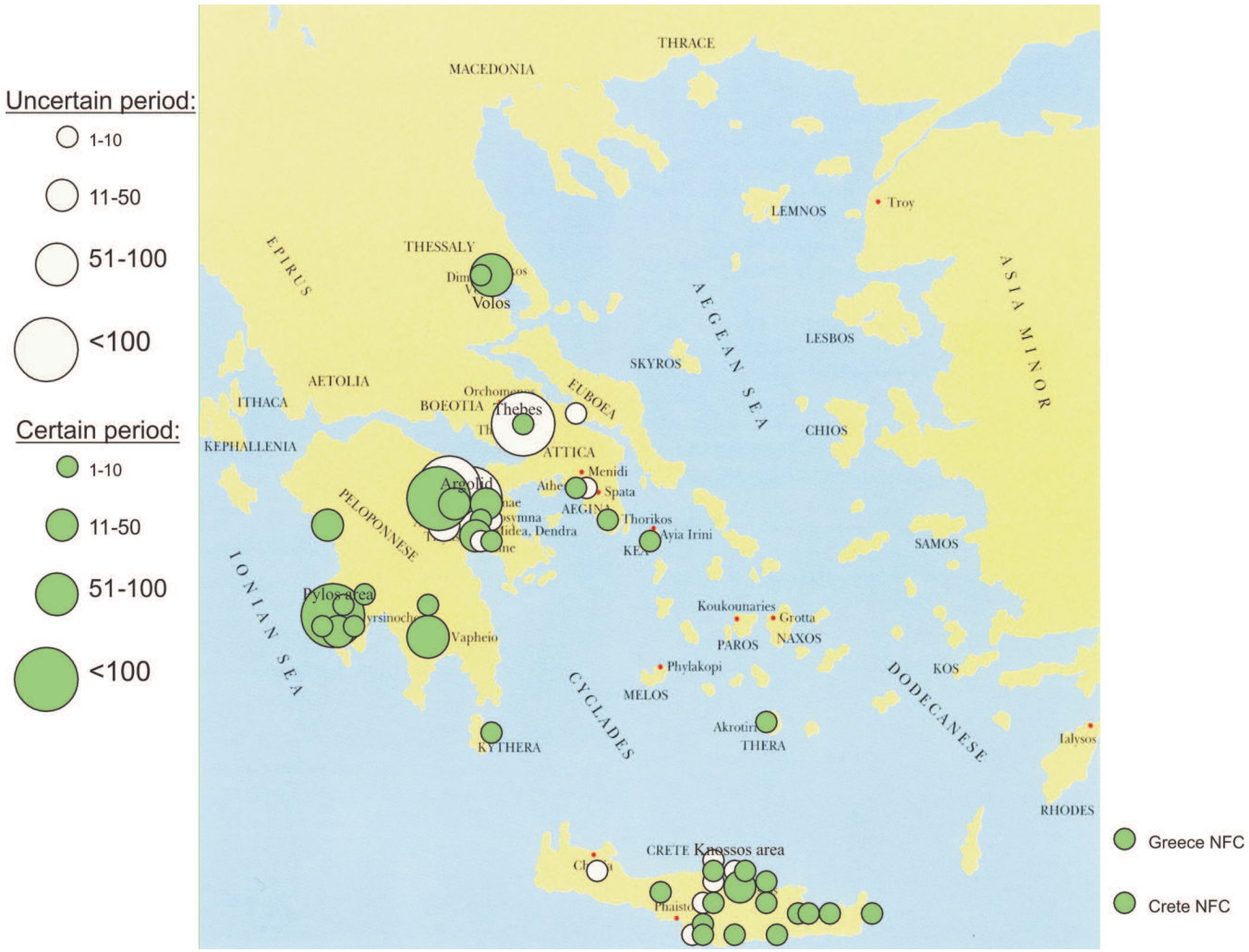

Figure 3. Amethyst finds in the Aegean during the Late Helladic to the end of the "Early Palatial" period and the Late Minoan "Neo-Palatial" period (generally contemporary with the Seventeenth Dynasty through to the reign of Amenhotep III). "NFC" (No Find Context) indicates finds without provenance; "uncertain period" indicates material from broader contexts, including the period indicated.

the mainland are in the region of Pylos in the western Peloponnese and at sites such as Mycenae in the Argolid plain of the eastern Peloponnese. Tomb IV at Englianos near Pylos produced an astounding quantity of 246 beads, seals, and an uninscribed scarab of amethyst,[13] while the unplundered tombs at Kazarma,[14] Tomb VII at Tiryns[15] (both in the Argolid) and the Vapheio tomb cist in Lakonia revealed, respectively, 139, 26, and 113 beads, seals, and (at Vapheio) another uninscribed scarab.[16] The three LH IIA tombs at Kakovatos, some 50 km north of Pylos, revealed twenty beads,[17] nearly half again as many as the thirteen beads and seals recovered from all thirty-one graves of both famous Grave Circles at Mycenae combined.[18] Tombs continuing in use into the following "Palatial" period (Late Helladic IIIA2–B) produced a further 123 pieces of amethyst at Mycenae[19] and seventeen at nearby Prosymna,[20] so some of this amethyst may have been interred in the Palatial period instead. Other tombs, also used over both periods, at Thebes in Boeotia north of the Gulf of Corinth and, even farther north, Volos in Thessaly also produced, respectively, 119 and 82 beads and seals.[21] At Crete, concentration particularly focuses on tombs at Knossos and its immediate environs, especially the port area of Poros. At least twenty-nine amethyst pieces have been recovered (though so far mostly unpublished) from "Neo-Palatial" (MM III–LM I) Poros tombs.[22] Knossos itself has at least eighteen certain Neo-Palatial finds, together with a further twenty-one pieces from tombs also continuing into "Final Palatial"/"End Palatial" period (LM II–IIIA/B) use.[23] This quantity is all the more remarkable as Neo-Palatial Minoan burials are rare.

Amethyst finds remain somewhat substantial during the Palatial period (LH IIIA2–B) on the mainland, although not nearly as rich as before (see Figure 4), suggesting that most of the

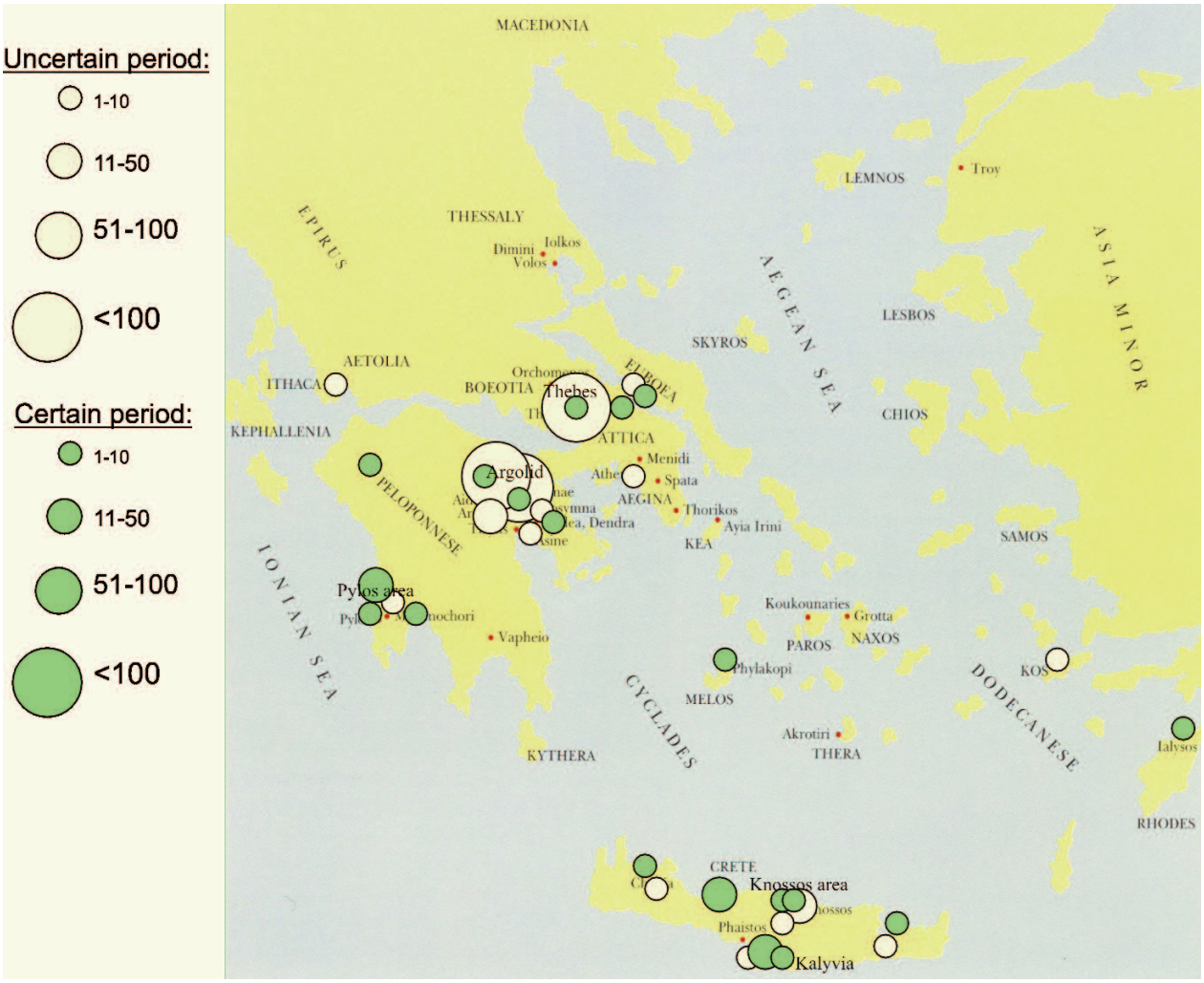

Figure 4. Amethyst finds in the Aegean during the Late Helladic "Palatial" and Late Minoan "Final Palatial"/"End Palatial" periods (generally contemporary with the reigns of Amenhotep III through Seti II); "uncertain period" indicates material from broader contexts, including the period indicated.

above-mentioned material from multi-period contexts was likely interred during the mainland Pre-Palatial and Cretan Neo-Palatial periods. Of the entirely Palatial interments, the most substantial individual context is a single tomb at Tragana, near Pylos, where some twenty-one beads were recovered.[24] Mycenae itself has nine pieces certainly dating to this period,[25] in addition to some of the 123 "straddlers" already mentioned above. On Crete, concentration shifts from Knossos to elsewhere on the island, especially to the south-central area, where some twenty-eight beads are found at Kalyvia cemetery, twenty-five of them in a single tomb.[26] Of the islands, only Kos and Rhodes,[27] with their particularly strong Mycenaean influence, interred some amethyst in small quantities with their dead. However, the vast majority of finds of this period are singletons, or no more than three pieces in any one tomb, suggesting either that the Aegean source may have been drying up or that fewer grave goods were being interred with the dead at this time.

By the following Post-Palatial period of both Late Helladic and Late Minoan IIIC, only two sites—Perati on the mainland and (questionably) Knossos on Crete[28]—could boast an amethyst bead among their dated material, although others just might have also been deposited elsewhere at this time (see Figure 5).

But what did the Minoans and Mycenaeans find particularly attractive about amethyst, and what did they do with the stone before interring it with their dead? In Egypt, non-amuletic amethyst beads are limited to plain spherical/flattened spherical, biconical, amygdaloid, barrel, and cylindrical shapes. The vast majority of amethyst beads in the Aegean are these same spheroid/flattened spheroid beads of various sizes, so these shapes found in the Aegean might be either Egyptian or Aegean products. When found in large quantity in individual Aegean tombs, the beads most often prove to be (or are restorable as) graduated necklaces. Examples of such necklaces are

Figure 5. Amethyst finds in the Aegean during the "Post-Palatial" period (generally contemporary with the reigns of Siptah through Ramesses IV). "NFC" (No Find Context) indicates finds without provenance; "uncertain period" indicates material from broader contexts, including the period indicated.

known from Aidonia in the Argolid, Englianos near Pylos, Archanes and Kalyvia on Crete, Kapakli near Volos, and Kolonaki near Thebes, among others. The large quantities quoted above are mostly restorable as graduated necklaces, similar to that carried by one of the lovely ladies on a fresco at Akrotiri on the island of Thera.[29] When strung together as such necklaces, the whole as a single piece of jewelry argues for a prestige and value—socially, economically, and possibly even politically—considerably greater than that of the individual beads of which it is composed.

Aegean jewelry often combines materials and colors, most often as contrasting and visually appealing combinations. While much multi-component jewelry is of modern stringing or arrangement, using the individual pieces recovered together in tombs, the jewelry worn by larger-scale figures on fresco paintings indicates such multi-color combinations were in fact worn. Some amethyst jewelry is combined with bright contrasting colors similar to the familiar Egyptian pattern of purple, red, and turquoise. Another lovely lady on the Theran fresco, for example, wears contrasting amethyst and carnelian (or at least purplish-blue and red) necklaces.[30] The graduated Archanes necklace (Figure 6), from an MM IIB burial, includes three carnelian beads, and this amethyst-carnelian combination is not uncommon in either Egypt or the Aegean. The remarkable necklace from Poros[31] is an absolute symphony of relatively pale amethyst color and graduated size, separated by and contrasting with smaller beads of dark garnet and sard. Both stones are similar in color to carnelian, and the garnet stone was also imported from Egypt, as might have been the sard.[32] Another hundred or so Aegean amethyst beads are of other shapes, nearly half of them plain amygdaloid, biconical, barrel, or cylindrical, and thus could be either Egyptian or Aegean products.

However, over sixty beads can only have been created in the Aegean. Their shapes include a bucranium, figure-eight shields and pentagonals, octagonals and drop-shapes, three-

Figure 6. Graduated necklace of fifty amethyst and three sard beads, from Archanes, Phourni Tholos Tomb E, MM IIB context, Sakellarakis and Sapouna-Sakellarakis 1997, II, Figure 660.

prisms and cushions, discoids and lentoids, and even "pomegranate-shaped" and multi-holed spacer beads, none of which are found in the Egyptian repertoire in amethyst (although some are found in other materials). Some of these indigenous Aegean beads are *tour de force* examples of the jeweler's art. These might easily have been made from imported raw amethyst stone—some pieces of which have been recovered at Mycenae and elsewhere—or perhaps cut down from larger or broken imported pieces.[33] Some of these presumed raw imports would have had to be quite large to be cut down into the large individual elements as they survive today. The largest individual dimension on the magnificent amethyst necklace recovered in a child's grave at Argos is a figure-eight bead some 2.2 cm long,[34] while the six exceedingly large spherical beads recovered in Shaft Grave IV at Mycenae range in diameter from 1.9 to 2.1 cm.[35] No spherical amethyst beads of such dimensions are known in Egypt.

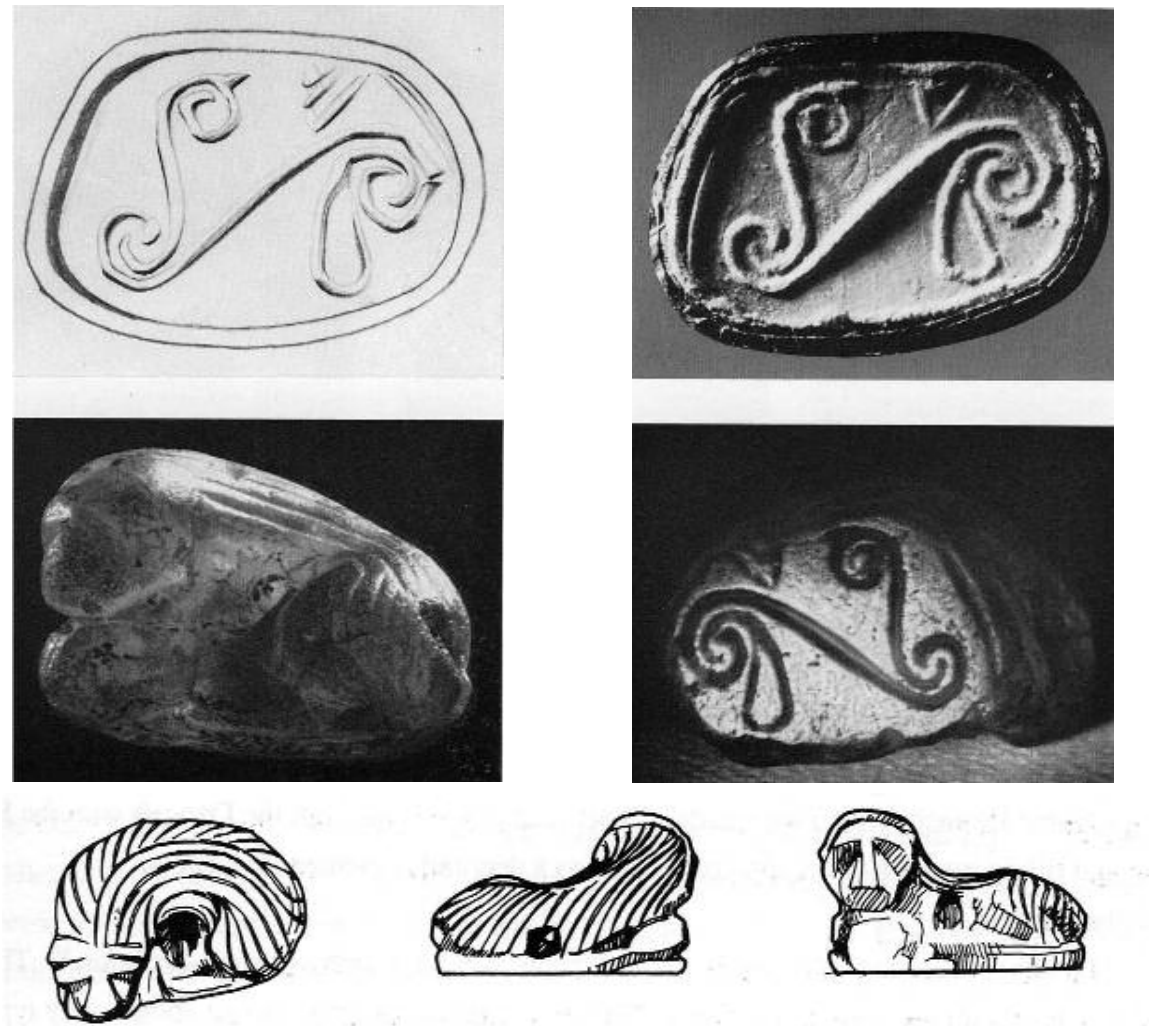

Figure 7. Amethyst seal in the form of a recumbent lion, BM Gr/R 1892.1–23.1, said to be from Mycenae and stylistically dated to MM IIB(?), CMS VII #39 and Quirke and Fitton 1997, 430 Figure 3.

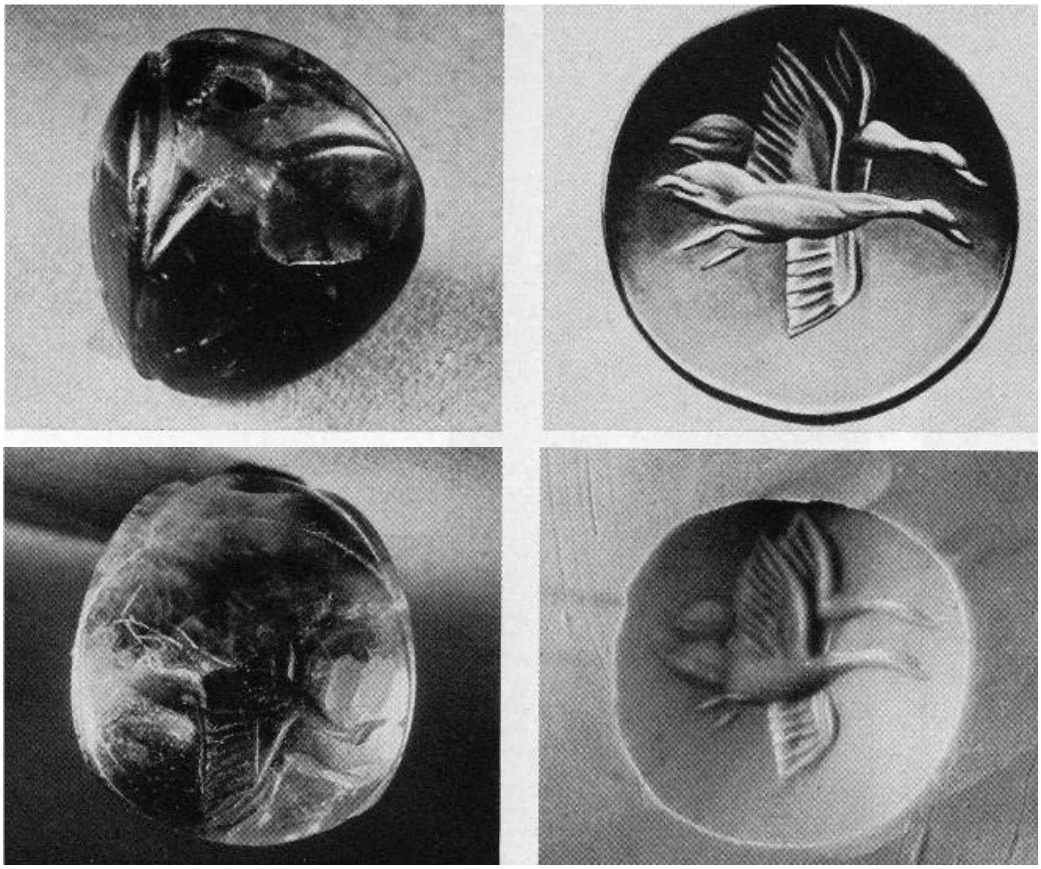

Figure 8. Amethyst three-sided circular seal with rounded back, NMA 8331 from Tomb 2 at Routsi, tomb dated to MH III–LH IIA with some LM IB imports, CMS I #273.

I have noted above that some amethyst pieces are recognizably Egyptian products, chiefly the scarabs that either did, or must have, arrived with an uninscribed face and thus likely were originally individual components of larger Egyptian jewelry pieces such as necklaces or girdles. Six of these scarabs are known at present, scattered over the Aegean: at Agios Onouphrios and Psychro on Crete (now inscribed with Middle Minoan II–III face designs) and on the mainland at Aidonia in the Argolid (also with a Minoan face design, likely LM I), Vapheio in Lakonia, and Peristeria and Englianos in Messinia, all dateable contexts being within Late Helladic I–II. In other words, they have been recovered in the geographical and chronological foci of the majority of amethyst finds. Of the many amethyst seal and pendant forms having strong amuletic or protective significance in Egypt, *only* the scarab form is found in the Aegean, which strongly suggests this was by deliberate Aegean choice. This is also true in other materials: only a handful of Egyptian amuletic types are found in the Aegean, even fewer were actually adopted into Aegean repertoires, and only the scarab form continued to be imported in any quantity throughout the Bronze Age.[36]

A seal in the form of a recumbent lion was likely cut down from an Egyptian scaraboid, probably in MM II Crete (Figure 7).[37] As Dominique Collon pointed out, "the lion may have been recarved from a larger piece; an amethyst scarab of this height and twice the length could have broken in two, leaving only the somewhat triangular spiral motif now visible on the base of the lion."[38] In other words, this scaraboid apparently is the reverse of the reworked scarabs: the face design is (or had been) Egyptian, and the recumbent lion shape itself is the Minoan re-cutting. Two other specifically Minoan shapes may also have been cut down from amethyst scarabs. One is a "ring-stone," made for insertion into the bezel of a metal ring, found at Zakro, and the other a "foliate-backed" type said to be from the Mesara region.[39] Both can easily be imagined as cut down from the scarab shape. Both are found on Crete and date to MM II–III.

Is there evidence for other imported amethyst objects being reworked? In some cases, the answer is a qualified "yes." Some of the larger Egyptian spheroid and barrel beads may have been carved into what are now Aegean seals. Two amethyst three-prism circular seals are designated "plump" because they have a flat seal face but rounded backs (Figure 8),[40] an unusual feature given that all three faces are flat on the vast majority of Aegean three-prism seals. Three other amethyst seals do have all three

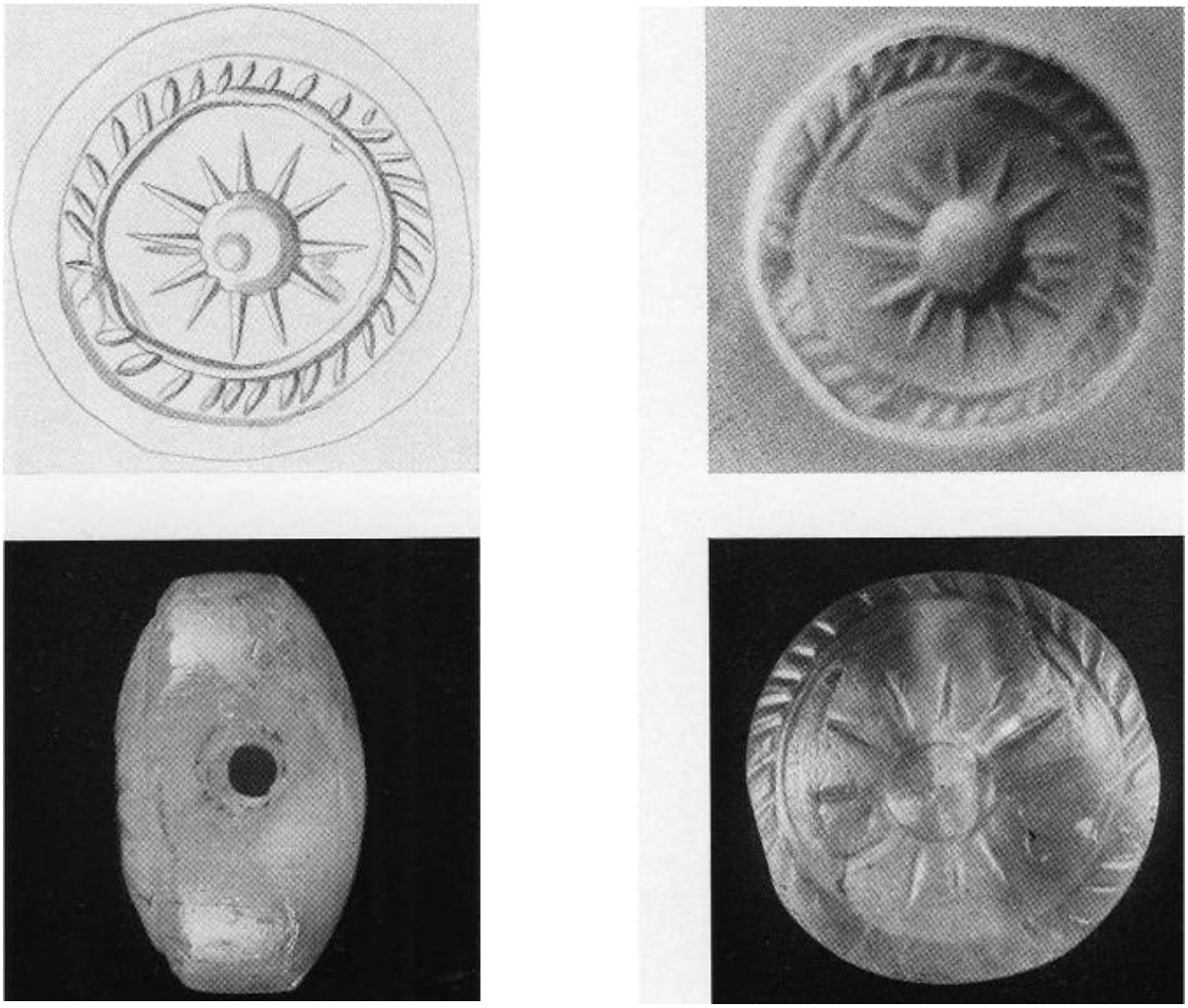

Figure 9A. HM 2161 from Kamilari on Crete (CMS II.2 #18). One of two "plump" amethyst discoid seals, both stylistically dated to MM II–III.

faces flat, but nonetheless *might* also have been spheroid beads.[41] Two unusually "plump" discoids (Figures 9A and 9B) may also be reworked spheroid beads, perhaps accidentally broken but with the still-useful majority of the bead cut down to a new, flatter shape.[42] The same may be said for a lentoid with a flat front and rounded back.[43] An amygdaloid seal with unusually rounded edges may be a recut barrel bead,[44] as may have been two other amethyst amygdaloid seals.[45] While none of these apparently reworked objects need necessarily have arrived in the Aegean as previously finished items rather than as unworked stone, they—and other beads more clearly—do indicate that the stone was considered both important and valuable enough that even broken pieces were reworked and recycled.

A "hemispherical" bead recovered at Prosymna unquestionably has been reduced from an originally spheroid bead, and a barrel bead from the same site has been cut down to a short cylindrical shape.[46] The shiny irregular broken chipped edges and pits on both beads are in complete contrast to the flat surface abraded to hide the chipped flaws after the original beads had broken. One bead described as having an unusual "flat-sided lozenge" shape might also have been reduced from a barrel form, perhaps also due to breakage.[47]

There are other possibilities. Some nine amethyst beads, mostly spherical, are incised with multiple grooves parallel to the string-hole.[48] This is a fairly common feature of Aegean beads in a wide variety of materials. It is not, however, found on Egyptian amethyst beads of comparable shapes, which are left plain. Either these are Egyptian beads with grooving added in the Aegean by Aegean artisans, or the beads were produced by them from the imported raw stone.

Spherical amethyst beads certainly *were* produced in the Aegean. An unfinished spherical bead was excavated in an LM IA workshop context at Poros, together with a 9 mm–thick fragment of an amethyst vessel—enough, as its excavator noted, to produce more.[49] Pieces of raw (unworked) amethyst stone have also been recovered at Mycenae and elsewhere.[50]

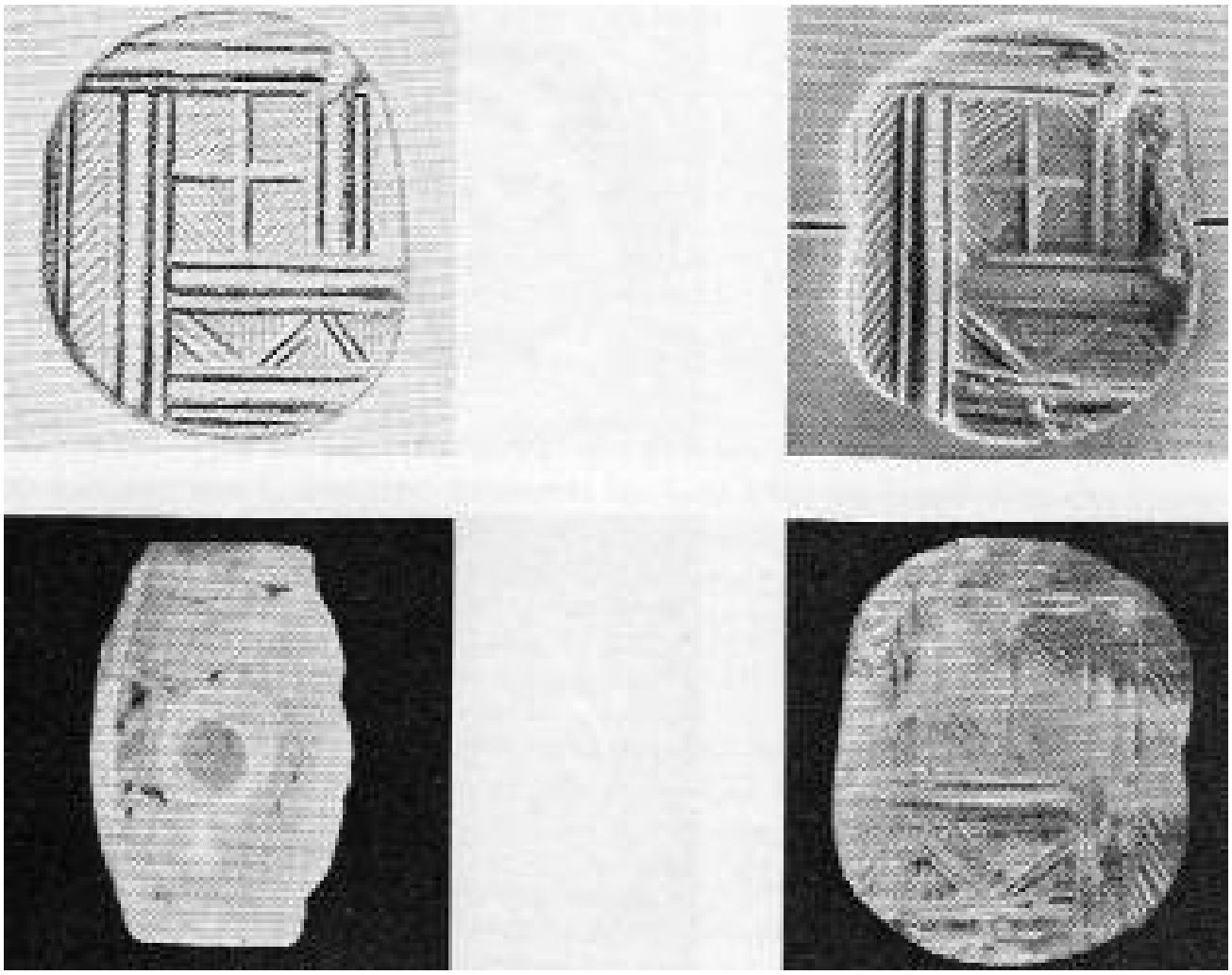

Figure 9b. MMA 26.31.193 from Greece (CMS XII #116). One of two "plump" amethyst discoid seals, both stylistically dated to MM II–III.

Some artifacts are not true amethyst, but rather deliberate substitutes for the stone in amethyst-colored glass. Glass was not necessarily a less costly substitute for the stone itself, as glass also appears to have been an import to the Aegean for working into a variety of objects.[51] The color of glass artifacts is rarely mentioned in publication, either because the material has degraded and its original color cannot be recognized or identified, or because it has been collectively identified in site reports only as "glass." Nonetheless, more than sixty specifically amethyst-colored glass beads are recorded from Aegean sites of Bronze Age date. The sites are geographically widespread (Figure 10)—from Nichoria and Routsi in Messenia; Mycenae, Aidonia, and Prosymna in the Argolid; and Ialysos on the island of Rhodes—in contexts ranging in date from Late Helladic I through IIIB,[52] as well as at LM Knossos and in the Psychro Cave on Crete. A glass seal recovered in the Psychro Cave is also purplish in color.[53] The known contexts thus also encompass virtually the entire range of amethyst use in the Aegean throughout the later sixteenth through thirteenth centuries.[54]

Why imitate amethyst in glass? Initially, glass would also have been a costly material, although later it was more commonly available. In Egypt, its production was a royal monopoly until at least the reign of Akhenaten,[55] if not later. Workshops and production centers in the Near East also appear to be associated only with royal or temple structures until the thirteenth century BC.[56] Glass ingots of amethyst ("lavender") color were recovered on the late fourteenth century BC Uluburun shipwreck, together with those of cobalt-blue color that constitute the vast majority.[57] By the thirteenth century BC, glass imitations were more easily and surely less expensively obtained, yet still looked like the real stone, and beads and amulets of amethyst-colored glass were still produced into the Ramesside period.[58]

The situation is less definitive in the Aegean, where most glass is recovered in tombs used and reused for multiple inhumations over a range of ceramic periods. The vast majority of glass beads in the Aegean are spherical or flattened spherical in form,

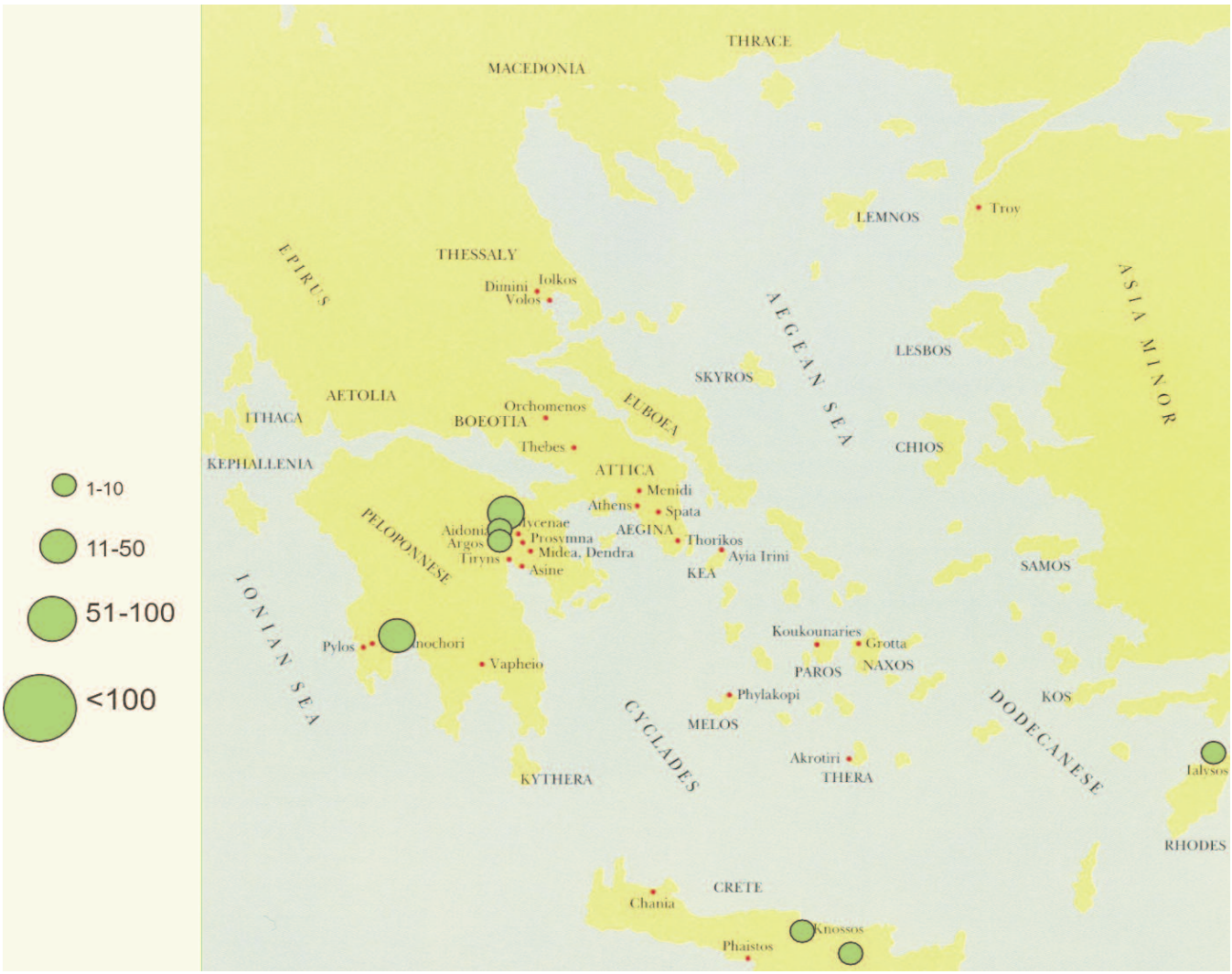

Figure 10. Amethyst-colored glass finds in the Aegean, all periods.

but at least one bead is amygdaloid and another a typically Aegean "grain-of-wheat" shape. Clearly, those who could not afford or obtain amethyst would still have wanted to wear it, and substitutes were created for this market by at least the thirteenth century, if not earlier. Amethyst-colored glass and amethyst stone beads also are sometimes recovered together in the same tombs, suggesting that necklaces may have included both materials. An excellent example of this combination is Tomb LI at Prosymna, where nine amethyst and thirteen amethyst-colored glass beads were recovered.[59] Nor is amethyst the only costly material imitated in colored glass. Amber-colored glass beads imitated the amber beads imported from farther north,[60] while cobalt-blue glass was a common substitute for lapis lazuli.[61]

Is the Poros vessel fragment also Egyptian? Perhaps, but its only publication provides no further details.[62] The Egyptians made small vessels of amethyst, but not during the Middle through New Kingdoms.[63] Did the Aegeans? Yes, and with far more daring. Three other amethyst vessel fragments have been recovered in the Argolid on the mainland: two at Mycenae and a third at Midea.[64] All three are the same vessel type, perhaps even the same vessel, in the form of a triton shell (see Figure 11). This is a definitive MM IIB through Late Minoan I vessel of ritual use.[65] The only stratified fragment is from a Late Helladic IIIB2 context at Midea some two centuries later, an indication of the possible length of the vessel's use. Katie Demakopoulou's published reconstructions of complete vessels, based on two of the fragments, indicate lengths of 21 and 25 cm—massive sizes for amethyst objects. The vessel or vessels must have consisted of multiple joining elements, of which only these three fragments have survived, although none have any indication of a joining edge.

Amethyst was imported from Egypt into the Aegean, beginning late in or at the end of the Twelfth Dynasty and con-

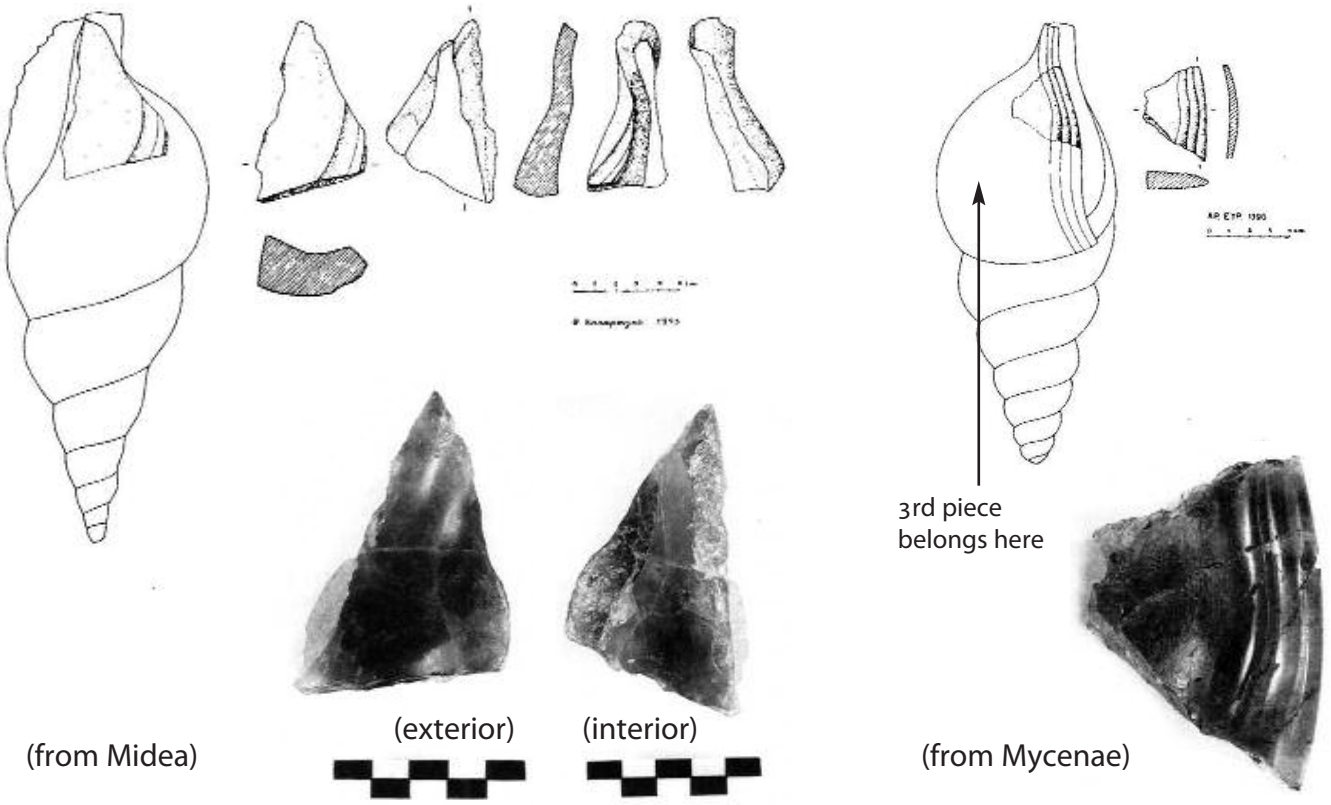

Figure 11. Amethyst triton shell fragments and their original vessels as reconstructed by Katie Demakopoulou 1998a, Pl. XXI, rearranged and with additional text by author.

tinuing in record quantities throughout the Second Intermediate Period into the Nineteenth Dynasty, long after the stone apparently was no longer mined and rarely employed in Egypt itself. The decline in the Egyptian popularity of amethyst, it has always been understood, correlates to about the mid-Thirteenth Dynasty, when the substantial amethyst source at Wadi el-Hudi was mined out, more or less contemporary with the onset of troubles that is the Second Intermediate Period.[66] The scant New Kingdom amethyst jewelry I have been able to cite in this paper is of pale color, even when the piece is associated with royalty, and it appears that this poor-quality amethyst must be all that was available for use in Egypt in the New Kingdom.[67] The amethyst recovered in the contemporary Aegean is most often of much darker color and better quality. Some of it undoubtedly must have come from Middle Kingdom and earlier tombs, as had many of the stone vessels that also arrived in the Aegean.

So, then, where in Egypt did all this raw amethyst come from, which arrived in the Aegean to be carved by Aegean artisans into recognizably Aegean bead shapes—not to mention the triton shell vessel (or vessels) at Mycenae and Midea, and the still-unworked raw amethyst pieces recovered in Mycenaean Greece? Surely *all* this imported stone cannot represent *only* the proceeds of robbing Middle Kingdom and earlier tombs.

Notes

1. "Egyptianizing" includes both indigenous Aegean material having Egyptian influence in its presentation, as well as that produced elsewhere in the Mediterranean world and subsequently imported to the Aegean where it has been recovered.
2. The material recovered on Crete was earlier examined in Phillips 2008b. The mainland project remains ongoing.
3. Krzyszkowska 2005a.
4. The figures cited in the present paper are the quantities known to me at the time of writing. Individual object quantities unstated in publication but cited in the plural are counted as "two," while objects (such as necklaces) or groups of objects (such as unspecified jewelry) published as being composed of *multiple* materials including amethyst are counted as "one." However, when known, individual amethyst elements of multi-component artifacts are counted as their total figure, e.g., a single necklace composed of eighteen amethyst beads is counted as eighteen. Thus the figures cited in this paper represent *minimum* counts of individual pieces recovered at named sites, regions, or modern Greece as a whole.
5. Eleni Palaiologou (forthcoming) has reported a modern amethyst source near Kalamata in the Peloponnese, but she noted it was not exploited in ancient times.

6. Aston, Harrell, and Shaw 2000, 50–52. They note "a certain amount of evidence for the trading of amethyst with Crete from at least the Middle Kingdom onwards," but the mainland and Greek island material is not mentioned. Hayes 1959, 20, 105, and 138 describes two spherical beads from a Seventeenth to early Eighteenth Dynasty burial in a Middle Kingdom tomb court, two ball-beads of "white amethyst" inscribed with the name of Hatshepsut, and five "rough little flasks partially hammered to shape from lumps of poor-grade light-colored amethyst" that he associates with the reign of Thutmose III. Wilkinson 1971, 106–107 mentions some beads and a scarab on two different bracelets from the tomb of Tutankhamen as the only New Kingdom amethyst jewelry, the scarab at least being very light in color (see Aldred 1978, Pl. 69. upper for its color illustration).
7. Moorey 1999, 94, who notes that amethyst has "not been reported to occur naturally in Mesopotamia." It is possible, however, that Egyptian amethyst may have been an item exchanged for lapis lazuli, which came from even further northwest than Gawra where the earliest Mesopotamian amethyst was recovered in a fourth millennium BC context. Lapis lazuli is known in Egypt "in relatively abundant quantities" from at least the mid–fourth millennium BC in the Naqada IIc phase; see Aston, Harrell, and Shaw 2000, 39.
8. Moorey 1999, 94. Moorey attributes this correlation to concurrent importation of the Egyptian stone into Mesopotamia.
9. One example is the cylinder seal found at Kazarma, MN 15030 (= *CMS* V.2 #585) that, while of amethyst and recovered in the Argolid, is neither Egyptian nor Aegean in manufacture.
10. The two scarabs I have discussed in Phillips 1992a. Another imported amethyst scarab with added Minoan intaglio work also is known from Aidonia, and is mentioned below. See also Krzyszkowska 2005a, 127 #1–8 for the early amethyst Minoan seals.
11. See Phillips 1992b and 2008, *passim.*
12. Demakopoulou 1979, 165.
13. Blegen *et al.* 1973, 102–103, 124–126, Figures 194–195.
14. Publication of the Kazarma tombs is in preparation by Dr. Stefanos Keramides, to whom I am indebted for allowing me to mention the amethyst material here. Many are now on display in the Nauplion Museum.
15. Rudolf 1973, 54.
16. Demakopoulou 1996/1998, 100 #C28.
17. Krzyszkowska 2005a, 125.
18. Recovered in Grave Circle A, shaft tombs III (one bead and one seal, Karo 1930–1939, #111, #117 [= *CMS* I, #13 = Krzyszkowska 2005a, 128 #31]) and IV (nine beads, Karo 1930–1939, #508), Grave Circle B, shaft graves Γ (one seal, Mylonas 1972–1973, 77 #Γ-443 [= *CMS* I, #5 = Krzyszkowska 2005a, 127 #24]) and O (one bead, Mylonas 1972–1973, 205 #O-461). Note that, when found in a later context, seals are included according to their stylistic date rather than their context date in the present paper.
19. "Tomb of Klytemnestra" (necklace fragment of five beads, Wace 1921–1923, 363 #66–67); Tsountas' Tombs 29 (five beads, Xenaki-Sakellariou 1985, 106), 52 (one seal, Xenaki-Sakellariou 1985, 132), 79 (five beads, Xenaki-Sakellariou 1985, 221), 84 (one bead, Xenaki-Sakellariou 1985, 241), 88 (necklace of twenty-five beads, Xenaki-Sakellariou 1985, 249), 93 (two beads, Xenaki-Sakellariou 1985, 269), 102 (four beads, Xenaki-Sakellariou 1985, 284), 103 (five beads, Xenaki-Sakellariou 1985, 290) and unassigned (one bead, Xenaki-Sakellariou 1985, 157); Wace's Tombs 502 (one bead, Wace 1932, 10), 515 (twenty-four beads and thirteen fragments, likely a necklace, Ibid., 29–30 #29, 60 #41, 61 #70, 62 #77), 517 (seven beads, Ibid., 73, #37 and 39) and 518 (three beads and one seal, Ibid., 86 #66, #68), Loupouro Tomb 5 (twenty beads, see Palaiologou, forthcoming).
20. Blegen 1937, 292. Tombs III (two beads), XXVIII (one bead, one seal), XXXVI (two beads), XLIII (one bead), XLIV (one seal) and LI (nine beads). Tomb XXVII also produced a bead, but its LH IIIA2 context is limited to the "Palatial" period.
21. Keramopoullos 1917, 169–170, Figure 126 (Thebes, Kolonaki CT 17); Batziou-Eustathiou 1985, Α΄, 17 ,6, Pl. 18.δ.lower left (Volos, Nea Ionia Tb. 52); Avila 1983, 35 #24–25 (Volos, Kapakli Tholos Tomb).
22. Approximately contemporary with the Mainland latest "Pre-Palatial" and "Early Palatial" period, and the latest Second Intermediate Period–late Thutmose III in Egypt. Recovered in Chamber Tomb 1 (nineteen beads, Effinger 1996, 190 and Karetsou, Andreadaki-Vlazaki and Papadakis 2000, 115 #95); Tomb 5 (seven beads, Effinger 1996, 192); and another rock-cut tomb (one bead, Karetsou, Andreadaki-Vlazaki and Papadakis 2000, 117 #96). An unstated quantity of amethyst bead(s) was also recovered in Tomb 7, which straddles the "Neo-Palatial" and "Final Palatial" periods on Crete; see Effinger 1996, 192.
23. Approximately contemporary with the Mainland later "Early Palatial" and "Palatial" periods, and very late Thutmose III to early Twentieth Dynasty in Egypt. North Cemetery (one seal, Krzyszkowska 2005a, 127 #25), Ailias tomb VII (one bead, Effinger 1996, 198), and the Temple Tomb "robber's cache" (sixteen beads, Effinger 1996, 220–222). Straddling the "Neo-Palatial" and "Final Palatial" divide are Mavro Spelio Tombs IV (four beads, Effinger 1996, 11), IX (eleven beads, Effinger 1996, 13) and XVII (four beads, Effinger 1996, 14), Hogarth's Tombs (one seal, Krzyszkowska 2005a, 127 #26), and without find context (one seal, Krzyszkowska 2005a, 127 128 #28). Explanation of the term "End Palatial" is found in Phillips 2008b, I, 28–30.
24. Korres 1980, 122–125; Krzyszkowska 2005a, 125.
25. Batsourorachi Tomb VII (beads; see Palaiologou, forthcoming).
26. Tombs 9 (three beads, Effinger 1996, 279) and 11 (twenty-four beads and one pendant[?], Effinger 1996, 281–282).
27. Rhodes, Ialysos Tomb 101 (one bead, Georgiadis 2003, 218) and Kos, Langada Tomb 10B (one bead, Georgiadis 2003, 234).
28. Perati Tombs 121 and 147 (two beads, Iakovides 1969–1970, B, 465), and Knossos, (one bead found with an LM IIIC vessel, Effinger 1996, 233)
29. Doumas 1992, 141.
30. Karetsou, Andreadaki-Vlasaki and Papadakis 2000, 96 fig. = Doumas 1992, 155.

31. The graduated necklace, from the antechamber of an MM III–LM tomb at Poros, alternates nineteen large spherical/flattened spherical amethyst beads with twenty-six sard and eight garnet small flattened spherical beads, MM III-LM, Karetsou, Andreadaki-Vlasaki and Papadakis 2000, 115 #95 (but see Krzyszkowska 2005a, 123 for identification of the garnet stone; Hughes-Brock 2008, 138 incorrectly quotes a total of "53 amethyst beads"). Its sole published photograph does it little justice.
32. Sard, the brownish variety of carnelian, is found together with carnelian, and could have originated from any carnelian source, but garnet sources are rare outside Egypt except in India. See Moorey 1999, 83 and Aston, Harrell and Shaw 2000, 31–32 for discussion of Egyptian and Mesopotamian sources and use of garnet. Garnet is extremely rare in the Aegean (see Hughes-Brock, 1995, 113 and 2008, 138 for known and possible examples), and almost certainly would have originated in Egypt. Hughes-Brock 2008, 138 also notes the proximity of garnet to amethyst sources.
33. Amethyst was not the only stone to be so reused. Hughes-Brock, 1995, 113 and 2000, 114–116, and Krzyszkowska 2005b, 239 have noted agate, amber, lapis lazuli and carnelian artifacts all reduced from larger pieces.
34. The necklace alternates eleven graduated figure-eight beads with nine spherical, one spherical grooved and two prismatic triangle beads, and the tomb itself dates to LH IIB, Demakopoulou 1988, 217 #201.
35. Karo 1930–1939, I, #508. The three smaller beads found with them are 1.3–1.5 cm in diameter, still excessively large for an Egyptian amethyst bead. The central bead of the Kapakli necklace also is 1.5 cm in diameter; Demakopoulou 1998, 114 #C54.
36. Phillips 1992a lists many of the other types found in the Aegean, now augmented, among other material, by an imported "eye of Horus" seal recovered near Volos (*CMS* V Suppl. 3.2, #441). Note that the so-called *aoh* pendant actually is a Canaanite type of which only a few examples are known in Egypt; see Sparks 2004, 38–39.
37. Quirke and Fitton 1997, 430, Figure 3 (Krzyszkowska 2005a, 128 #53, said to be from Mycenae).
38. As quoted in Quirke and Fitton 1997, 430 n. 32.
39. *CMS* V Supp. IB, #331; Kenna 1960, Pl. 6.133. These and many of the possible re-cuttings discussed below were first suggested in Olga Krzyszkowska 2005a, *passim.* She notes, p. 125, that "reworked beads could account for the few seals datable on stylistic grounds to MM II–III," i.e., her #1–8 on p. 127.
40. From Routsi in the Argolid (*CMS* I, #273 = Krzyszkowska 2005a, 128 #38), and without find context on Crete (*CMS* III.2, #506 Krzyszkowska 2005a, 127 #7); see Krzyszkowska 2005a, 126.
41. From Vapheio (*CMS* I. #233 = Krzyszkowska 2005a, 128 #35), Routsi (*CMS* I, #272 Krzyszkowska 2005a, 128 #37), and without find context in Greece (*CMS* I Suppl., #169 = Krzyszkowska 2005a, 128 #47).
42. From Kamilari, Crete (CMS II.2, #18 = Krzyszkowska 2005a, 125 #3); and without find context in Greece (*CMS* XII, #116 = Krzyszkowska 2005a, 125, 127 #5).
43. Without find context on Crete (CMS VII, #170 = Krzyszkowska 2005a, 125, 127 #19).
44. From Aghia Pelagia, Crete (Kenna 1960, P1.11.270 = Krzyszkowska 2005a, 125, 127 #18).
45. Said to be from Phaestos on Crete (*CMS* II.3, #153 = Krzyszkowska 2005a, 127 #9), and Kazarma (*CMS* V.2 #581 = Krzyszkowska 2005a, 127 #22).
46. Blegen 1937, II, Pl. 575.2–3.
47. From Englianos (Blegen et al. 1973, 125, Figure 194.23 = Krzyszkowska 2005a,124–5). Not handled by author.
48. Krzyszkowska 2005a, 124, with additions. *Spherical:* From Aidonia (one bead, Demakopoulou 1996/1998, 64–65 #A51), Mycenae (one bead, Xenaki-Sakellariou 1985, 249), Argos (one bead, Demakopoulou 1988, 217 #201), Aghia Irini, Keos (one bead, with one groove only, Cummer and Schofield 1984, 120; see also Overbeck 1989, 199, 217); two further beads are not yet published. *Non-spherical:* From Prosymna Tombs III and LI (two beads [one "melon-shaped" and one oval], Blegen 1937, I, 292, 293 and II, Figures 460.4, 575.6); another bead is not yet published.
49. Nota Dimopoulou in Karetsou, Andreadaki-Vlasaki & Papadakis 2000, 106–107 #84.
50. Wace 50, 226, now on display in the Mycenae Museum (Sofia Spyropoulou, personal communication).
51. See Phillips 2008, I, 95. Analyses of Aegean glass artifacts have indicated constituent similarity to glass from Egypt rather than the Near East, although the contexts of some glass artifacts *may* pre-date the introduction of glassworking in Egypt (during the reign of Thutmose III) and so suggestively indicate a Near Eastern origin.
52. From the MME tomb at Nichoria (dating to LH IIIA2–B2, thirty-five spherical and flattened spherical beads, Wilkie and Dickinson 1992, 279–280, 316 #1308–1321, 854 Pl. 5–121), Routsi Tholos 2 in Pit 1 (dating to LH I?–IIA, one prism or bead-seal, Marinatos 1956, 204 and 1957, 99), Aidonia CT VII (dating to LH II–IIIB, nine beads [eight spherical and one "grain-of-wheat"-shaped], Demakopoulou 1996/1998, 66 #A55, Figure 55), Prosymna Tomb LI (dating to LH IIIA, thirteen spherical beads, Blegen 1937, I, 292, 300 and II, Figure 575.7), and Ialysos Tomb 101 on Rhodes (dating to LH III, one bead of unstated shape, Georgiadis, 2003, 218 Inv 101.105). That at Mycenae is as yet unpublished.
53. *CMS* VI, #387. My thanks to Helen Hughes-Brock, Oxford, for drawing my attention to this "LM I–ish" lentoid and its true color, and for providing its *CMS* number in advance of publication. Boardman 1961, 74 #358, Figure 32 had incorrectly identified its color as "blue."
54. In the "Temple Tomb" at Knossos (one amygdaloid bead, Evans 1935, 2, 963–4, Pl. XXXIV) and the Psychro Cave on Crete (one flattened spherical bead, Boardman 1961, 74 #368).
55. Phillips 2008, I, 93.
56. Moorey 1999, 190–203 *passim.*
57. Pulak 1998, 202.
58. Hayes 1959, 395, 399–400.
59. Blegen 1937, I, 292–293, 300.

60. Amber-colored spherical glass beads are recorded, for example, in Tomb 66 at Zapher Papoura cemetery (Knossos), Evans 1905, 462 #66f.
61. An LM necklace from Haghia Triadha on Crete incorporates drop-shaped beads of both lapis lazuli stone and cobalt-blue glass; see Karetsou, Andreadaki-Vlasaki and Papadakis 2000, 118–119 #97.
62. Nota Dimopoulou, in Karetsou, Andreadaki-Vlasaki and Papadakis 2000, 106–107 #84.2a.
63. Amethyst vessels were manufactured in Egypt only between Naqada III and the Second Dynasty, according to Aston 1994, 67. However, see also above, n. 6. It is possible that Hayes' dating of this group, of uncertain provenance, was incorrect.
64. Demakopoulou 1998a, 222, Pl. XXI; 2004, 405–408, Figures 35.4–5. The third fragment is unpublished, but is on display in the Mycenae Museum.
65. Baurain and Darcque 1983, 59–73.
66. Sadek 1980–1985; Aston, Harrell and Shaw 2000, 51.
67. See above, n. 6. Andrews 1990, 40 ascribes infrequency of amethyst in the New Kingdom to "its strong colorings [that] did not combine easily in composite inlays." Perhaps light was the coloring of choice.

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