PATTERNS OF EXCHANGE AND MOBILITY: THE CASE OF THE GREY WARE IN MIDDLE AND LATE MINOAN CRETE

by Luca Girella*

New finds and important contributions have recently offered a fresh overview on wheel-made grey ware on Crete and have also provided an occasion for an update on pottery imported from outside Crete. As a result the list of Grey Ware (henceforth: GW) in LM III contexts has been expanded, but mentions of such a ware in previous periods have been surprisingly neglected. The aim of this article is to re-examine the evidence of the GW on Crete, from the first appearance of Grey Minyan Ware to the later distribution of GW up to the LM IIIC period (Fig. 1, Table 1). As will be understandable from the following overview, most of the information comes from old excavations and publications, when both the identification and terminology of this ware were far from being neatly recognizable (i.e. the use of term bucchero). As a second aim of this contribution, drawing upon GW circulation, we shall inquire into patterns of mobility and exchange; in fact, as a ‘foreign ware’, the phenomenon of GW on Crete can be the ideal theatre for the exploration of pottery and human mobility.

For convenience’s sake we shall distinguish four moments with distinct patterns of distribution: (1) the small scale world of the late Prepalatial period, when the unique Minyan bowl from Knossos – a MH I import – confirms the picture of the asymmetrical relationship between the Greek Mainland and Crete, which saw a large quantity of Minoan and Minoanizing pottery at coastal sites of southern and northeastern Peloponnese, but not the contrary. (2) A similar model is proposed here also for the Protopalatial period, when neither imports nor imitations were documented. (3) The Neopalatial period, when GW did remain a rare item and did not include any imports from Greek Mainland. Grey-burnished wheel-made vessels were exclusively produced in Minoan shapes and so far suggest a more internal circulation that seems to keep out the Greek Mainland. (4) The Mycenaean period, the sole period when evidence for GW increases dramatically, and Crete again participated in a more international circuit, in which both the Greek Mainland and western Mediterranean had active roles. GW examples from the cemeteries were usually closed shapes, miniaturized, and they might be interpreted as part of the Mycenaean funerary custom similarly attested in eastern Aegean. On the other hand, GW from the settlements was concentrated at Kommos and Khania, and it showed elements of local production, besides, in the latter case, vague reminiscences of pseudominyan ware from southern Italy.

* I would like to thank L. Vagnetti, J. Rutter, P. Pavlik and the anonymous referees for their valuable suggestions. I am also indebted to the many colleagues and friends who provided information concerning their forthcoming publications. I am grateful to E. Shalk for correcting the English text.


2 This paper is an extended version of a recent overview in Girella 2007b.

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Fig. 1 – Geographical distribution of GW in Crete during the Bronze Age.

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Table I. GW from Minoan Crete (W = Western; NC = North Central; SC = South Central; E = Eastern).
FROM THE PREPALATIAL TO THE NEOPALATIAL PERIOD

The earliest and still isolated case of Grey Minyan Ware is reported at Knossos from a MM IA level (Figs. 2, 3a). Two large fragments of a two-handled rounded bowl with everted rim were found on the south side of the Royal Road. The bowl is handmade, with a slightly sandy and greyish brown fabric; the exterior surface and the inner rim are burnished and five shallow groves are on the shoulder, on which a vertical strap handle is more than half preserved. The vase was found in a rubbish fill probably created during MM IA, as the latest fragments seemed to show. Considered an EH III import by S. Hood, the bowl can be dated to MH IA as C. Zerner has already shown through parallels with similar vessels from Lerna VA and B.

The closest comparison for this bowl is a variety of the Grey Minyan ware on the Greek Mainland, called 'True Grey Minyan' by C. Zerner. The label indicates a distinctive variety of Minyan ware that was produced in Central Greece, perhaps at Orchomenos or another site in Boeotia, and that has its forerunners in the well known 'Bass bowl', documented during EH III at Lerna (phase IV 2-3) and other sites in central and south-central Greece.

This first example of a Grey Minyan import still sounds unusual and striking, especially when one considers the circulation of Grey Minyan vessels outside the Greek Mainland, whose chronology cannot be placed any earlier than MH II.

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1 Hood 1971, fig. 1. See also Dickinson 1977, 24; Betancourt 1985, 77; Kilian-Dirlmeier 1997, 157. S. Marinatos reported a small vessel in grey bucchero from Palaikastro, but the vessel turned out to be a MM IA beacked jug belonging to Drakones type: Marinatos 1927-28, 80, footnote 3. See also Hutchinson 1939-40, 38, pl. 14f.; Betancourt 1985. 127.


5 Rutter, Zerner 1984, 81 (Appendix II.A.1); Zerner 1978, 178, 197; Zerner unpublished manuscript, figs. 10, 14.

6 Zerner 1993, 47. For a different definition of Grey Minyan see also Kramer 2004, 137-144, who differentiates between Grey Minyan "True" and "Grainy".

7 As for the fabric, wheelmade or handmade, the two-handled bowl occurs in a variety of classes, among which 'Solidly Painted and Burnished' and 'Fine Grey-burnished' are attested: Rutter 1995, 360-367 (form XII, type 2). See also Rutter 1983a, 327-355; Rutter 1986, 29-57. Other patterns of continuity are the presence of the multiple grooved decoration on the shoulder and the two swung vertical strap-handles, rising from the shoulders and attached at the point of maximum diameter, but those of the Knossian bowl are more elongated. The bowl from Knossos has also a globular profile, more common during MH, and a shorter and sharp everted rim. Similarities are also noticeable with two-handled bowls from Pevkakia Phase 5, although this period corresponds to an advanced stage of both Lerna V and MM IA on Crete: Maran 1992a, pls. 46.16, 47.1. A two-handled bowl with grooved decoration on the shoulder comes also from Phase 6 früh, but it has an everted and flattened rim: Maran 1992a, pl. 68.7.

8 A list of this evidence is in Kilian-Dirlmeier 1997, 157. Imports and local imitations of Grey Minyan Ware, mostly represented by ring-stemmed goblets, are attested at Naxos (Mikri Vigla) (Barber, Hadjianastasiou 1989, 109, pl. 23f), Paros (Paroikia/Kastro) (Overbeck 1989a, 14-15, 21-22, pls. 8, 10, 48-51. See also Papagiannopoulou 1991, 178, pl. 60; Rubensohn 1917, 34-37, figs. 31-34), Mykonos (Palaikastro), Tenos (Akroteron Ourion), Syros (Ayios Loukas), and Siphnos (Kastro) (Scholes 1956, 15-16, 36, fig. 1. For Siphnos see also Brock 1949, 31-33, fig. 7), but the bulk of the evidence comes from Keos (Ayia Irini) (Overbeck 1989b, 11) and from Melos (Phylakopi) (Dawkins 1910-11, 16-18, pl. VII; Barber 1974, 30). A small concentration is also present in Thera (Akrotiri), whereas Grey Minyan ware is not attested on Kythera: Papagiannopoulou 1991, 48-49, 352, ns. 269-272, fig. 16, pl. 24 (second row). For new materials at Akrotiri see now Nikolakopoulou 2007, 349, 356, fig. 3.
Moreover the Grey Minyan Ware in the Cyclades covers a short chronological range from MH II to MH III, a time, the last one, in which such ware dramatically decreased.

Therefore, from a chronological perspective the imported Minyan bowl found at Knossos does remain unique. However, such a picture can be now enriched thanks to the new cycle of the excavations at Phaistos in the area west of the Palace. From a MM IA floor a large fragment of a unique bowl has come to light (Fig. 4). It has a light yellow clay with a very distinctive manufacture which recalls several classes of vessels produced in the Mesara plain during the Prepalatial period. The fine clay in the upper part of the vessel tends to become medium-coarse towards the bottom (layering technique); the bowl is also burnished on both sides. As for the profile, the Phaistian vessel has close connections with both the Knossian Minyan bowl and with Lerna VA two-handled bowls. While awaiting the results from the petrological analyses, we think that there are good grounds for interpreting the vessel as a local imitation of a MH I Grey Minyan bowl. This find is not trivial, as we know how south-central Crete, and particularly Kommos, start having

9 But at Ayia Irini (Keos) burnishing Grey Minyan from Period IVc through Period VII will be routine, see Overbeck 1989b, 11.
10 The vessel comes from a level preceding the construction of the 'House South to the Ramp' and has been published by V. La Rosa as a probable imitation of 'transmarine' class of pottery: La Rosa 2002, 659, fig. 172. I would like to thank S. Todaro for allowing me to mention the vessel.
11 The analysis is under the direction of P. Day. For the layering technique see Day, Relaki, Faber 2006, 46-48, figs. 10-13.
Fig. 3 – Selection of GW vessels from different periods: (a) Knossos, MM IA (after Hood 1971); (b) Kommos, LM IB (after Watrous 1992); (c) Knossos, LM IA (after Macdonald 1996); (d-e) Knossos, LM II (after Popham et al. 1984). Scale 1:3.
intermittent contacts with the north and other regions from MM IB onwards\textsuperscript{12}. Bearing in mind the lack of evidence from this last site during MM IA, it is reasonable to see a sort of internal connection between Phaistos and the Knossian area, perhaps facilitated by the role of an intermediate region, such the Pediada, whose evidence during MM IA was markedly increasing\textsuperscript{13}.

As well stressed by J. Rutter and C. Zerner more then twenty years ago, MH I saw a dramatic change in the intensity of Hellado-Minoan relations\textsuperscript{14}. Although the evidence from southern and central Greek is far from being lavish, the presence of MM IA pottery, in terms of imports and Minoanizing pottery, is a very distinct feature of the beginning of MBA, and proves a direct involvement with the Greek Mainland (Fig. 5); hence, MM IA pottery is attested at Kythera\textsuperscript{15}, Ayios Stephanos\textsuperscript{16},

\textsuperscript{12} Van de Moortel 2006.
\textsuperscript{13} Panagiotakis 2004; Panagiotakis 2006, 169, fig. 4. It is highly probable that this connection would have continued the special network already started in EM I-II, when settlements from the Mesara plain traded specialized pottery northwards in return for copper and other valuables: Wilson, Day 1994; Day, Wilson 1997. Analyses of copper artefacts found in Mesara tombs have shown the provenience of copper from Kythnos and from Lavrion: Gale 1990. Also, daggers from Platanos contained tin: Branigan 2002, 33-44. See also Manning 1994. In particular, Manning hypothesizes that it was the use and control of goods, mostly metal, imported from foreign sources that facilitate the transformation of the elites into state rulers. For a general overview of other Cretan relations during MM IA see Watrous 2001, 196-198.
\textsuperscript{14} Rutter, Zerner 1984, 77-80.
\textsuperscript{15} Broodbank, Kriatzi 2007. See also Broodbank 1999; Kriatzi 2003. Additional references concerning the relations between Greek Mainland, Kythera and Crete during Middle and Late Bronze Age are also in: Rutter 2005; Broodbank, Kriatzi, Rutter 2005.
\textsuperscript{16} Taylour 1972, 233, 257, figs. 16:1-2, pls. 45 a-b, 49d.1. Rutter and Zerner count also three unpublished barbotine cup fragments and one ridge-shouldered jug fragment: Rutter, Zerner 1984, 81 (Appendix II.B.4).
Eutresis\textsuperscript{17}, Asine\textsuperscript{18}, Argos/Aspis\textsuperscript{15} and Athens\textsuperscript{20}. Recently, new evidence about the beginning of MH period and Minoanizing or Minoan imports was provided by research at Messenian Kastroulia, where the pottery of one of the almost undisturbed MH I burial mounds shows strong resemblances with Nichoria and Lerna V.A\textsuperscript{21}.

Nevertheless, it is Lerna that stands out among the aforementioned sites because of the number of both Minoan imports and Minoanizing imitations during MH I\textsuperscript{22}. Aside from pottery, the Minoan presence is also testified by the occurrence of three terracotta loomweights of Minoan type\textsuperscript{23}. As for the pottery, the majority of

\textsuperscript{17} Rutter, Zerner 1984, 81 (Appendix II.B.5). It is an unpublished barbotine cup exhibited in Thebes Archaeological Museum.
\textsuperscript{18} Frödin, Persson 1938, 277-278, figs. 191.1, 192.4; Rutter, Zerner 1984, 81 (Appendix II.B.2).
\textsuperscript{19} Philippa-Touchais 2003, 10-12, 17-19, 31, 34, figs. 3, 8, 20.40-41, 22.a, 29. The Minoanizing pottery with MM I parallels comes from Phase II, corresponding with MH I-II. I would like to thank Anna Philippa-Touchais for kindly having shown me the pottery from the recent excavations in the Archaeological Museum in Argos in 2006.
\textsuperscript{20} Knigge, Stichel, Woyski 1978, 64-65, figs. 36-37.
\textsuperscript{21} Rambach 2007.
\textsuperscript{22} Caskey 1956, 160, pl. 43c; Zerner 1978, 163-178; Zerner 1988, 6, fig. 24; Zerner unpublished, figs. 11-13, 15, 17-22. The total of Minoan and Minoanizing vessels from Lerna VA and B levels, also considering those from mixed deposits, is over two hundred.
\textsuperscript{23} Banks 1967, 466-572, pls. 9, 19. For the distribution of Minoan loomweights outside Crete see Carrington-Smith 1975, 276, 279-283.
Minoanizing MM IA sherds in Lerna VA is close to the Minoan pottery from Kythera, but imports from eastern and western Crete have also been identified. By contrast, the evidence of MM IA imports from the islands is definitely meagre, and imitations of Minoan pottery are basically absent (Fig. 5).

In sum, it can be logical to imagine two potential scenarios for the arrival of the Minyan bowl at Knossos: the first one would suggest a Cycladic string, notwithstanding the chronological incongruities and the absence of Grey Minyan Ware from the islands during MH I; nevertheless, the presence of MM IA pottery at Akrotiri, Phylakopi and Kolonna, alas very meagre, might be a clue of the existence of a sea-route, exclusively handled by the central and eastern part of Crete. This proposal can be also confirmed by the fact that only known mainland imports comes from Knossos.

The alternative scenario would be the south-west route, substantiated by the striking concentration of both Minoan imports and Minoanizing pottery, and with Kythera functioning as the logical bridge to the mainland and Argolid.

The MM IB-IIB period, that saw the rise of the First Palace phenomenon in Crete, was a phase of the major diffusion and distribution of Grey Minyan Ware on the Greek Mainland; nevertheless, none a piece of Grey Minyan Ware has been found so far on Crete. Also, during MH II contacts between Crete and the mainland increased significantly, and networks established in the preceding phase (such as that with Kythera and eastern Peloponnese) were still operating. Yet Cycladic centres, like Akrotiri, Phylakopi and Ayia Irini, played a major role in the definition of the ‘Western String’ network. Rutter and Zerner have identified two relevant and new developments: the circulation of Minoan vessels and other artefacts in different parts of the mainland, and the presence of stone vases among Minoan imports.

There are few comments that one can add to this still valid picture. The discovery of Kamares Ware in the Cyclades, the Dodecanese, Cyprus, the Levant and Egypt leads us to suggest that it was used as a prestige and exchange item, but it is also necessary to note that shapes constantly refer to tableware and drinking habits. By observing the circulation of Minoan imports on the Greek Mainland during MH II (Aegina/Kolonna, Argos/Aspis, Ayios Stephanos, Lerna, Iolkos, Pevkakia, Mycenae, Orchomenos), one can see the almost absolute predominance of shapes that functioned as an icon of Minoan pouring and drinking habits (the straight-sided cup, the tea cup, the bridge-spouted jar). Furthermore, at Ayios Stephanos, Lerna and Argos/Aspis Minoan tableware was also imitated and locally produced, and at Lerna it was found as furnishings in graves. This evidence allows us to suggest the promotion and spread of Minoan banquet etiquettes from Crete, on the one hand,

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26 Rutter, Zerner 1984, 80-81.
27 Rutter, Zerner 1984, 81-82 (Appendix III). For Orchomenos see Sarri 1998. I would like to thank K. Sarri for allowing me to mention the Minoan import from the old excavations at Orchomenos.
28 Zerner 1990.
and, on the other, the integration of new habits among the communities of Greek Mainland. In the light of this picture, the absence of any mainland imports or imitations on Crete remains remarkable.

The mention of Minyan vessels during the Neopalatial period (MM III-LM IB) is very sporadic. A. Evans made a note of a Grey Minyan chalice from the destruction filling operation in the House of the Sacrificed Oxen, located at a southeastern angle to the palace of Knossos. The find is registered as “one fragment of a stem, apparently of a true Minyan chalice of the grey ‘through and through’ ware.” The re-examination of the deposits from this house by A. MacGillivray has produced a MM IIIA date for the chronology of the filling operation. Unfortunately, neither a photo was published by Evans nor is this fragment reported in MacGillivray’s publication, hinting at a possible misinterpretation by Evans.

Furthermore, C. Blegen informed that scanty fragments of ‘Minyan ware’ came to light in the eastern part of the island. As far as western Crete is concerned, an unburnished grey-blue fabric, datable between MM III and LM I, has been reported from Nerokourou near Khania and interpreted as GW. Nevertheless, we think that in this case the characteristic fabric may be explained as a clay fired at very high temperature, rather than a proper wheel-made GW.

As a matter of fact, only three secure wheel-made grey vessels can be identified, and all of three are dated to an advanced and final stage of Neopalatial period (LM IA and B) (Fig. 2).

At Knossos, the find of a GW vase in a mature stage of LM IA is reported from the Area South of the Domestic Quarter. More precisely, near the Drain Shafts a set of tableware was discovered, which consisted of five bridge-spouted jars, one of which was in burnished GW (Fig. 3c). The jar has a strainer spout, and given the pyriform shape, the coil handle and moulded bases, it can be considered as belonging to mature LM IA.

A grey vessel at Tylissos of LM IB date is reported from a similar repertoire. It is a grey burnished round-mouthed jug with one strap vertical handle attached to the rim and a moulded base.

Lastly, the same date has been suggested for a wheel-made grey alabastron found at Kommos (Fig. 3b). This unique piece has two double-horned lugs on opposite sides of the shoulder and has been considered by J. Rutter to be an import from an unknown Minoan centre.

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31 Supposing the fragment did get lost, there are probabilities that Evans referred to a foot-stemmed goblet, which was very common throughout MH II and MH III.
32 Blegen 1928, 150; Rutter, Zerner 1984, 82 (Appendix IV.A.1).
33 Vagnetti 1985, 33, footnote 17; Tzedakis, Vagnetti et al. 1989, 133.
34 Macdonald 1996, 21, fig. 3.
35 Khazidakis 1912, 206, fig. 10.d.
36 Watrous 1992, 15, n. 270, fig. 18, pl. 6; Rutter 2006a, 459-460, n. 40/19, pl. 3.44.
37 Rutter 2006b, 678-679.
Such a meagre number of vessels makes arduous any comprehensive interpretation of the GW production in Crete, and also any comparison with the Greek Mainland does not facilitate our task. Furthermore, it is worth noting that not ordinary but highly specialized vessels were realized in GW, and that they appear to belong to the Neopalatial pottery repertoire (Table I). Seen in this light, the circulation of GW vessels during the Neopalatial period could reflect a special function; therefore, it has been suggested that such vessels might be viewed as containers for some costly liquid or as for an unknown ritual purpose.

During the last stage of MH III and the beginning of LBA the picture of Grey Minyan Ware in Greece is varied. The general impression is that GW on Crete seems not to have been influenced or even inspired by the contemporary Greek Grey Minyan; considering the nature of Minoan trade and interconnection with the Aegean and eastern Mediterranean at the beginning of LBA, such a conclusion sounds at the least unusual. The involvement of Crete in the Greek Mainland gradually grew during MH III and became a reality during LH I. Nevertheless, in spite of a few LH I and II imports, the absence of any true Minyan vessels in Crete is worthy of attention, for it remains difficult to understand the wheel-made grey pottery production or imitation far from any prototype. Therefore, the hypothesis of an influence played by stone or metal vases on wheel-made grey Cretan vessels sounds very reasonable, also bearing in mind the long and well-tested tradition of Kamares and Neopalatial pottery production in exchanging schemes and inspirations with stone vases. Indeed, ceramic skeuomorphs of stone vessels, albeit rare finds, are documented on Crete at Phaistos, Malia, Nerokourou, Pera Galenoi from Protopalatial to Neopalatial period.

As for the vessels from Knossos and Tylissos, the shapes have large comparisons with the Minoan sphere of pottery production; regardless, the presence of the moulded base and their context may suggest an imitation from stone or metal vases. The Knossian jar from the Drain Shafts was found together with four bridge-spouted jars with a very distinctive bifacial light-on-dark double axe decoration, and LM IB fragments including a Marine Style conical rhyton and a baggy alabastron. This evidence has been taken by C. Macdonald as proof of some cult activity in the area, even after the destruction in mature LM IA.

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38 For the problem of the MH III/MM III synchronism see Girella forthcoming.
39 The bibliography is very large; a recent summary is in Rehak, Younger 2001, 426-433.
40 Girella forthcoming.
42 The problem was addressed for the Minyan Ware on the mainland: Rutter 1979, 464-469. As for Kamares Ware, the skeuomorphism aspects of Kamares pottery was stressed a long time ago by G. Walberg, who also demonstrates how such a long trend started in EM II: Walberg 1976, 36-42. Furthermore, it also has been argued that even Prepalatial Fine Painted and Fine Grey Wares imitated metal vessels: Wilson, Day 1994, 57-58.
43 Mostly imitated shapes are the bird's nest bowl and blossom bowl, Phaistos: Levi, Carinci 1988, 165, pl. 771. Malia: Dessenne 1959, 47 n. 1; ÉtCrét XIII, 67, n. 8476, pl. XXV. Pera Galenoi: Banou, Tsivilika 2006, 109, fig. 31.
Finally, an intentional imitation of containers carved from stone, such as steatite, has been argued for the alabastron from Kommos by Watrous and Rutter\(^{45}\). Seen in this light, the Minoan stone vase production highlights some aspects of the Helladominoan relations in this period. As was stressed by Rutter a long time ago, Ayios Stephanos is the only site to show an interesting facet of the Minoan influence upon Greek Mainland, for several shapes in Dark Grey Minyan from this site are close imitations of MM III and LM IA stone vases. Moreover, such an influence was not transmitted directly from Crete but via Kythera, where, besides local clay imitations, original imported stone versions have been found\(^{46}\). Here ceramic skeuomorphs is a feature of local mortuary practice and ceramic versions seem to copy stone (blossom bowls) and metal vessels (ring-handled basins)\(^{47}\). Because of the absence of shapes in GW derived from Minoan stone vases at other sites in the Peloponnese, the model of transmission and the role of Kythera explained by Rutter still remains valid.

**The Postpalatial period**

The information about GW during the Postpalatial period\(^{48}\) is discontinuous in this period and reflects the quality and the age of the publications. As for LM II, the evidence of GW, though meagre, is somehow worthy of observations. Wheel-made grey burnished vessels have come to light in one of the major centres of LM II: Knossos. More precisely, two vessels of this ware are documented from the Unexplored Mansion: a semiglobular cup with a wishbone handle and a trick vase with an internal funnel and vertical strap-handle attached to the rim (Fig. 3d-e)\(^{49}\). In both cases there is no proper correspondence with the current LM II pottery production, and again wheel-made vessels are not part of an ordinary set, but very exclusive. As for the wishbone-handled cup, it is part of a hardly vast circulation of

\(^{45}\) Watrous 1992, 15; Rutter 2006a, 468; Rutter 2006b, 679-680. For stone alabastra see Warren 1969, pl.1. Very instructive is, for instance, the ink-pot alabastron (HTR 585) from a MM III context at Ayia Triada, which betrays metallic reminiscences but forerunners of later examples of LH IB/LM II: La Rosa 1986, 192, pl. Ib. Admittedly, Rutter also noted that the surface treatment of other LM IB vessels from Kommos is not dissimilar from the fine grey-burnished alabastron; therefore, the burnishing of the dark paint on a few vessels was meant to render the dark-coated surface more lustrous and similar to a stone vessel: Rutter 2006a, 475.

\(^{46}\) Rutter 1979.

\(^{47}\) The aspect was already noted by Coldstream: Coldstream, Huxley 1972 286; Bevan 2007, 128. Bevan, Kiiritzis, Knappett, Kappa, Papachristou 2002, 77-79, 93, pl. 13.8. I thank J. Rutter for drawing this aspect to my attention. Significantly, imitations of blossom bowls in dark grey clay have been recorded from Phylakopi (Atkinson et al. 1904, 139, fig. 111) and Ayia Irini (Cummer, Schofield 1984, 68, 104, pls. 53.361, 76.1170).

\(^{48}\) The term is used here to indicate LM II-IIIC. Although elsewhere this long period has been subdivided in Mono Palatial (LM II-IIIA1) and Final Palatial (LM IIIA2-IIIB), the present account will take into consideration evidence that does not always offer good grounds for distinguishing between IIIA1 and IIIA2, and between IIIA2 and IIIB; thus the use of the term Postpalatial seems to be more appropriate. For the discussion of these terms see Rehak, Younger 2001, 384-385, 441-442.

\(^{49}\) Popham et al. 1984, 163-64, 170, pls. 84: b-c; 87: d; 161: 6; 162: 5.
vessels that make their first appearance on Crete during LM IB and occur in both domestic and funerary contexts during LM II-IIIASO. G. Graziadio has argued that such Minoan vessels were likely inspired by Cypriot clay models rather than by analogous metal vessels, due basically to the lack of metal prototypes of any kind on Cyprus before LC IIA (LM IIIA)SI. Nevertheless, the GW bowl from the Unexplored Mansion, because of its exotic feature, raises the question of a possible interference between metal and clay production. At any rate, these two LM II GW vessels seem to share the same spirit of the Neopalatial ones.

From LM IIIA onwards the presence of GW in Crete increases, and evidence comes from both cemeteries and settlements (Fig. 2). Fine wheel-made grey vessels are reported in the following cemeteries: a cup from tomb IX-D at Mavro Spelio (Knossos)SI; a hemispherical bowl from the chamber tomb of Karteros (Amnisos)SI; a ring-shaped askos (FS 196) from chamber tomb B at Stamnoi Pediados54; a few juglets and one carinated bowl from Mochlos55; a globular askos (FS 195) from a pithos burial at Aissa Langadha (Pachyammos)56; and a three-handled piriform jar (FS 46, 48) from the Pharmakokephalo-Sklavoi (Sitia) cemetery (Fig. 6B)57.

The vessel from Mavro Spelio is described as ‘curved cup’ in black bucchero, but the lack of any illustration makes it difficult to determine its chronological position. Also the chronology of chamber D is controversial, as the pottery evidence encompasses MM IIIB, MM III, LM I and LM III vessels58. The vessels from the Karteros-Amnisos tomb are dated to LM IIIA2/B and LM IIIB initial59. The GW bowl has a very distinctive shape with the plain rim with horizontal relief moulding below and the presence of two concentric grooves on the interior bottom; it might be seen as a GW variant of FS 208, the grooved side type that is well known during LH IIIB260 or, more probably, as a clay imitation of LM IIIA metal prototypes, also reported from Crete (Sellopoulo, Tomb 3)61. The larnax, in which the bowl was found, had also two fireboxes and three cups with pulled-out spout, a band on the rim and plastic knobs62, that suggest a LM IIIA2 date for the burial and also for the GW bowl. Re-examination of the grave offerings in the Stamnoi chamber tomb allows a date for the grey askos between LM IIIB and B63, while the globular askos

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50 Graziadio 1999.
51 Graziadio 2005, 331-332.
53 Marinatos 1927-28, 73, 80, fig. 6, pl. 2:18.
54 Platon 1952, 628, fig. 8.
55 Banou, Nicgorski, Smith 2008. I am grateful to Angus Smith for informing me about the unpublished wheel-made grey vessels from Mochlos cemetery.
56 Boyd Hawes et al. 1908, 46, pl. 10:16.
58 Forsdyke 1926-27, 268-269.
60 Furumark 1941, 619-620; Furumark 1992, pl. 120.
61 Popham 1974, 242, fig. 25.11; Matthäus 1980a, 285-286, pl. 50 (431).
62 Marinatos 1927-28, 73, pl. 2:16-17.
63 Kanta 1980, 53, 58.
Patterns of exchange and mobility: The case of the Grey Ware in Middle and Late Minoan Crete

from Aissa Langadha has a debatable chronology between a LM II/IIA2 and IIIB date. A not particularly advanced stage of LM II/IIA has been suggested for the three-handled jar from Pharmakokephalo-Sklavoi. Finally, as shown by evidence, the Mycenaean cemetery at Mochlos started during LM II/IIA1, reaching its peak in LM II/IIA2.

Additionally, Marinatos reported a grey stirrup jar in the cemetery at Knossos, without any other indications. Also, M. Tsipopoulou and L. Vagnetti inform of the acquisition from the Mitsotakis Collection of a small wheel-made grey stirrup jar together with several vessels of Kydonia workshop manufacture, and they do not exclude a provenance of the whole set from a west Cretan funerary context.

As far as the evidence from settlements is concerned, the sites of Kommos and Khania show a significant percentage of GW. At Kommos the fine wheel-made GW with 7 on 353 of total imported vessels identified represents only the 2%. Six grey wheel-made vessels datable to LM II/IIA, II/IIA2 and IIIB have come to light in different sectors of the settlement (Hilltop, Central Hillside, House X, Civic Centre) (Fig. 6A): a small LM II/IIA askos, two juglets of LM II/IIA1 and LM IIIB and three cups: one shallow teacup from a LM II/IIA1 context and two smaller of LM II/IIA2.

The largest collection of fine wheel-made grey vessels during the LM III period has been reported from Khania (Agia Aikaterini Square excavations), mostly from LM IIIB2 and IIIC strata (Fig. 6C-D). Seventy-five sherds have been inventoried from LM IIIB2 levels (4 of LM IIIB1/2, and 71 of LM IIIB2) (Fig. 6C), they are wheel-made with dark grey burnished surfaces and belong entirely to open shapes. Aside from two unusual shapes (a spouted cup and a cup with a slightly flaring rim and a vertical handle attached below), the majority of the sherds belongs to two shapes: the kylix and the carinated cup, the latter of which is the most predominant. Finally, other fragments belong to a rounded cup type. Cups have high-slung handles, are roll to oval in section, and the bases preserved are of three types: flatted, raised and ringed.

Twelve sherds have been reported from LM IIIC strata (Fig. 6D). They have the same fabric and surface treatment as LM IIIB2 ones and belong to rounded and carinated cups; the bases when preserved are all raised.

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66 Tsipopoulou, Vagnetti 1994, 45.
68 Marinatos 1927-28, 80, footnote 3 (IM 4470).
69 Tsipopoulou, Vagnetti 1994, 47, footnote 16.
70 Rutter 2006b, 683, table 3.115.
71 The askos: Rutter 2006b, 678. The juglets: Watrous 1992, 46, n. 803, fig. 76, pl. 53; 88, n. 1544, fig. 76, pl. 58. The cups: Watrous 1992, 30, n. 514, fig. 23, pl. 53; 164, n. 672, pl. 56; Rutter 2006a, 576, n. MI/Cr5, pl. 3.87; Rutter 2006b, 678-679.
73 Hallager, Hallager 2003, 254-256, 298-299, pl. 86.
74 Hallager, Hallager 2003, 255.
75 Hallager, Hallager 2000, 166-167, pl. 51. Only one sherd has a vertical handle preserved, oval in section and raised above the rim.
Fig. 6 – Selection of LM III GW vessels: (A) Kommos, LM IIIA and B (after Watrous 1992; Rutter 2006); (B) Pharmakokephalo-Sklavoi (after Tsipopoulou, Vagnetti 1994); (C) Khania, LM III B (after Hallager, Hallager 2003); (D) Khania, LM III C (after Hallager, Hallager 2000). Scale 1:3.
Finally, seven fragments were found in post-Minoan levels: one fragment of a solid stem kylix and another six that seem to belong to the carinated cup with a high-slung handle.96

Nine LM IIIB2 and two LM IIIC sherds have been chemically analyzed and are similar in composition to the local ware.97 More specifically, local production of GW, being very low in calcium, is close to the non-calcareous White Ware, but some sherds also resemble the more calcareous and iron rich Plain and so-called LM IIIC wares.98

Variously explained as a Mycenaean presence or as the result of the long Cretan tradition of ceramic imitations of stone vessels, the Cretan wheel-made GW is still waiting for a definitive response. An initial point needs to be commented upon: LM III is the only period to show the most considerable amount of GW on Crete, and this trend generally mirrors the more extensive phenomenon of the distribution of GW in the Aegean and eastern Mediterranean. The evaluation of the extension of GW in such a geographical setting is beyond the intention of this contribution. It suffices to say that this phenomenon has recently received much more attention. As for the Greek Mainland the trend starts in LH I and continues into LH III, during which the ware imitates shapes of the Mycenaean repertoire.99 On the other hand, LH IIIC is also notable due to the appearance of GW that continues into the Iron Age, and to the circulation of classes that betray Italian inspiration. GW now spreads to Cyprus and the eastern Mediterranean with a more decisive role played by western Anatolia and mostly Troy.80 Also northeast Aegean islands, where GW shows a high variability, fluctuate between Mycenaean and Anatolian influences. The same trend can also be argued for the Dodecanese (Vati/Passia, Ialysos, Eleona and Langadha, Messaria), which shows a considerable concentration of GW, mostly deriving from cemeteries.81

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96 Hallager, Hallager 2000, 171.
97 Hallager, Hallager 2003, 304-305.
100 Rutter 1979; Rutter 1999, 180; Rutter 2006b, 679-680.
103 Mostly Tiryns and Dhimini, see infra.
104 For Cyprus and eastern Mediterranean see Buchholz 1973; Allen 1990, 143-164, figs. 57-62; Allen 1991, 151-167. More recently on Tell Kazel: Badre, Boileau, Jung, Mommsen 2005. Moreover, important contributions have recently come to light focusing on Troy and its relations with Aegean between Middle and Late Bronze Age: Pavuk 2002a; Pavuk 2002b; Pavuk 2005; Pavuk forthcoming. See also Mommsen, Pavuk 2007.
105 For Lesbos: Lamb 1931-32, figs. 1-2; Lamb 1936, 136-145. For Chios: Hood 1982, 571-573. A not at all minor role is represented by west Anatolian coast, see Bayne 2000.
Comparing Crete with the broad picture of the Aegean some peculiarities in the Cretan case emerge. Moreover, the evidence clearly reveals the existence of many dichotomies (cemeteries vs. settlements, Kommos vs. Khania), which should be commented upon here.

The evidence from cemeteries

GW in funerary contexts is limited to the LM IIIA and IIIB periods, and it is attested in the north of Crete. Although further research is necessary to clarify the complete picture of distribution, the evidence collected thus far comes from the Knossos area and eastern Crete, while that from western Crete should be viewed with reserve. Such a trend has been considered, especially for eastern Crete, as one of the main clues of a Mycenaeanization. At any rate, the concentration of wheel-made grey vessels on the northern coast of the island hints at contacts between the two cultural groups (Mycenaeans and Minoans) at the level of trade or immigrants. Furthermore, it seems from the evidence collected that the majority of these grey vessels date to the LM IIIA2 period, i.e. after the fall of Knossos palace. LM IIIA2 and IIIB see a shift in ceramic imports and trade relationships, economic contacts of many centres of northern Crete widen from Palaikastro to West Crete and mainland Greece. Changes in funerary customs are also visible in Crete, and it seems most likely, then, that the introduction of GW into funeral equipment reflects the direct influence of Greek Mainland, where such a ware was attested in tombs since the beginning of LBA.

Secondly, it is worthy of note that the majority of these vessels belongs to closed shapes, and some of them are small or miniature (Table II). This peculiarity allows the hypothesis that they were containers for special liquids used in offering rituals. On the opposite, wheel-made grey vessels from the settlements belong mostly to open shapes (mainly cups and more rarely kylikes). A survey of shapes from funerary contexts underscores some peculiarities of Crete in comparison with the Aegean evidence. Jugs of various types and dimensions as well as cups mostly carinated and straight-sided are mainly reported from graves in the Aegean. On Crete carinated and straight-sided cups are unattested in graves so far; likewise, open shapes seldom occur, with the sole exception of the bowls from Mochlos and Karteros/Amnisos. Rather, the presence of some shapes, such as the askos, the three-handled piriform jar and the stirrup jar, might be reflective of local burial customs. That is something one could imagine for the stirrup jars, in whose production both western and central Crete were deeply involved. Stirrup jars in GW are not reported from the Greek Mainland, but the shape is attested at Ialysos cemetery and Troy. Juglets reported from Mochlos are so far unique in Crete and have close comparisons with funeral contexts.

88 See the contributions from Driessen, Farnoux 1997 and D’Agata, Moody 2005. By far, the majority of LH III mainland imports comes from Khania, see Hallager 1993, 263-269; Hallager 2005, 277-292.
89 Preston 2004.
90 Tsipopoulou, Vagnetti 1994, 48-49.
91 Benzi 1996, pls. 5f, 24g, 44e; Blegen, Caskey, Rawson 1953, pl. 331; Blegen, Boulter, Caskey 1958, pl. 217. A fragment of a stirrup jar is also reported from Pyla-Kokkinokremos: Allen 1991, 163, fig. 15.7.
customs in the Dodecanese (Rhodes/Ialysos and Kos/Eleona, Langadha and Mesaria)\textsuperscript{92}. Also rare are handled piriform jars: one example is from Troy and is a combination of local and Mycenaean features\textsuperscript{93}. Likewise,.askoi are not well documented in wheel-made GW, despite their diffusion from LH IIIA in the Mycenaean repertoire: one is reported from a grave at Eleusis\textsuperscript{94}. Thus, the relatively wide diffusion of such a shape in Crete must be connected with a special circulation of vessels used for ritual purposes. It is worth mentioning here – even in the light of the Italian interconnections, which we shall discuss later – a wheel-made grey askos from a Bronzo Recente level (LH IIIB-C early) at Broglio di Trebisacce (Cosenza)\textsuperscript{95}. This last find is of importance, as it represents a noteworthy link for the transmission and development of this shape in western Mediterranean between Bronzo Recente and Finale\textsuperscript{96}. Summing up, also the dimensional patterns suggest that the influence of the Greek Mainland had a considerable weight in the transmission of specific forms to Crete, but also adapted to local needs. A similar pattern of evidence is also indicated by the case of the Dodecanese and particularly Rhodes, where GW is reported from LH IIIA1 at Ialysos and Trianda IIB levels, again suggesting a direct introduction from the mainland Greece simultaneously with the appearance of the Mycenaean presence on Rhodes and the first stage of Ialysos cemetery. Subsequently this production shows a local adaptation and betrays western Anatolian inspirations\textsuperscript{97}.

\textsuperscript{92} Benzi 1996, figs. 6-7, 13-18.
\textsuperscript{93} Blegen, Caskey, Rawson 1953, pls. 324, 435 (34.310). See also Mountjoy 1999, 288-289, fig. 13.119 (C 41).
\textsuperscript{94} Mylonas 1975, pl. 62\beta (500).
\textsuperscript{95} Such similarity has already been noted in Bettelli 2002, 129, 200, fig. 79.10.
\textsuperscript{96} It is, for instance, the case of the diffusion of the askos in Sicily that betrays Aegean similarities: Cultraro 2006.
\textsuperscript{97} For Trianda see Monaco 1941, 152, fig. 5.8; 138, pls. XIII.a13, XIV.c1, c9; Benzi 1996, 955; Girella 2005, 134.
The evidence from settlements

Moving to the settlements, admittedly the patterns from Kommos and Khania show distinctive differences in the chronological distribution as well as the fabric and shapes (Table I). As far as Kommos is concerned, the recent assessment by Rutter of fine wheel-made GW has corrected some previous ideas of the pioneering study of Watrous, who had considered most of these vessels as non-Minoan, but rather 'Italian' imports. On the other hand, Rutter stresses the differences, concerning shape, fabric and technology, between the Kommos GW and the rest of contemporary wheel-made grey vessels known in southern Italy, Greek Mainland (Tiryns, Dhimini) and western Crete (Khania). Likewise, he also excludes connections with north-western Anatolian GW and opts for a Cretan production, not necessarily to be located in the western Mesara.

At Khania, the few sherds from LM IIIA–IIIB1, still unpublished, belong, as in the case of Kommos, to closed and in some cases miniature vessels, but the majority of evidence is reported from the LM IIIB2 and IIIC levels, filling adequately the chronological gap at Kommos. The Khania evidence is striking on account of the large number of vessels, but also on account of shapes not attested in Kommos, most of all the carinated cup (Fig. 6C-D). B. Hallager has also pointed out that, with a single exception, the wheel-made grey vessels were found in the same contexts as the Handmade Burnished Ware (HBW). The author has regularly underlined the strong similarities between the HBW and the southern Italy local impasto vessels of 'Subappennine culture' on the one side, and those between the GW and the so-called pseudominyan ware from southern Italy, on the other. The peak of GW in LM IIIB2, together with the coexistence of both GW and HBW, also seem to support the Hallager hypothesis that both wares were locally produced at Khania by or for an Italian 'colony'. This hypothesis has not been accepted unanimously. For L. Vagnetti the possibility of a Mycenaean influence upon LM IIIB GW must not be disregarded, bearing in mind the production of such a ware on the mainland had an interrupted development in MH tradition, which during LH II and IIIA used Mycenaean shapes in the GW, unknown in that period in Italy. On the other hand, she points out that the Cretan tradition in GW production, although feeble, did not break off during LM I and II. Furthermore, it has also been noted that, despite the occurrence of similar shapes (carinated cups and bowls) in the pseudominyan production (Fig. 7), those from the Cretan centre show some significant

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100 Hallager, Hallager 2003, 255.
101 Hallager, Hallager 2003, 254, 361; Hallager 1985, 293-305. In particular, the two wares were confined to the 'Rubbish Area North', for which Erik Hallager has recently suggested a possible religious significance: Hallager 2001.
104 The carinated cup with simple rim Hallager, Hallager 2003, pl. 86 (80-P 0829a) and Belardelli 1994, 293, fig. 93.3; the rounded cup with gently out-turned rim Hallager, Hallager 2003, pl. 86
Fig. 7 - Wheel-thrown GW from the 'Central Hut' at Broglio di Trebisacce (Cosenza) (after Bettelli 2002). Scale 1:5.
differences\textsuperscript{105}, and a closer connection with the local Mycenaean repertoire (Fig. 8)\textsuperscript{106}. Furthermore, while carinated cups from Khania have slightly more rounded profiles, less flaring rims and handles that are roll to oval in section and not very high-slung, the examples from Italy have more pronounced carinated profiles, the upper bodies are also more flared, and the handles, usually strap in section, do accentually rise above the rim\textsuperscript{107}. In the end, it is worth stressing that apart from carinated cups, there are other shapes in Khania, such as the kylix and the spouted cup, which are not attested so far in the wheel-made GW production of southern Italy, and that they show more obvious correspondences with the local Mycenaean production.

**Concluding Remarks**

The foregoing survey of evidence enables us to draw some conclusions about GW circulation on Crete. While a great deal of uncertainty remains, a diachronic overview of the evidence helped to highlight some aspects within the asymmetrical occurrence of this ware on Crete. It seems that GW almost never represented a homogeneous facet of Minoan pottery production, it was rather a foreign component activating exchange mechanisms between Crete and the Greek Mainland.

(i) As far as the Prepalatial period is concerned, in spite of the considerable quantity of Minoan and Minoanizing pottery at the coastal sites in southern and north-eastern Peloponnese, the Minyan bowl at Knossos is the unique ceramic testimony of such a network in Crete so far, also admitting a pallid intermediate connection through the Cyclades. For such an asymmetrical relationship, a metal-oriented nature of the southward flow has been suggested\textsuperscript{108}. Indeed, mines on Siphnos were exploited for lead and silver during EB 1 and 2\textsuperscript{109}; likewise, the Cycladic islands of Paros, Andros, Kythnos, Syros, and Serifos offer evidence of ancient

\textsuperscript{105} Bettelli 1999, 466, footnote 29; Bettelli 2002; Jung 2006, 50.

\textsuperscript{106} The GW rounded cups in Hallager, Hallager 2003, pl. 86 (80-P 1464, 1289) and Belardelli 1994, 289, fig. 93.2; 293, fig. 95.1; but see also the identical type in the local painted Mycenaean repertoire: Hallager, Hallager 2003, pl. 48 (84-P 1295).

\textsuperscript{107} The case of Broglio di Trebisacce is very distinctive for the highest concentration of pseudominyan ware: Bergonzì, Cardarelli 1982, pls. 14-17; Belardelli 1994, figs. 93-100; Bettelli 2002, 73-89, figs. 25-36. A general overview is in Belardelli, Bettelli 2007.

\textsuperscript{108} Rutter, Zerner 1984, 77-79. See also Broodbank, Kiriatzi 2007, 267-268.

\textsuperscript{109} Pernicka, Wagner 1985, 200-211.
copper mining\textsuperscript{110}. But further research has proven that as early as the MC period Lavrion ore sources did replace Siphnos and other Cycladic centres as the dominant source of lead and silver in the Aegean\textsuperscript{111}.

On the other hand, concerning the Kythera connection, the exploitation of raw material and metal sources meets some obstacles already during the Prepalatial period, for the stones from the Peloponnese were not used in Crete until the Palatial period and the supply of metals does remain undemonstrated during EBA\textsuperscript{112}.

\textsuperscript{110} The Minoan interest is now confirmed by the ore smelted at Chrysokamino, a FN-EB age smelting workshop on the northeastern coast: Betancourt 2006a. Significantly, the most important period for the workshop was during EM III/MM IA, as the FN sherds found in the site do not have any direct association with metallurgical activities, see: Betancourt 2006a, 67-97; 2006b. As for the copper provenience, lead isotope and chemical analyses demonstrate that copper ores arrived at Chrysokamino by sea. The lead isotope composition of analyzed slags shows compositions that would result from using the Lavrion and Cycladic ores separately, or mixed in one smelting charge: Betancourt 2006a, 299-319.

\textsuperscript{111} Gale, Stos-Gale 1981; Gale, Stos-Gale, Davis 1984, 389-406.

\textsuperscript{112} Stos-Gale, Gale 1983, 61.
Nevertheless, the metal objects recently discovered at Kastroulia reveal a peculiar interest for southeastern Messenia, and they may be seen as the result of the involvement in the metal-rich trade network of the Adriatic and Ionian gulfs.

While quantified evidence of metal sources is not yet available for Cretan sites, an idea of the potential of such exchange system to establish differentials between communities can be seen from the circulation of Minoan and Minoanizing pottery on the mainland. Spread discontinuously in southern Greece and in the Cyclades MM IA pottery is the dawn of a more matured trade system that involved Crete and the mainland during the palatial eras. However, at the same time, it is the clue that Minoan pottery already started circulating as a luxury good and was to be imitated as well by the more enterprising mainland centres, probably triggered by the movement of Cretan workers. Likewise, the occurrence of Minoan loomweights at Lerna indicates that also weaving in Minoan style was done in the mainland.

This configuration of interconnection deserves further exploration. Also admitting a metal nature of the trade, what remains unclear is the role of Cretan contribution in the transaction with the Helladic communities. It is unanimously accepted that by EB II the Cretan demand for off-island raw materials gradually increased, but what precisely the Minoans exchanged with the mainland centres remains still unclear and should be thoroughly investigated. By comparing the single Helladic import at Knossos with the gradual spread of Minoan pottery northward at the beginning of MBA we have drawn the following conclusions: firstly, were the Minoans to visit the Greek Mainland, and not the opposite; secondly, the only visible items of these transactions are pottery and, to some extent, loomweights. Although we know very few about exchange modes of this early period, it is reasonable to imagine for small-scale societies a system based on reciprocity where goods are moved between symmetrical groups. In this non-market mode of integration goods are given as gifts between people, villages, or tribes. Gift giving becomes a source of social power, because of the generosity of giving and the obligations that arise from receiving prestige goods. Nevertheless, what should be stressed here is that the idea that Minoans would have exchanged metals (or whatever other good) for pottery is not ultimately convincing. I would rather like to suggest that pottery might have functioned as a protocol either to start or to finish the transaction between the buyer and the seller. Indeed, much of the Minoan pottery consists of fine shapes associated with drinking and pouring (footed goblets, straight-sided cups, barbotine jugs), and it might suggest the adoption of toasting and drinking rituals as tokens given by the Minoans to create cooperative relationships, alliances, or political power. Unfortunately, the archaeological record does not help

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113 For such a network see Maran 1998, 445.
114 Such a scenario can be supported by admitting also Minoan residents at the site: Carrington-Smith 1975, 276-286.
115 As it has been argued by I. Hamilakis there is no direct archaeological evidence to substantiate the 'Mediterranean polyculture' model elaborated by C. Renfrew, as it seems that the systematic exploitation of olive oil and wine initiated during the second palace period; Hamilakis 1996.
to distinguish, according with Sahlins definition, between 'balanced' and 'negative' reciprocity. As for the latter one, reciprocity can be 'asymmetrical' when two diverse socio-cultural groups meet each other (like the Helladic and the Minoan one); however, this would not have prejudiced the circulation of goods. In this respect, in the reciprocity practice often there is an obligation to not only give an initial gift, but also to reciprocate that gift. From a ceramic perspective it seems that Minoans were not interested in Helladic pottery, hence the uniqueness of the Minyan bowl found at Knossos. Moreover, it is likely that the pottery does not tell the whole story, as gifts exchanged would have also consisted of invisible values consisting of ritual and technological knowledge.  

(ii) Imports or imitation of Minyan vessels are not documented during the First Palace phase. Unless still unrecognizable, Grey Minyan continued to be an unknown item on Crete during MM IB-IIB. Crete continued to import metals and stones from the mainland and exchanged such raw materials with pottery knowledge and technology, but, as it was argued from our analysis, Kamares Ware now functioned as a prestige good, and it was deposited in graves as a status symbol. Aside from different production groups, Kamares ware operated as a unifying factor in Crete and constituted collective identities that identified with palatial authorities. The presence of such regional pottery identities made any interest in mainland pottery very feeble. In this respect, a similar model to that drawn for the previous period can be suggested. A more dendritic north-south exchange system dominates on palatial Crete, that controlled other networks for half-millennium (the south-west, the north-south, and the south-east routes). As was the case of the MM IA pottery, distribution of imports and imitations suggest the adoption of Cretan drinking custom by non-Cretan communities, and again Minyan ware did not reach the Cretan shores.

(iii) A similar framework for the Second Palace phase has been suggested, as it turned out that the few GW vessels on Crete has not been influenced or even inspired by the contemporary Greek Grey Minyan. Conversely, our argument was that stone or metal prototypes kept playing a major role in producing vessels with dark-coated and lustrous surfaces. The fact that the totality of the shapes belongs to the Neopalatial pottery repertoire, with special attention to serving and ritual vessels, suggests that the contemporary mainland classes (Grey and Yellow Minyan) were basically unknown on Crete during this period. On the other hand, evidence from Crete, though limited to few cases, would suggest the diffusion of an alternative production in dark burnished ware imitating precious vessels (made of stone or metal) that reached the mainland by means of two paths of transmission (Kythera and/or Cyclades). To what extent such stone or metal vessels were imitated as important markers of prestige and political legitimacy one needs still to investigate.

Broodbank 2000, 356-357.
Notwithstanding the growing evidence of GW on the island, the present analysis has pinpointed the asymmetrical character of GW distribution. Particularly, two fundamental points emerged: firstly, the diverse incidence of GW in domestic and funerary assemblages (Fig. 9, Table II); secondly, the disproportion between its occurrence respectively on LM IIIA-B1 and IIIB2-IIIC periods (Table I), in terms of quantity and social implications. Therefore, during LM III GW circulated within Minoan communities with different levels of consumption.

The presence of closed and/or miniature GW vessels in funerary contexts recalls a mainland tradition, but it is equally widespread in south-eastern Aegean. Thus, it has been argued that GW vessels were locally produced in Crete, but, at the same time, inspired by Mycenaean funerary customs. Further, our hypothesis is that such an attitude was triggered after the collapse of the Knossos palace by a wider and freer trade interconnections. How much the Minoan tradition to perceive GW as an imitation of stone or metal vessels might have played a role is hard to estimate, but it is indisputable that such distinctive vessels circulated as valuable objects. What remains remarkable is the provincialism of the Cretan case in comparison with other areas where Mycenaean pottery is imitated in local or GW. For instance, along the coastal zone of western Anatolia and the close islands, the general repertoire of north-west Anatolian GW boasts of shapes, such as kraters, jugs, juglets, stirrup jars and kylikes, that functioned as equivalents of the Mycenaean banquet etiquette. Conversely, this phenomenon had a minor impact on Crete, and perhaps it encountered forms of ‘resistance’ after the fall of Knossos, when one can register significant changes in funerary assemblages, such as the drastic decrease of the kylix. In this perspective such changes imply a prevalence of Minoan traits according to a different social structure and composition of population; hence the scarce attention paid by the Minoans to GW.

By contrast, the settlement pattern has suggested a different approach. Taken as a whole, the imported vessels from Postpalatial Kommos and Khania witness two different exchange networks: Kommos was more interested in the eastern Mediterranean and western Anatolia, but also Kythera, Greek Mainland and southern Sardinia, while Khania was shared between Cyprus and southern Italy. The extraneousness of GW at Kommos from the rest of foreign contexts, in which this ware was attested, indicates its local production, and perhaps, according to Rutter, still under the Minoan tradition of imitating stone vessels. Also, the HBW at Kommos has a Sardinian provenance and is quite different from that attested in both southern Italy and Khania. As for Khania, if, on the one hand, the simultaneous findspot of both GW and HBW, the shape familiarities between these and the pseudominyan ware and local impasto of southern Italy respectively, and the presence of the most distinct Italian GW shape (the carinated cup) are suggestive

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120 Kalogeropoulos 1998, 57-60; Benzi 1996, 955-967.
121 Allen 1990, 184.
122 Rutter 2006b.
123 Hallager, Hallager 2003, 262-263.
125 Bergonzi 1985; Hallager, Hallager 2003, 253-254, pls. 84-85; Rutter 2006b, 677-678.
of an Italian connection for the local production of GW, then, on the other hand, the formal dissimilarities make such an interconnection vanish\textsuperscript{126}. Therefore, a local Cretan production of this ware is more preferable. Regardless of some familiarity with the Italian \textit{pseudominyan} ware (Fig. 7), GW from LM IIIB and IIIC levels at Khania shows a stronger connection with the LM local production\textsuperscript{127}. Furthermore, it is also reasonable to exclude Central Greece as a source of inspiration. Various cups and bowls are documented at Tiryns, but deep bowls FT 284/285 represent the most frequent shape (Fig. 10B)\textsuperscript{128}. At Dhimini, in southern Thessaly, GW comes from the LH IIIC Early reoccupation in the area of Megaron A: common shapes are the carinated cup and the strap-handled bowl FT 295 (Fig. 10A), but other shapes,

\textsuperscript{126} See also Belardelli, Bettelli 2007, 483.

\textsuperscript{127} Moreover, the supposed connection with the GW production at Kos claimed by B. Hallager especially for the carinated cups (Hallager, Hallager 2003, 263, note 594) is less evident. In fact, at Kos, in both Eleona and Langadha cemeteries, these cups occur in GW, but they have different shape (FS 230). See Morricone 1965-66, 296, figs. 30 (1329), 153 (93), 191 (138), 271 (s.n.); Benzi 1996, 955, note 54, figs. 19-21. Another cup FS 230 is also in red-burnished ware: Benzi 1996, 956, fig. 25. GW cups FS 230 are also reported from Ialyssos (Benzi 1992, pl. 791), Miskebi (Boyfal 1969, pls. 22:6, 23:7, 24:1), Psara (unpublished, but exhibited in the Archaeological Museum of Chios), and from the Greek mainland (Blegen 1937, 379, figs. 167:338, 235:470, 530:1032), but they are not attested on Crete.

\textsuperscript{128} At Tiryns wheel-made GW is reported from LH IIIB and IIIC horizons: Kilian 1988b, 131, fig. 26.18; Belardelli 1996; Belardelli 1999; Belardelli, Bettelli 1999, 473-474.
Fig. 10 - Selection of GW vessels from Greece: (A) Dhirimi, LH III C (after Adrymi-Sismani 2006b); (B) Tiryns, LH IIIB and C (after Kilian 1988). Scale 1:3.
such as the belly-handled amphora, are attested\textsuperscript{129}. Thus, it seems more probable that GW at Khania was locally produced and inspired by Cretan Minoan-Mycenaean models.

Unlike the HBW, which had no former Aegean ancestry and is certainly ascribable to Italian models, the GW class is not completely extraneous to Crete. The irregular appearance and distribution during the Postpalatial period make clear how dangerous the use of a unique model to understand this phenomenon can be; rather, this irregularity and distribution can prove: (1) the different degrees of circulation of GW (vessels for burial gifts and for domestic uses); (2) the co-occurrence in one case (Khania) with the HBW, which reminds us of the situation in Raum 127 at Tiryns\textsuperscript{130}; (3) the possible perception of GW as both similar to and different from the proper Mycenaean ware; (4) the interaction of both a Mycenaean tradition and a new manufacture that has been ascribed to the coming of people from Italy to Greece, as the cases of Tiryns and Dhimini on the mainland confirm.

Further research is necessary to clarify distribution and provenience of wheel-made GW on Crete, but we firmly believe that it is necessary not to consider this class as a univocal event. Bearing in mind the quality and distribution of such a ware at other sites on Greek Mainland, one can see more clearly how shapes in GW were not distant from the Mycenaean repertoire, but at the same time they were accepted and adapted to local needs by means of morphological modifications. The 'Italian' contribution in the alteration and adaptation of the GW range of shapes in Greece is not uniform everywhere, and for the time being it is better documented at Tiryns\textsuperscript{131}; on the other hand, we have seen that at Khania it is definitely less visible, but not absent. In this light, it becomes more clear how GW is just one aspect of a multifaceted phenomenon, which occurred between IIIB and IIIC and which saw the penetration and circulation in the Aegean and eastern Mediterranean of metal artefacts that have strong resemblances with European mainland and specifically Italian. Like the Greek Mainland, also Crete during LM IIIB and IIIC saw a similar flow of such metal objects (the flanged-hilted sword, violin-bow fibula, flange-hilted dagger of Pertosa type, rayed-wheel pin), often together with the HBW\textsuperscript{132}. This aspect is worth of more exploration in the future, for it lies beyond the limits of this paper. Nevertheless, the circulation of 'Italian' metal objects in Crete illustrates a considerable movement of material and people\textsuperscript{133}, who could

\textsuperscript{129} For Dhimini see Adrymi-Sismani 2003, 88-89, fig. 10; Adrymi-Sismani 2006a, 90-91, figs. 6-7; Adrymi-Sismani 2006b, 28-30, 35, fig. 21. Connections within HBW and GW at Dhimini and impasto and \textit{pseudominyan} ware from southern Italy have been stressed in Jung 2006, 48-50, 202-203.

\textsuperscript{130} Belardelli, Bettelli 1999.

\textsuperscript{131} Belardelli 1999, 455. Clues of this interconnection are the ratio between closed and open shapes, the contemporaneous appearance of forms that resemble Aegean and hand-made \textit{impasto} repertoire.


\textsuperscript{133} Matthäus 1980b, 109-139. Here we would like to remember just the most important finds. The violin-bow fibula from a LM IIIC level at Khania is probably an import from Italy made of Sardinian copper (Hallager, Hallager 2000, 108, 179, 211, pls. 95, 107 a.1). This type is also reported since LM IIIB at Malia, Psychro, Kissamos and Karphi/Tsermiadon, but also from the Dodecanese (Kos/Langada): Sapouna-Sakellarakis 1978, 16-22, 37-39, pls. 1-2 (Type Je). At Knossos HBW has been reported, but also one flanged-hilted dagger of Pertosa type from the Zafer Papoura cemetery (Evans 1905,
also have facilitated the manufacture of new types of wares, with the aim to satisfy the 'foreign' tastes of new settlers. The westward flow of metals and other foreign objects is just one side of the decentralized maritime trading activity, which had grown up after the collapse of the Mycenaean palaces. Such a collapse also removed obstacles to the penetration of private traders, long-distance routes grew, and they were made up of many individual links. As the Sherratts have well explained, those parts of the Aegean that benefited from these movements were areas “accessible from east-west sea lanes or stopping points along them”, such as Crete, western Greece and the Ionian islands134. The co-existence of both GW and HBW on the one hand (Khania) and that one of HBW with bronzes in shapes widespread in Italy on the other (Khania, Knossos) are the proof that GW was also part of such a phenomenon that saw an exchange of techniques and ideological values. Recently it has been suggested that the sudden shortage of copper, the lifeblood of Bronze Age political economy, would have encouraged the entrepreneurial trading activity, with an increasing involvement of the western Mediterranean communities with the entourages of the Mycenaean societies135. Although this hypothesis looks very reasonable, it needs to be verified. After the collapse of the Mycenaean palatial system the drying-up of raw materials may have stimulated movements of metalsmiths from Italy towards Greece, who integrated at different levels in the Postpalatial communities. Future and more thorough studies of these and other patterns (pottery, metals, funerary rites) need to clarify the character and the value of this interconnection.

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BIBLIOGRAPHY

Adrymi-Sismani V. 2006a, Η γκρίζα ψευδομυνέα και η στυλβωμένη χειροποίητη κεραμική από τον μυκηναϊκό Δίμηνου, in Αρχαιολογικό Έργο Θεσσαλίας και Στερεάς Ελλάδας 1. Πρακτικά επιστημονικής συνάντησης, Βόλος 27.2–2.3.2003, Volos, 85-110.

472, fig. 90) and one knife of Matrei type from the Stratigraphical Museum Excavations (AR, 1982-83, 71, 83, figs. 50-51.). On the cultic deposit from Psychro cave see Bettelli 2002, 132, fig. 61B. From Phaistos, although extraneous to the GW and HBW production, a knife close to the Matrei type with a nautilus figure incised on the blade has been reported (Milojcic 1955, fig. 1.13).
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Banks E.C 1967, The Early and Middle Helladic Small objects from Lerna, Ph.D. dissertation Cincinnati (University Microfilms 67-15948).


Barber R., Hadjianastasiou O. 1989, Mikre Vigla: A Bronze Age Settlement on Naxos, BSA 84, 63-162.


Bayne N.P. 2000, The Grey Wares of Northwest Anatolia in the Middle and Late Bronze Age and Early Iron Age and their Relation to the Early Greek Settlements, Asia Minor Studien 37, Bonn.


Bergonzoni G., Cardarelli A. 1982, Due produzioni dell’artigianato specializzato: la ceramica grigia e i dolii cordonati, in G. Bergonzoni et al. (eds.), Ricerche sulla Protostoria della Sibaritide, 2, Napoli, 94-103.
Carrington-Smith J. 1975, *Spinning, weaving and textile production in prehistoric Greece*. Ph.D. diss. of the University of Tasmania, Hobart.
Gale N.H. 1990, The Provenance of Metals for EBA Crete - Local or Cycladic?, in Ζ"Διεθνές, Κηφισιολογικό Συνέδριο, Α1, Chania, 299-316.
Girella L. 2007a, Toward a definition of the Middle Minoan III ceramic sequence in South-Central Crete: returning to the traditional MM IIIA and IIIB division?, in Felten F., Gauß W., and Smetana R. (eds.), 233-255.
Girella L. forthcoming, MH III and MM III: Ceramic synchronisms in the transition to the
Late Bronze Age, in G. Touchais et al. (eds.), MesoHELLAdIKA. The Greek Mainland in the Middle Bronze Age. International Conference, Athens, 8-12 March 2006, BCH Suppl., Athens.


Hallager B.P. 1985, Crete and Italy in the Late Bronze Age III Period, AJA 89, 293-305.


Kalogeropoulos K. 1998, Die frühmykenischen Grabfunde von Analipsis (Südöstliches Arkadien), Bibliothek der Archäologischen Gesellschaft zu Athen BD. 175, Athen.

Patterns of exchange and mobility: The case of the Grey Ware in Middle and Late Minoan Crete 311

Khatzidakis I. 1912, Τύλισος Μυκολή, ArchEph 51, 197-233.
Lamb W. 1936, Excavations at Thermi on Lesbos, Cambridge.
La Rosa V. 1986, Le nuove indagini ad Haghia Triada, in Ζ´ Διεθνές Κρητολογικό Συνέδριο, Heraklion, 190-198.
Levi D., Carinci F. 1988, Festòs e la civiltà minoica, II2, Roma.
Maran 1. 1992a, Pevkakia-Magula III. Die mittlere Bronzezeit, Bonn.
Marinatos S. 1927-28, Υποστροφικός λαξευτός τάφος εν Καρτερο Κρήτης, ArchDelt 11, 68-90.
Matthäus H. 1980a, Die Bronzegefäße der kretisch-mykenischen Kultur, PBF II-1, München.
Misch P. 1992, Die Askoi in der Bronzezeit, SIMA PB 100, Jonsered.


Mountjoy P. 1999, The Destruction of Troia VIh, Studia Troica 9, 253-293.

Mylonas G. 1975, Το δειπνόν νεκροταφείον της Ελευσίνας, Atene.


Overbeck J.C. 1989a, The Bronze Age Pottery from the Kastro at Paros, SIMA - PB 78, Jonsered.


Rubensohn O. 1917, Die prähistorischen und frühgeschichtlichen Funde auf dem Burghügel von Paros, AM 49, 1-98
Rutter J.B. 1979, Stone Vases and Minyan Ware: A Facet of Minoan Influence on Middle Helladic Laconia, AJA 83, 464-469.
Sahlins M. 1972, Stone Age Economics, Chicago.
Sapouna-Sakellarakis E. 1978, Die Fibeln der griechischen Inseln, PBF XIV.4, München.
Taylor W.D. 1972, Excavations at Ayios Stephanos, BSA 67, 205-270


Vagnetti L. 1985, Late Minoan III Crete and Italy: another view, PP, 29-33.


Watrous L.V. 1992, Kommos III. The Late Bronze Age Pottery, Princeton.

Watrous L.V. 1993, Cretan Relations with the Aegean in the Late Bronze Age, in Zerner C.W., Zerner P., and Winder J. (eds.), 81-90.


Zerner C.W. 1988, Middle Helladic and Late Helladic I Pottery from Lerna: Part II, Hydra 4, 1-10.


Zerner C.W. unpublished manuscript, Lerna V: Area D.