

# KEOS AND THE EASTERN AEGEAN

## THE CRETAN CONNECTION

(PLATE 70)

EVIDENCE for contact, direct or indirect, between the Cycladic Islands and the Eastern Aegean in the earlier part of the Late Bronze Age has hitherto been almost non-existent.<sup>1</sup> The overseas commercial enterprises of those island settlements about which we know most (Ayia Irini on Keos, Phylakopi on Melos, Akrotiri on Thera) operated primarily, although not exclusively, along a line running roughly south-north, between Crete and the Greek mainland: the "Western String" route.<sup>2</sup> The large numbers of imports in the Western Cyclades can generally be classed as Minoan, Helladic, or Cycladic (*viz.* Melian products in Keos, Thera at Phylakopi, etc.). The identification of Eastern Aegean artifacts at Ayia Irini may, therefore, at first seem surprising.

The question of how they reached Keos is in some ways more interesting than the objects themselves. There is, as we shall see, no compelling evidence for direct commercial contact between these two areas, although we should not rule out occasional visits by fishermen or free-lance traders, who must always have been on the lookout for new opportunities or for resources to fall back on in hard times. More plausibly, the material may have come indirectly via Crete, for the Minoans had been active in the Eastern Aegean from Middle Minoan II–III onward.<sup>3</sup>

The ceramic evidence from Ayia Irini comprises a rare but highly diagnostic class of pottery, found usually in levels of Late Cycladic (LC) I and II date (equivalent to Keos

<sup>1</sup> The artifacts discussed below were identified in the course of studies for the publication of large bodies of material from the excavations conducted at Ayia Irini by the University of Cincinnati, under the direction of the late John L. Caskey. Support for these studies is provided by the Semple Fund of the University of Cincinnati and by the National Endowment for the Humanities. Torrence's work has been partially supported by the British Academy and by the University Research Fund, Sheffield University. Professor Caskey kindly permitted us to include the sherd from the Temple (5), for which he furnished the context; it was first identified as Eastern Aegean by Gerald Cadogan. Drawings of the pottery are by Rosemary Robertson (1) and Jack L. Davis. All photographs were taken by E. T. Blackburn. We also thank C. B. Mee, who examined drawings and brief descriptions of two of the sherds (3 and 4) and provided us with useful comments.

In addition to the usual abbreviations, note the following:

Cherry *et al.* = J. F. Cherry, R. Torrence, and S. Warren, "Archaeological Survey and Characterization of the Obsidian Source on Giali in the Dodecanese, Greece" (in preparation)

<sup>2</sup> For a definition of this term, see J. L. Davis, "Minos and Dexithea: Crete and the Cyclades in the Later Bronze Age," *Papers in Cycladic Prehistory* (Monograph 14, Institute of Archaeology, UCLA), J. L. Davis and J. F. Cherry, edd., Los Angeles 1979, pp. 143–157. The concept has also been discussed at length by J. F. Cherry and J. L. Davis ("The Cyclades and the Greek Mainland in LC I: The Evidence of the Pottery," *AJA* 86, 1982, pp. 333–341) and E. Schofield, ("The Western Cyclades and Crete: A 'Special Relationship'," *Oxford Journal of Archaeology* 1, 1982, pp. 9–25).

<sup>3</sup> For Minoan contacts see especially J. L. Davis, "The Earliest Minoans in the Southeast Aegean: A Reconsideration of the Evidence," *AnatSt* 32, 1982, pp. 33–41; C. B. Mee, "Aegean Trade and Settlement in Anatolia in the Second Millennium B.C.," *AnatSt* 28, 1978, pp. 121–155, and *idem*, *Rhodes in the Bronze Age*, Warminster 1982, pp. 79–80.

Periods VI and VII). From both fabric and decoration, we believe that pots of this class were made in the Eastern Aegean. At least seven reached Ayia Irini (2–8 below). All are closed vessels and may have been imported for their contents. Their most distinctive feature is a purplish (mauve) or pink fabric with flakes (sometimes quite large) of gold mica. The surfaces of the pots are often slipped lighter in color than the fabric. The most distinctive decoration is in a thick white paint, although red and black paint are also used. The jug 1 differs in color of fabric and lacks the gold mica, but its decorative scheme resembles that of the other seven pots. Perhaps it was made in the Eastern Aegean but at a different center.

These vases from Keos resemble a class of pottery well known from the Dodecanese and Southwestern Asia Minor, perhaps most thoroughly described in the recent report on the Italian excavations in the Chora of Kos.<sup>4</sup> The decoration of the Keian examples, especially the hastily drawn double wavy lines of 4, 5, and 7, can be closely paralleled in the pottery published from Kos and elsewhere in the Eastern Aegean. Moreover, the fabric itself appears to be common on Kos and is found at Trianda on Rhodes.

A detailed petrological study of pottery from the Eastern Aegean may well enable us in the future to assign this fabric to a particular source (or sources) of production. Meanwhile, analysis of two sample sherds from Keos (7 and 8) has produced results which have helped to narrow the range of likely candidates.<sup>5</sup> Examination with a hand lens showed that both sherds contain numerous inclusions, including plates of golden mica, quartz, white feldspar, clear glassy grains, and a small amount of limestone. This material has a distinctive appearance in thin section under the petrological microscope, for the field of view is dominated by numerous, well-preserved pieces of colorless volcanic glass. Also represented are grains of quartz and flecks of mica, with lesser quantities of potash and plagioclase feldspar, fragments of volcanic rock, and a little limestone.

The presence of a large amount of fresh volcanic glass in the pottery points to an origin in an area of recent vulcanism. This clearly rules out a local source in Keos itself, which consists largely of schist rocks intermixed with beds of marble. It is, however, more difficult to pinpoint a likely origin with any precision. Theoretically the pyroclastic inclusions in the sherds could have derived from a number of possible sources within the Aegean volcanic arc and surroundings. The texture of the Ayia Irini sherds has not been closely matched with pottery that Williams has studied from the volcanic islands of Melos and Thera, but the number of sherds sampled in that study has been relatively small, and therefore an origin from those sources cannot be discounted for lack of a close match. Iasos and Miletos on the southwest coast of Asia Minor seem unlikely sources geologically, as both sites are situated in non-volcanic areas. If, however, stylistic grounds make a source in this part of the Aegean preferable, volcanic rocks can be found, for example, in the Bodrum region of Turkey and the volcanic islands of the Dodecanese such as Nisyros, Giali, or the western end of Kos.<sup>6</sup>

<sup>4</sup> L. Morricone, "Coo—Scavi e scoperte nel 'Seraglio' e in località minori (1935–1943)," *ASAtene*, n.s. 50–51, 1975, pp. 139–396, esp. pp. 297–298.

<sup>5</sup> We thank the Greek Archaeological Service for permission to export small fragments of these two sherds to the University of Southampton for analysis by thin-sectioning.

<sup>6</sup> See references in H.-G. Buchholz and E. Althaus, *Nisyros, Giali, Kos (Archäologische Obsidian-Forschungen)*, Mainz 1982.

The date of local Eastern Aegean pottery with light-on-dark decoration has been in question, since the stratigraphic contexts in which it has been found have been reported in only a few cases. Davis in a recent paper has argued that there is no firm evidence that any such pottery was produced before the Late Bronze Age (although traditionally much has been assigned on stylistic grounds to the Middle Bronze Age and has been compared to Middle Minoan Kamares pottery).<sup>7</sup> The new evidence from Ayia Irini corroborates that from Kos, Rhodes, and Miletos. Light-on-dark-style pottery (3–8; in particular, the very common, double-wavy-line style) was in use in the period contemporary with Late Minoan IA and IB on Crete. No such pottery (nor, in fact, any Eastern Aegean pottery) has been recognized in Middle Cycladic levels at Ayia Irini.<sup>8</sup> This, of course, does not prove conclusively that it was not manufactured before the Late Bronze Age. It may have been the case that Ayia Irini and the Eastern Aegean were not part of the same trading sphere during the Middle Bronze Age.<sup>9</sup>

## CATALOGUE

1. Upper part of jug (K.1804) Fig. 1, Pl. 70:a, b  
Pres. H. 0.344, max. D. 0.384 m.  
Entire lower body missing; consolidated with plaster. Pinkish buff fabric; creamy slip; dull red paint, with overpainting in creamy white. Bird's head spout with two plastic "eyes"; flattened handle with a deep vertical scar in its lower half.  
Red paint on neck and shoulder; added-white paint picking out details of bird's head on spout and foliate band at base of neck; broad red band on shoulder with added-white double wavy line; red bands below; handle decoration uncertain.  
House A, cat. no. 412. Context: LC II (a few intrusive LC III sherds).<sup>10</sup>
2. Fragments of large jar, including Pl. 70:c  
parts of rim and base  
D. rim est. 0.12 m.  
Pink-mauve fabric, covered with a very pale brown slip. Decoration in black paint, with added white.  
Band at rim and at base of neck, with white dots; filled disks with white centers on neck; linked spiral on shoulder; filling of large dots with ivy tendrils (?); some added white on spiral and ivy.  
From Area L. LC I.
3. Rim and body sherds of jug or Fig. 2, Pl. 70:e  
jar  
D. rim est. 0.08 m.  
Pink fabric, covered with a paler pink slip. Decoration in white paint.  
Double wavy line on neck; foliate band below; petals inside on rim.  
From House A, Room 38. Mixed LC II and LC III.
4. Body sherd of closed vessel Fig. 3, Pl. 70:d  
Light red fabric, covered with a light brown slip.  
Double wavy line in very pale brown paint.  
From Area G. Latest pottery is LC II.
5. Body sherd of closed vessel Pl. 70:g  
Mauve fabric, covered with a mauve-brown slip.  
Bands and double wavy line in white paint.  
From the Temple, Room 2. LC III; earlier sherds including one clearly LC II.

<sup>7</sup> Davis, *op. cit.* (footnote 3 above), p. 36.

<sup>8</sup> We thank John C. Overbeck for this information.

<sup>9</sup> The possibility remains open that such pottery began to be imported to Keos *very* late in the Middle Bronze Age (equivalent to Middle Minoan IIIB), since pure strata of the very end of the Middle Cycladic Period have not been recognized at Ayia Irini.

<sup>10</sup> See W. W. Cummer and E. Schofield, *Keos, III, Ayia Irini: House A*, in press. Catalogue numbers refer to this volume.



FIG. 1. Jug 1. Scale 1:4



FIG. 2. Jug or jar 3



FIG. 3. Body sherd of closed vessel 4

6. Body fragments of large closed vessel Pl. 70:h  
Mauve fabric, covered with a pink slip. Decoration in white and dull black paint (the latter worn off).

Carelessly drawn reed pattern in white; black and white bands.

House A, cat. no. 1474. LC II.<sup>11</sup>

7. Badly worn scrap  
Light red fabric.

White wavy line. Thin-sectioned by Williams.  
From Area L. LC I.

8. Body sherd  
Light red fabric.  
Broad white band beneath row of white dots.  
Thin-sectioned by Williams.  
From Area G. LC I-II.

<sup>11</sup> *Ibid.*

In addition to the imported pottery, evidence for connections between Ayia Irini and the Dodecanese during the Late Bronze Age (specifically Periods VI and VII) is provided by five distinctive pieces of speckled obsidian (Pl. 70:f), derived ultimately from outcrops on the island of Giali.<sup>12</sup> Although only one of these has been characterized using scientific techniques,<sup>13</sup> the attribution to Giali is secure for several reasons. First, no other obsidian outcrop in the eastern Mediterranean area contains similar white phenocrysts.<sup>14</sup> Second, the translucency, color, and poor conchoidal fracture on the pieces are identical to those observed by Cherry and Torrence when mapping the obsidian flows on Giali.<sup>15</sup> Finally, although speckled obsidian occurs in the western Mediterranean on the island of Lipari, none of the Greek artifacts which have been analyzed to date can be assigned to this source.<sup>16</sup>

Surprisingly, all five pieces are waste by-products of manufacture; no vessel fragments or unworked cobbles are represented at Ayia Irini.<sup>17</sup> Three are small lumps which bear several flake scars on their surfaces. Of these three, one was probably collected off a beach on Giali, as its original exterior surface is very water-worn (K4.545). A second, larger cobble, which is also worn and rounded in appearance, has a flat, abraded area at one of its corners (K6.465). It is likely that an attempt was made to saw this piece, although it is certainly not large enough to have been made into a stone vessel (maximum diameter is only 3.6 cm.). The remaining two are small, cortical flakes removed during the initial working of a core; both exhibit the irregular fracturing properties characteristic of this obsidian source (K7.536 and K8.475).

The extremely small size of the pieces (the mean length of four is 2.2 cm.) argues against their having been brought to Ayia Irini as raw material for the production of stone bowls. Their rarity on the site also suggests that vessels were not made at Ayia Irini. But, although the significance of so few pieces (total weight of four is 30 g.) is difficult to discern, their importance should not be overlooked, since Giali obsidian has not yet been found in Late Bronze Age levels elsewhere in the Cyclades and is known to have reached only two other sites, Grotta on Naxos and Neolithic Saliagos on Antiparos.<sup>18</sup> The only area, in fact, where Giali obsidian is at all common is Crete, where finished vessels, manufacturing

<sup>12</sup> See Cherry *et al.* for a comprehensive summary of the geology and archaeology of the Giali obsidian outcrops and a detailed characterization study by neutron activation analysis of samples from the outcrops.

<sup>13</sup> C. Renfrew, J. R. Cann and J. E. Dixon, "Obsidian in the Aegean," *BSA* 60, 1965, pp. 225–247. The artifact from Ayia Irini appears as no. 133 in their list of analyses.

<sup>14</sup> Cherry *et al.* and Renfrew *et al.* (*op. cit.* [footnote 13 above], pp. 231–232) summarize information on the physical attributes of all the Mediterranean obsidians in relation to the Giali source.

<sup>15</sup> Cherry *et al.*

<sup>16</sup> See discussion in Renfrew *et al.*, *op. cit.* (footnote 13 above), pp. 235–237, and Cherry *et al.* Lipari obsidian is also discussed in C. Renfrew and R. Whitehouse, "The Copper Age of Peninsular Italy and the Aegean," *BSA* 69, 1974, pp. 361–363.

<sup>17</sup> Only four of these artifacts have been examined by one of us (Torrence); information on the fifth piece, which was removed from Keos by C. Renfrew for characterization analysis (*op. cit.* [footnote 13 above], p. 240), is derived from the field notebook.

<sup>18</sup> C. Renfrew and J. D. Evans, *Excavations at Saliagos*, London 1968, pp. 105–107. See Cherry *et al.* for a comprehensive list of all published Giali obsidian artifacts. The substantial chunk from Naxos has, moreover, no properly dated context, since it was found on the beach, by the site, and not in the course of excavation; it could, of course, have been brought to Grotta at almost any time, including the Late Bronze Age.

waste, and unworked nodules have been found in contexts dating from the Middle to the Late Minoan Periods.<sup>19</sup>

These few small scraps of waste obsidian were probably carried back to Keos as souvenirs or curiosities. Whether they were collected from Giali itself, received as gifts, or gathered from a workshop in the Dodecanese or in Crete cannot be determined from the objects themselves, and much the same can be said of the imported pottery. Since there is so little material, it is difficult to argue for regular and sustained links between Keos and settlements in the Eastern Aegean. There is no evidence of a frequently traveled, direct route through the Central and Eastern Cyclades<sup>20</sup> and little evidence for a return trade from the Cyclades to the Eastern Aegean.<sup>21</sup> The most plausible explanation is either that the immediate source of all these artifacts was Crete, which funneled them into the well-established Western String exchange network, or else that they represent the tail ends of cargoes brought by middlemen traveling from the Eastern Aegean on a route which passed via Crete and then turned north past Thera and Melos to Keos, and on to the mainland.<sup>22</sup> In either case, Crete and the Western String exchange network appear to provide the key.

The presence at Ayia Irini of obsidian artifacts from Giali in contexts dated to a limited period of time and their absence at other Cycladic sites (particularly those located along the Western String), when combined with the evidence for imported pottery from the same region, is extremely thought provoking and will, we hope, lead to further research.

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<sup>19</sup> Cherry *et al.*

<sup>20</sup> Schofield, *op. cit.* (footnote 2 above), pp. 10–13.

<sup>21</sup> Among the published pottery, a cup with inturned rim (Morricone, *op. cit.* [footnote 4 above], fig. 243, middle) may be a kind of Cycladic cup (cf. fig. 2 in K. Scholes, "The Cyclades in the Later Bronze Age: A Synopsis," *BSA* 51, 1956, pp. 14–22 [but without the handle]). A jar from Trianda IIA "should be Cycladic" according to Mee, *Rhodes in the Bronze Age* (footnote 3 above), p. 6 with references.

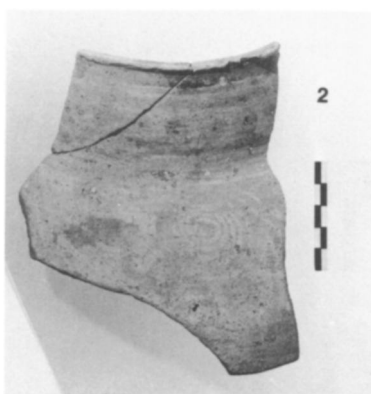
<sup>22</sup> Cherry and Davis (*op. cit.* [footnote 2 above], p. 340) have suggested this explanation for small quantities of pottery traveling the same route in the opposite direction.



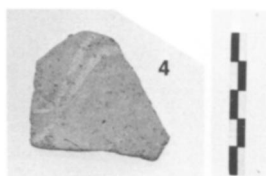
a. Jug 1



b. Detail of jug 1



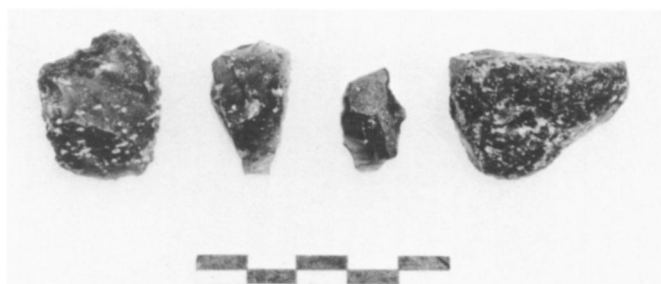
c. Rim fragments, jar 2



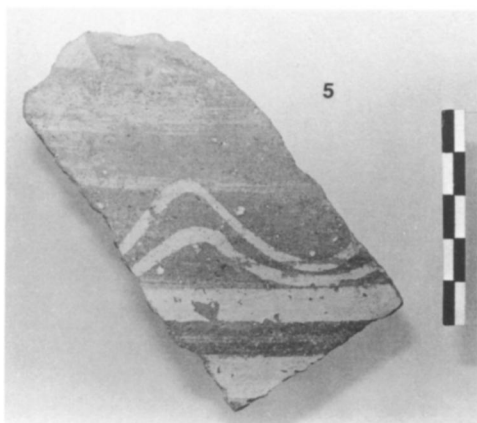
d. Body sherd 4



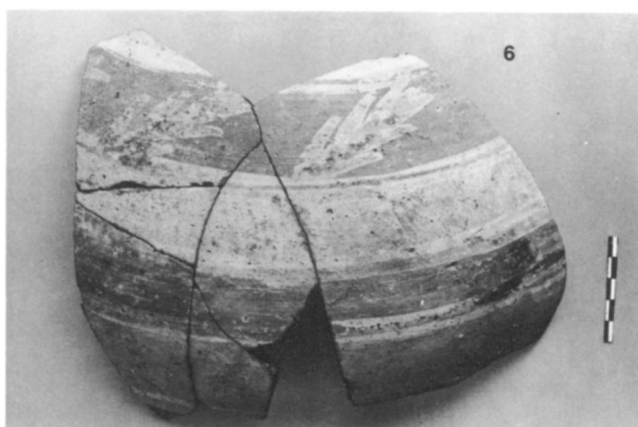
e. Jug or jar sherds (3)



f. Giali obsidian: K4.545, K6.465, K7.536, K8.475



g. Body sherd 5



h. Body fragments (6)