



The Kephala Tholos at Knossos: A Study in the Reuse of the Past

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Reviewed work(s):

Source: *The Annual of the British School at Athens*, Vol. 100, Centennial Volume (2005), pp. 61-123

Published by: [British School at Athens](#)

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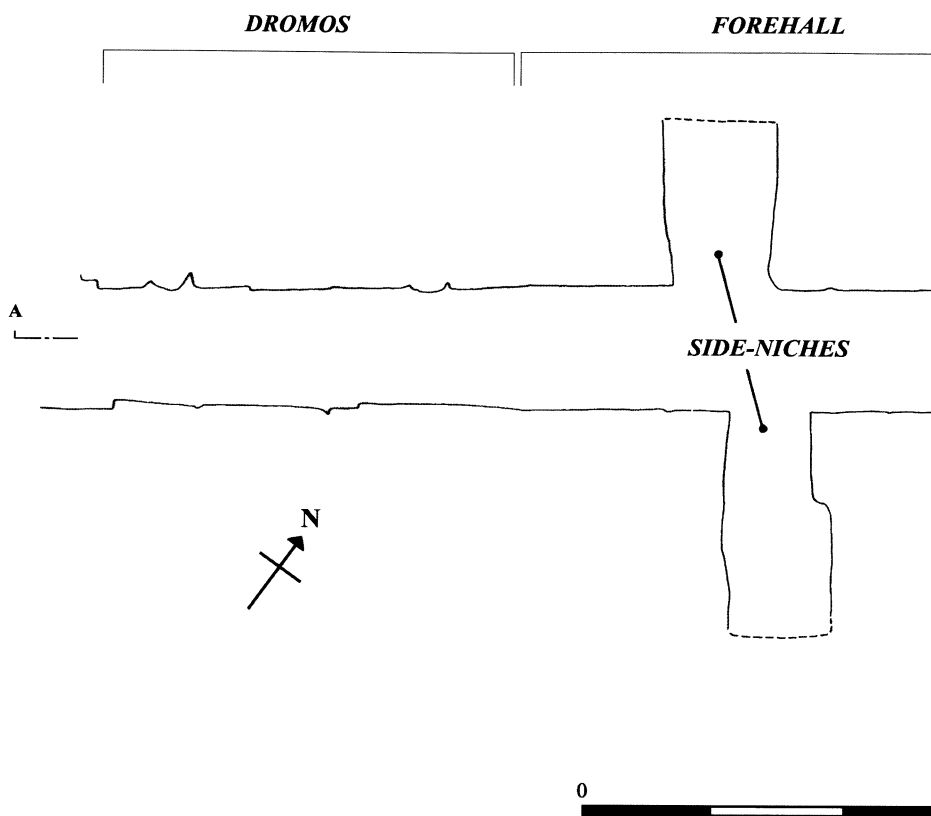
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PLAN



SECTION

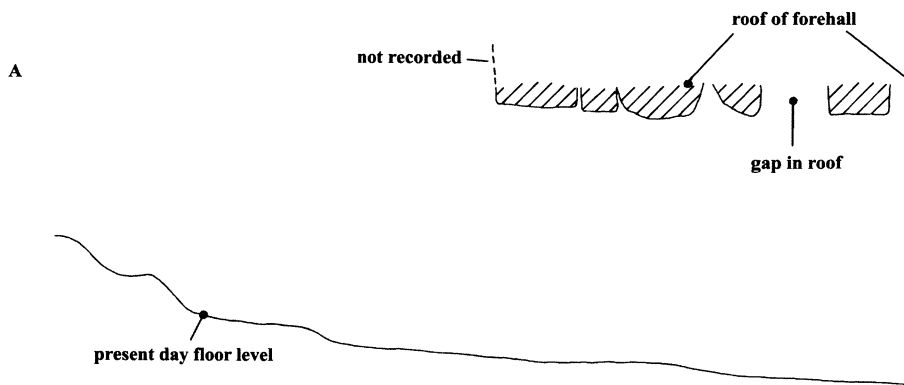
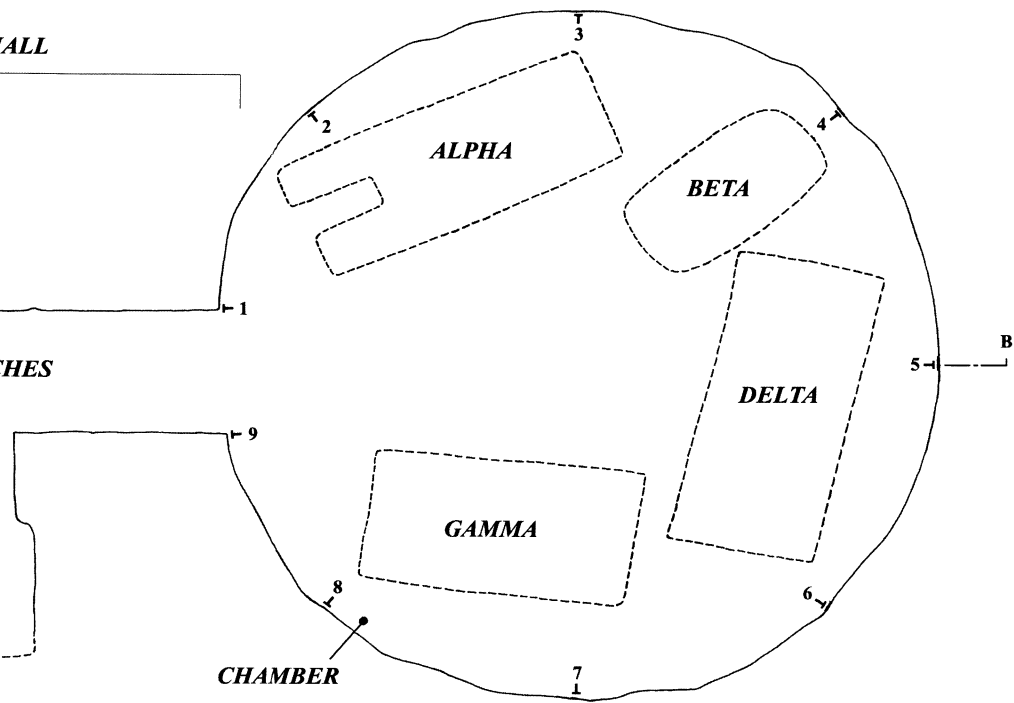


FIG. 1. Plan, section, and eleva

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HES



3m

of forehall

not recorded

p in roof

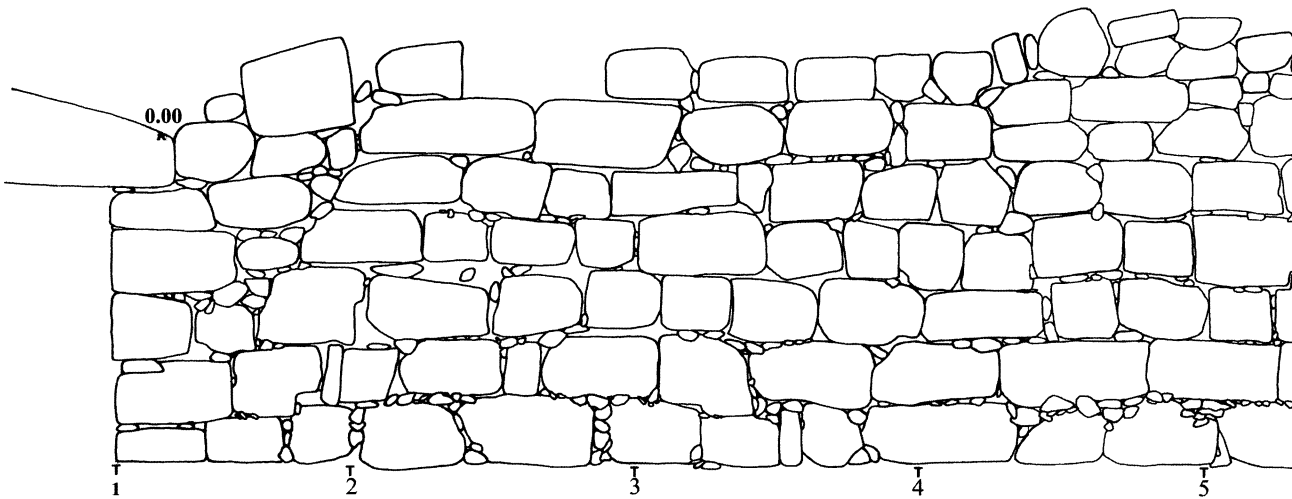
preserved height
of chamber wall

B

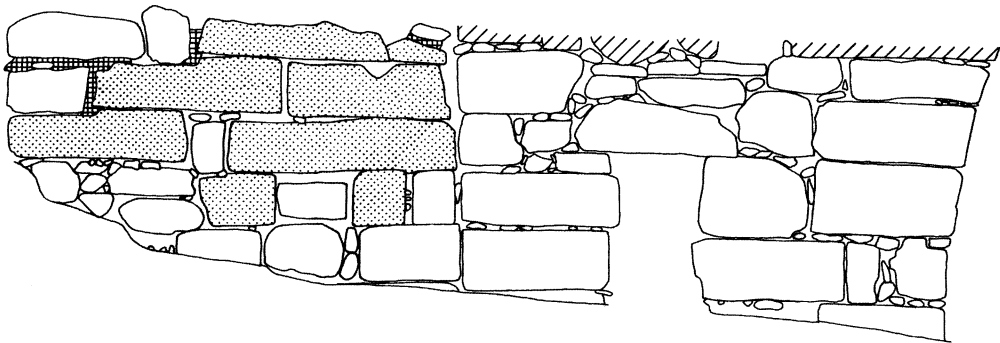
on, and elevations of the Kephala Tholos.

ELEVATIONS

CHAMBER



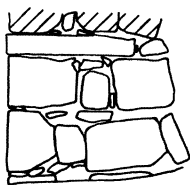
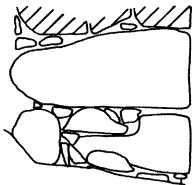
FOREHALL and DROMOS
north side



NORTH SIDE-NICHE

east side

west side



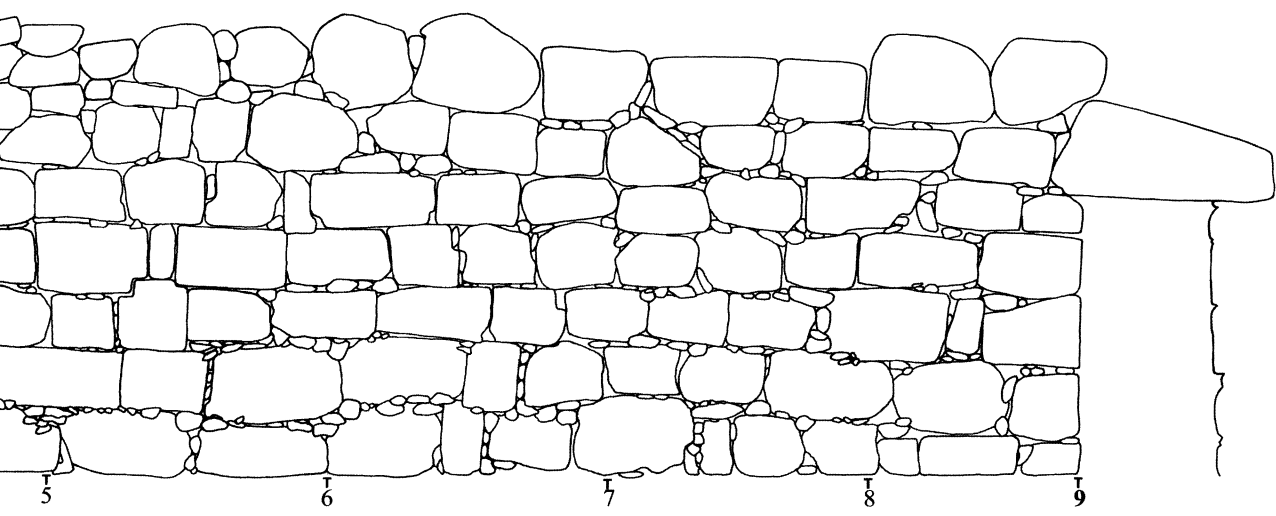
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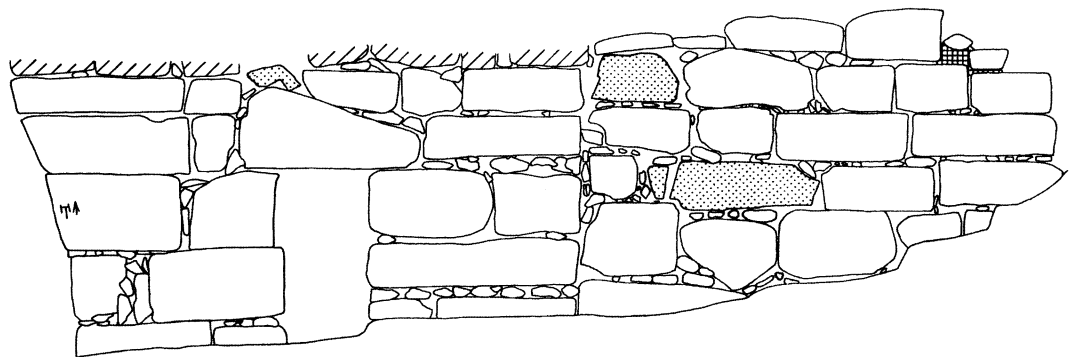
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|--|------------------|---|-------------------------------|
|  | Gypsum block |  | Modern concrete consolidation |
|  | Block in section |  | Line conjectural |

IBER



FOREHALL and DROMOS

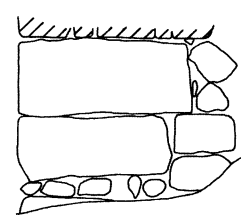
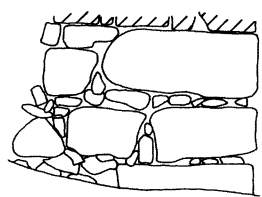
south side



SOUTH SIDE-NICHE

west side

east side



3m



THE KEPHALA THOLOS AT KNOSSOS: A STUDY IN THE REUSE OF THE PAST¹

INTRODUCTION

THE corbel-vaulted tomb at Kephala, Knossos, has often featured in reconstructions not only of Knossian mortuary practices, but also of the broader social, political, and cultural developments underway at this centre in the Late Bronze Age. In turn, opinions regarding the nature of such broader developments have profoundly influenced interpretations of this tomb from the time of its discovery. Yet despite the recognized significance of the Tholos within such debates, its contents and context have not previously been examined in detail.

Located roughly 1.5 km north of the Bronze Age palace, on a ridge which forms part of the headland running northwards up the centre of the Knossos valley,² the tomb was cut into a gentle slope near the summit of the Kephala hill, with its dromos facing west. Its size and ashlar masonry construction mark it out as an impressive mortuary edifice by Bronze Age Cretan standards (FIG. 1). Moreover, in addition to the canonical circular

¹ This study was carried out with the permission of the British School at Athens. Access to artefactual and archival material was kindly permitted by the British School (the Stratigraphical Museum at Knossos, and the archives in Athens), Dr E. S. Sherratt (the Evans archive in the Ashmolean Museum, Oxford), Dr E. French (A. J. B. Wace's correspondence), and Mr G. Cadogan (personal study notes). Thanks go also to Dr P. Halstead for advice on the faunal remains, and to Dr P. Callaghan, Dr H. Catling, Dr K. Christakis, Professor J. N. Coldstream, Dr E. Hatzaki, Dr A. Johnston, Dr C. Knappett, Dr C. Macdonald, Dr N. Momigliano, Dr K. Nowicki, Professor J. Rutter, Dr S. Wallace, and Dr T. Whitelaw for advice on the pottery. Dr D. Evely provided important organizational support in the final stages of the study, and Drs A. Bevan and T. Whitelaw for advice on architectural drawing. I am grateful to Dr E. Grammatikaki of the 23rd Ephorate of Prehistoric and Classical Antiquities of Herakleion for permission to plan the Kephala Tholos, to Dr E. Adams for help in the planning and to Mr N. Cassidy of the Faculty of Classics, Cambridge, for technical support in producing the illustrations. I gratefully acknowledge the contribution made by the British School at Athens from the Knossos Donated Fund to cover the cost of the foldout plans. Thanks go also to the two anonymous referees, and to Dr C. Broodbank, Dr H. Catling, Dr I. Morley, and Professor J. Rutter for valuable comments on drafts of this article. The Ventris Fund, the Institute of Archaeology, UCL, and the Faculty of Classics, University of Cambridge, helped to fund the study. Finally, special thanks must go to Dr C. Broodbank, whose original idea it was to carry out this study, to Mr G. Cadogan for his support and encouragement, and to Dr T. Whitelaw for his valuable advice and practical help at numerous stages during this project.

Special abbreviations:

Cadogan 1967 = G. Cadogan, 'Late Minoan III C pottery from the Kephala tholos tomb near Knossos', *BSA* 62 (1967), 257–65.

Catling *et al.* 1979 = E. Catling, H. Catling, and D. Smyth, 'Knossos 1975: Middle Minoan III and Late Minoan I houses by the Acropolis', *BSA* 74 (1979), 1–80.

Desborough 8 = Excavation notebook 8, by V. R. Desborough (n. 6).

Desborough 20 = Excavation notebook 20, by V. R. Desborough (n. 6).

Fisher 66 = Excavation notebook 66, by V. Fisher (n. 6).

Fisher 67 = Excavation notebook 67, by V. Fisher (n. 6).

KT = R. W. Hutchinson, 'A tholos tomb on the Kephala', *BSA* 51 (1956), 74–80.

MUM = M. Popham (ed), *The Minoan Unexplored Mansion at Knossos* (BSA Supplementary Volume 17; London, 1984).

Niemeier 1985 = W.-D. Niemeier, *Die Palaststilkeramik von Knossos: Stil, Chronologie und historischer Kontext* (Archäologische Forschungen 13; Berlin, 1985).

Pelon 1976 = O. Pelon, *Tholoi, Tumuli et cercles funéraires: recherches sur les monuments funéraires de plan circulaire dans l'Égée de l'Âge du Bronze, III^e et II^e millénaires av. J.-C.* (Athens and Paris, 1976).

Popham 1977 = M. Popham, 'Notes from Knossos, Part I', *BSA* 72 (1977), 185–95.

Popham 1978 = M. Popham, 'Notes from Knossos, Part II', *BSA* 73 (1978), 179–87.

Watrous 1992 = L. V. Watrous, *Kommos III: The Late Bronze Age Pottery* (Princeton, 1992).

² See S. Hood and D. Smyth, *Archaeological Survey of the Knossos Area* (BSA Supplementary Volume 14; London, 1981), 35 no. 17.

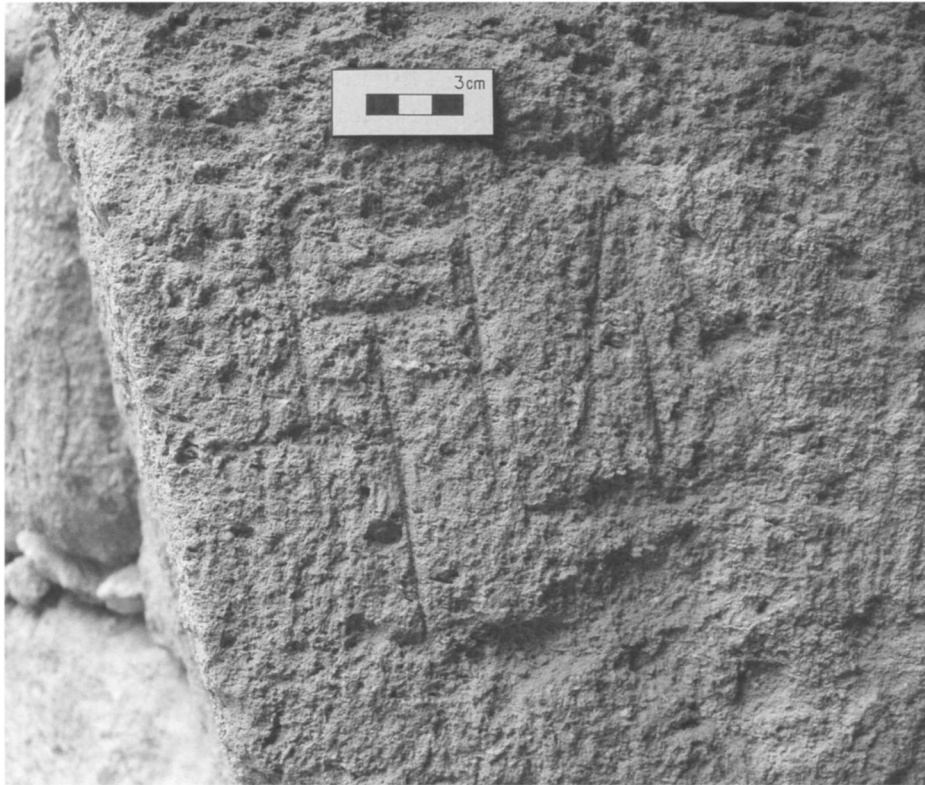


FIG. 2. Inscription at chamber entrance (photograph taken 2004).

corbel-vaulted chamber, it also displays several unusual architectural features for a tholos tomb, including a forehall with two side-niches, mason's marks on blocks in various parts of the tomb and a short inscription in Linear A or B at the chamber entrance (FIG. 2).

The tomb's recent history commenced with its rediscovery in 1938, and its excavation the same year by R. W. Hutchinson, with V. Fisher (later Hankey), V. R. d'A. Desborough, and a group of workmen led by E. Akoumianos. Further trials were carried out around the structure in May 1939. Hutchinson's official publication of the excavations appeared in 1956;³ this summary of the discoveries was later supplemented by G. Cadogan's study of a group of well-preserved vessels, mainly of LM III C date, from the tomb, and the publication of two further vessels by M. Popham.⁴ It should be noted that the survival of the tomb structure itself to the present day is largely due to the personal intervention of the Cretan Ephor N. Platon, who succeeded in preventing its destruction during the Second World War.⁵

³ *KT*.

⁴ Cadogan 1967; Popham 1977, 186–8 and fig. 1 *c* and pl. 26 *c-d*; Popham 1978, 185 and fig. 1 *e*.

⁵ A report to the British School by Hutchinson, dated 13 Nov. 1945, records that 'The Tholos on Paspatis land on the Kephala was saved from destruction by the

Germans owing to the efforts of Mr Platon; and is in excellent condition' (BSA archives: Knossos Correspondence 1940–59: folder '1945'). A later and more detailed report, presumably also written by Hutchinson, included the following information: 'The tholos tomb excavated in 1938–9 would also have been

The restudy of the Kephala Tholos presented here draws upon material from various sources,⁶ to expand upon the original publication. It is structured in three parts. The first discusses problems with Hutchinson's dating of the tomb's construction, and outlines the implications of both his LM I A dating and the main alternative (LM II) that has been proposed by others. The second part examines the material retained from the excavation, focusing mainly on the ceramic evidence that comprises the vast majority of this dataset. Pottery has been retained not only from within the tomb, but also from explorations in the vicinity—that is, tests immediately outside the tomb walls and trenches in the area of a modern ruined building to the east of the tomb (see FIG. 3 for the original locations)—and this latter material has an important bearing on the dating of the tomb itself. The final section then draws the evidence together to outline the history of the tomb's use and to consider its contribution to our understanding of the broader Knossian context. The appendices provide catalogues of the boxes by which the retained ceramic material is arranged in the Stratigraphical Museum at Knossos (Appendix 1), of individual ceramic vessels in the Stratigraphical Museum and Heraklion Museum (Appendix 2), of small finds as listed by V. Fisher (Appendix 3), and of the retained human remains in the Stratigraphical Museum (Appendix 4, by Dr R. Gowland).

THE DATING PROBLEM—AN OVERVIEW

PROBLEMS WITH THE EVIDENCE

The difficulties in dating the tomb's construction and first use are due largely to subsequent disturbances of the earliest burial(s), none of which has survived intact, though four pits in the floor of the main chamber mark their probable locations.⁷ During the excavation, human remains and pottery sherds of various dates—but mainly Neopalatial (MM III–LM I), Final Palatial (LM II–III A2 early) and Postpalatial (LM III A2 early–III C)—were found intermingled in various levels of the tomb, with very little clear stratigraphy. The debate over the date of the monument's construction began at the time of its excavation, and correspondence between the excavators and other parties shows that MM III, LM I, and LM II were all entertained as possibilities. Hutchinson's preference for a Neopalatial date seems to have formed very rapidly, as a letter written on only the

destroyed but for the energetic protests of Mr. Platon, the Ephor of Antiquities for Crete. It is impossible to speak too highly of the manner in which the Ephor stood up to the German authorities in defence of his antiquities and his museum; his most remarkable performance was his prevention of a battle between the Germans and the "Andartes" on the site of Knossos just before the German retirement from the Heraklion zone, a battle which probably would have resulted in the complete destruction of the Palace of Minos' (BSA archives: Knossos Correspondence 1940–59; folder '1948').

⁶ The ceramic material studied at the Stratigraphical Museum at Knossos is listed in Appendix 1 (excavation codes 1938/3 and 1939/2). Correspondence from the Wace Archive (094) was consulted, and the following

material in the BSA archives: the excavation notebooks of V. Fisher (Cat. Nos. Knossos 66 and 67) and V. R. Desborough (Day Books 8 and 20); notebooks of R. W. Hutchinson (Cat. Nos. Knossos 65(2) and 292); plans and photographs (Knossos Cat. 347; and in Box 3 'Knossos Minoan Cemeteries': 'Tholos 1938/9 Tholos and dromos', 'Tholos 1938/9 Filling' and 'Kephala Tholos'); and general correspondence (Knossos Excavations 1920–1970; Knossos Correspondence 1930–39; Knossos Correspondence 1940–59; Desborough Correspondence 1938–77). G. Cadogan kindly provided written notes on the small finds by V. Fisher and R. W. Hutchinson.

⁷ These pits have been infilled since the excavation, so their locations as marked in FIG. 1 are based on the original tomb plan presented in *KT*, 75 fig. 1.

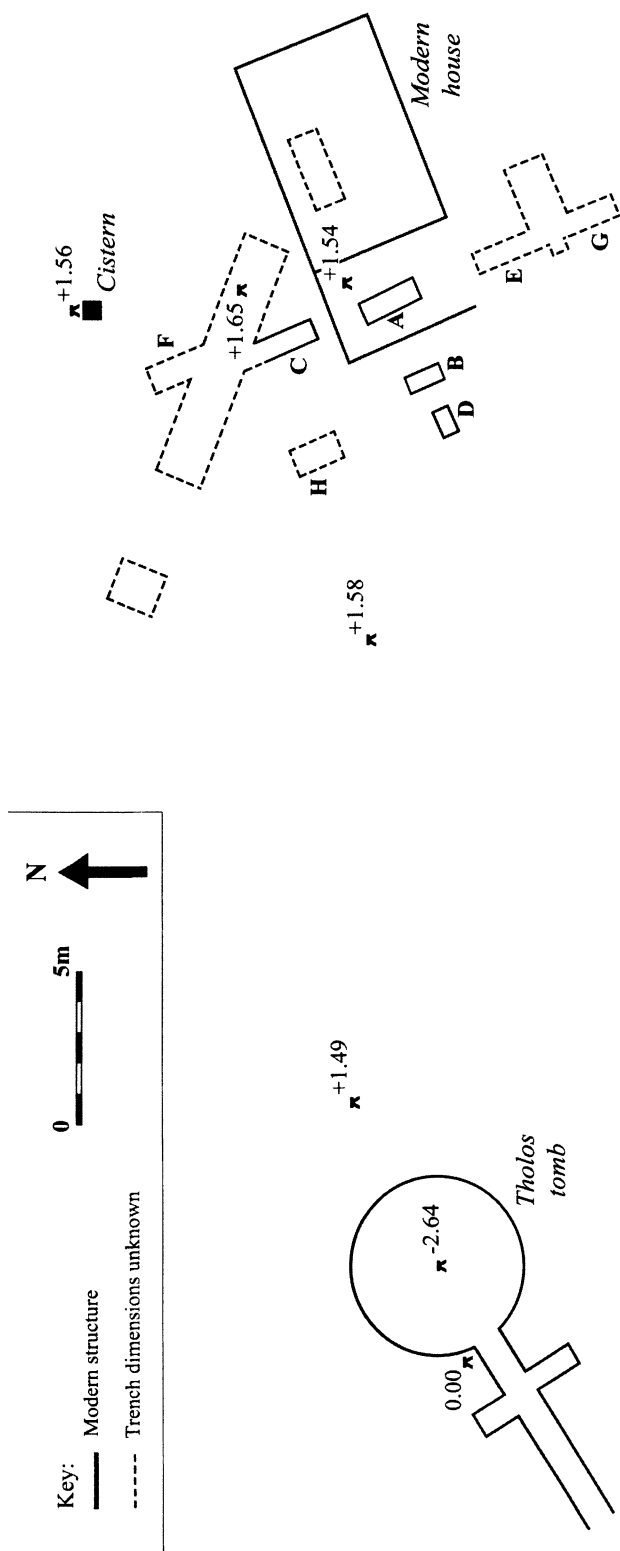


FIG. 3. The Kephala area (NB all spot heights outside the Tholos are taken at current ground level, are measured in metres and use an arbitrary bench mark adjacent to the Tholos).

second day of the excavation demonstrates.⁸ He appears to have maintained this preference thenceforward, refining it to early LM I A by the time of the official publication in 1956. This conclusion has not remained uncontested, however. The possibility of a LM I B date was discussed but rejected by Hutchinson,⁹ apparently in reference to the Palace Style Jar sherds, which have since been redated to LM II (see below). And while the possibility of a LM II date was also dismissed at the time of the excavation, subsequent observations by Popham, Hood, and Pelon in support of a post-Neopalatial date have prevented the matter from being put to rest.¹⁰

While disturbance and reuse of the tomb subsequent to the original burials are largely responsible for the question mark that hangs over its dating, there are also inconsistencies in Hutchinson's publication of the tomb that compound the uncertainties presented by the stratigraphy. A number of ambiguities, methodologically unsound arguments, and contradictory statements in the 1956 report compromise the reliability of the dating Hutchinson proposes, and render a reanalysis of the evidence desirable. Some of these problems have been highlighted elsewhere, most notably by Pelon,¹¹ but a summary of them would be useful here.

In dating the tomb, Hutchinson considered four different types of evidence: the overall architectural design, the mason's marks, the textual inscription at the chamber entrance, and the ceramic material recovered from within and around the tomb. In terms of architecture, points of comparison with the second group in Wace's tholos series at Mycenae were suggested, though Hutchinson did not propose any firm dating for the Kephala Tholos on this basis. Pelon, however, has noted that in various details, parallels for the Kephala Tholos can be found in all three of Wace's typological groups. Equally problematic (as Hutchinson himself acknowledged) are the hazards of attempting to date a Cretan tholos tomb on the basis of a stylistic chronology of doubtful applicability beyond the Argolid. Indeed, regional variations across the Aegean in the design, as well as the symbolic significance, of the corbel-vaulted tomb type, are increasingly recognized.¹² A more plausible focus for architectural comparison is the corbel-vaulted 'Isopata Royal Tomb', located just over 1 km north of the Kephala Tholos, since, as Hutchinson observed, the two tombs share several architectural features.¹³ Hutchinson assigned the Isopata tomb to the end of LM I A,¹⁴ but this dating is at variance with that proposed by the excavator: Evans had originally dated its construction to MM III, on the basis of (questionable)

⁸ Excavation commenced on 5 Dec. 1938. In letters to G. M. Young (the BSA Director) dated 6 Dec. 1938 and 21 May 1939 respectively, Hutchinson described the tholos as 'probably MM III-LM I A in date' and 'not later than LM I A' (BSA archives: Knossos Correspondence 1930-9; folders '1938' and '1939').

⁹ *KT*, 78.

¹⁰ Popham cites 'joining sherds' as supporting a LM II date, though no more details are given—M. Popham, 'Review of R. W. Hutchinson's "Prehistoric Crete"', *JHS* 84 (1964), 209-10, at 210; see also Popham 1977, 186. Hood also advocates a LM II date, on the basis of the Palace Style Jar sherds—S. Hood, *The Minoans: Crete in the Bronze Age* (London, 1971), 59. Pelon advocates either

a LM I B or LM II date—Pelon 1976, 422 and n. 7.

¹¹ Pelon 1976, 419-23.

¹² A. J. B. Wace, 'Report of the School excavations at Mycenae, 1921-1923', *BSA* 25 (1923), at 284-5; W. Cavanagh and R. Laxton, 'Corbelled vaulting in the Late Minoan tholos tombs of Crete', *BSA* 77 (1982), 65-77; S. Voutsaki, 'Mortuary evidence, symbolic meanings and social change: a comparison between Messenia and the Argolid in the Mycenaean Period', in K. Branigan (ed.), *Cemetery and Society in the Aegean Bronze Age* (Sheffield Studies in Aegean Archaeology, 1; Sheffield, 1998), 41-58.

¹³ *KT*, 76.

¹⁴ This dating is given in a later publication: R. W. Hutchinson, *Prehistoric Crete* (Harmondsworth, 1962), 290.

architectural parallels in Egypt; but this had been amended to LM II by the time of the discovery of the Kephala Tholos, on the more plausible basis of its ceramic material.¹⁵

In dating the mason's marks that were found on several blocks in the tomb, Hutchinson relied on Evans's general observation that such marks were more deeply incised in the Old than in the New Palace period at Knossos,¹⁶ which led him to propose that blocks of both periods had been used in the construction of the tomb. However, the reliability of this stylistic dating technique has not yet been demonstrated.¹⁷ Moreover, while Hutchinson suggested that the block with the 'Protopalatial' mark was reused from another structure, he did not consider the possibility that the 'Neopalatial' examples could equally have been reused in a Final Palatial construction of the tomb.¹⁸ Regarding the inscription of two syllabic signs on one of the blocks at the chamber entrance, Hutchinson admits that this is unhelpful as a dating tool, as it could be either Linear A or Linear B, and also because it may have been inscribed subsequent to the tomb's actual construction date.

The most complex set of arguments to disentangle involves Hutchinson's consideration of the ceramic evidence. To begin with the MM III sherds recovered from the tomb, Hutchinson presented three reasons for believing that this material was not intrusive. One is its relative abundance in comparison with, for example, the rarer MM I and II sherds, which Hutchinson did consider intrusive. The second is the proposed lack of a plausible external origin for such a number ('eighty-odd') of MM III sherds.¹⁹ The third is that the majority of the MM III sherds were found in the lower levels of the tomb chamber. This location, below the collapsed blocks of the tholos vault, is seen to be significant, especially a deposit in one of the pits in the chamber floor.²⁰ However, these arguments are somewhat unsatisfactory for several reasons. The statement that 'the nearest deposit of MM III material thick enough to account for 80 sherds is a structure about 50 m east of the tomb' is later contradicted by the observation that a trial trench in a modern house 'lying a few metres south of the tholos ... provided a mass of MM III sherds', while other trenches opened between the tomb and house produced 'abundant MM III pottery'.²¹ Moreover, the 'intrusive' MM I and II sherds are stated to derive from the lower levels of the chambers, just as with the MM III material. These inconsistencies are then further compounded by the discrepancy between Hutchinson's contention that the MM III material from the tomb is not intrusive and his ultimate conclusion that the tomb should be dated to early LM I A, a contradiction that was not recognized or resolved within the report.

Arguments presented against a LM I B date for the tomb's construction (in reaction to Wace) are equally problematic methodologically. Hutchinson argued that if the construction had taken place in LM I B, at least one or two LM I B sherds would have been recovered from the tests behind the tomb walls, and this fill would also have produced more than the handful of LM I A pieces that were found. However, these arguments rely on the

¹⁵ See L. Preston, 'Mortuary practices and the negotiation of social identities at LM II Knossos', *BSA* 94 (1999), 131–43, at 135 n. 23.

¹⁶ A. Evans, *The Prehistoric Tombs of Knossos*, ii: *The Royal Tomb of Isopata* (London, 1906), 136–72, at 166; also *PM* iii. 244.

¹⁷ Although Hood does not challenge this hypothesis; see S. Hood, 'Mason's marks in the palaces', in R. Hägg and N. Marinatos (eds), *Function of the Minoan Palaces* (Stockholm, 1987), 205–12, at 205.

¹⁸ As also observed by Pelon 1976, 421.

¹⁹ *KT*, 78.

²⁰ *KT*, 77. This deposit of 25 sherds seems to have occurred in grave delta; this is described later in the report (*KT*, 79) as having produced 23 MM III sherds, but a letter from Hutchinson to Wace (19 Mar. 1939, at p. 8) cites the grave as containing 25 MM sherds.

²¹ As also noted by Pelon 1976, 422, and F. Schachermeyr ('Forschungsbericht zur Ägäischen Frühzeit 1957–1960', *AA* 1962, 105–382, at 144).

assumption that there was continuous activity in the immediate vicinity right up to the date of the tomb's construction; in fact, this may not have been the case, and so the material found in the fill behind the tomb walls can at best provide nothing more refined than a *terminus post quem* for dating.²²

SIGNIFICANCE OF THE DEBATE

It is also important to highlight *why* the dating of this tomb has been, and continues to be, seen as such an important issue to resolve. Why did Hutchinson dedicate roughly half of his publication of the tomb to addressing this specific issue? It has been felt since the time of the excavation of this tomb that its dating has broader implications. By the year of its discovery, 1938, Evans's long-held view of Minoan cultural, and even political,²³ dominance over the Middle to Late Bronze Age centres on the Greek mainland had faced dissenting voices for a number of years, particularly from Wace and Blegen.²⁴ Interestingly, the following year saw a climax in this confrontation, with Wace's return to the excavations at Mycenae and his joint publication with Blegen of an article asserting the political independence, cultural distinctiveness and overseas trade initiatives of the LBA mainland.²⁵ The potential significance of the Kephala Tholos within this debate was recognized immediately upon its discovery. At that time, the mainland tholoi were best represented at Mycenae, and the oldest of them had been dated by Wace to the very end of LH I (that is, the end of LM I A) at the earliest.²⁶ If an earlier date than this could be ascribed to the Kephala Tholos, it could be construed as the 'missing link' in chronological terms between the EM and MM round tombs of Crete and the mainland tholoi, and thus be used to support Evans's arguments for a Minoan, rather than Mycenaean, ancestry for this tomb type,²⁷ despite the greater number of examples known from the mainland. Fully recognizing these implications, Hutchinson wrote to G. Young on the second day of the excavation that such a date would make this 'the first circular tholos in Crete between the EM group and the late LM III tholoi. Evans, who has always maintained the priority of Cretan tholoi, will be very pleased, but Wace will consider it an act of base treachery on the part of his old pupils (Miss Fisher is also one)'.²⁸

Evans's vision of Cretan cultural and political supremacy in the Late Bronze Age Aegean has been considerably modified by subsequent scholarship; indeed, for the Final Palatial and Postpalatial periods, the tide of opinion has actually reversed, with a recognition of independent mainland polities that increasingly usurped Cretan cultural influences and trade networks. Disagreement still exists, however, over the best way to interpret the political and cultural relationship between Knossos and the mainland in these periods, and the Tholos has been deployed in this debate to contradictory ends. First, there is the hypothesis that Knossos came under the control of a mainland-derived elite in LM II, a

²² See also Pelon 1976, 422 and S. Hood, 'Tholos tombs of the Aegean', *Antiquity*, 34 (1960), 166–76, at 169 n. 13.

²³ See, for example, *PMii.* 287, and *PMiv.* 283 and 887.

²⁴ J. L. Fitton, *The Discovery of the Bronze Age* (London, 2001), 154–5.

²⁵ A. J. B. Wace and C. Blegen, 'Pottery as evidence for trade and colonisation in the Aegean Bronze Age', *Klio*, 32 (1939), 131–47.

²⁶ See Wace (n. 12), 292, 296 and 316 for each of the Group I tholoi.

²⁷ As set out in A. Evans, *The Shaft Graves and Bee-Hive Tombs of Mycenae and their Interrelation* (London, 1929), esp. 67–9.

²⁸ Letter to Young, 6 Dec. 1938 (BSA Archives: Knossos Correspondence 1930–39).

possibility not widely entertained at the time of the excavation,²⁹ but one which has become popular since the Linear B decipherment in the 1950s. A LM II dating for the Kephala Tholos has been seen to support this hypothesis, if this tomb type was of mainland ancestry, rather than Cretan, as many would now assert.³⁰ Niemeier, however, has proposed an alternative scenario: while accepting the hypothesis of a Mycenaean take-over of Knossos, he has placed this event in LM III A, and he accepts Hutchinson's Neopalatial date for the Kephala Tholos,³¹ arguing that the tholos was an indigenous Cretan tomb form (the latter argument also supported by Hood and, more recently, Kanta).³² Others, while noting the tomb's significance in this debate, have been reluctant to commit themselves to either a Neopalatial or LM II date.³³

ANALYSIS

I. THE TOMB

The tomb structure

The tomb comprises the dromos, the forehall with two adjoining side-niches, and the circular burial chamber with four grave pits in its floor. The dromos was walled with stone; the main chamber, forehall and side-niches were both walled and roofed with stone (apart from the rear walls of both side-niches). One dry-stone wall blocked the start of the dromos (FIG. 4); a second (of better construction) blocked the lower part of the entrance to the chamber (the upper part of the wall presumably having been removed at some point to gain access to the chamber). A large number of stone blocks which had originally formed the upper part of the chamber's corbel-vault were found within the chamber fill during the excavation. Three of the grave pits (graves alpha, gamma and delta) had carved 'shelves' around their rims for the placing of covering slabs—grave delta retained part of this covering *in situ*, though the others had been displaced (FIG. 5).³⁴

²⁹ This possibility was occasionally voiced, however, for example by C. Blegen ('The coming of the Greeks', *AJA* 32 (1928), 146–54 at 151), who suggested mainland domination of Crete after the fall of the Neopalatial palaces (at this time dated to the end of LM II), and by A. J. B. Wace (cited in J. Pendlebury, *The Archaeology of Crete: An Introduction* (London, 1939), 229).

³⁰ e.g. M. Popham, 'Late Minoan II to the end of the Bronze Age', in D. Evelyn, H. Hughes-Brock and N. Momigliano (eds), *Knossos, A Labyrinth of History: Papers Presented in Honour of Sinclair Hood* (London, 1994), 89–102, at 94. See also Popham 1964 (n. 10), 210.

³¹ As does I. Pini (*Beiträge zur minoischen Gräberkunde* (Wiesbaden, 1968), 47 and 83 no. VI); also P. Rehak and J. Younger, though dating the tomb slightly more broadly, to 'MM III–LM I' ('Review of Aegean Prehistory VII: Neopalatial, Final Palatial and Postpalatial Crete', in T. Cullen (ed.), *Aegean Prehistory: A Review* (AJA Supplement 1; United States, 2001), 383–473, at 402).

³² W.-D. Niemeier, 'The character of the Knossian palace society in the second half of the fifteenth century B.C.: Mycenaean or Minoan?', in O. Krzyszkowska and L. Nixon (eds), *Minoan Society: Proceedings of the Cambridge*

Colloquium 1981 (Bristol, 1983), 217–36, at 226; W.-D. Niemeier, *Die Palaststilkeramik von Knossos: Stil, Chronologie und historischer Kontext* (Berlin, 1985), 211–12; S. Hood (n. 22); A. Kanta, 'Tholos tombs, origins and evolution', in J. Driessen and A. Farnoux (eds), *La Crète Mycénienne* (BCH Supplement 30; Paris, 1997), 229–47. Kanta does not propose a date for the Kephala Tholos itself, appealing rather to evidence from Archanes Phourni and the Mesara. Here, an ongoing tradition of Cretan tholos-building and the reimportation of the idea from the mainland in LM III are both proposed, though it is not explored in detail how these two scenarios fit together.

³³ e.g. J. Driessen and C. Macdonald, 'Some military aspects of the Aegean in the late fifteenth and early fourteenth centuries B.C.', *BSA* 79 (1984), 49–74, at 65; J. Driessen and C. Macdonald, *The Troubled Island: Minoan Crete Before and After the Santorini Eruption* (Aegaeum 17; Belgium, 1997), 28–9.

³⁴ As noted in the preliminary report on the tomb in the BSA archives (Knossos Excavations 1920–1970: Knossos Excavation Reports 1935–49), at 2–3; also Desborough 8 for 14 Dec. 1938.

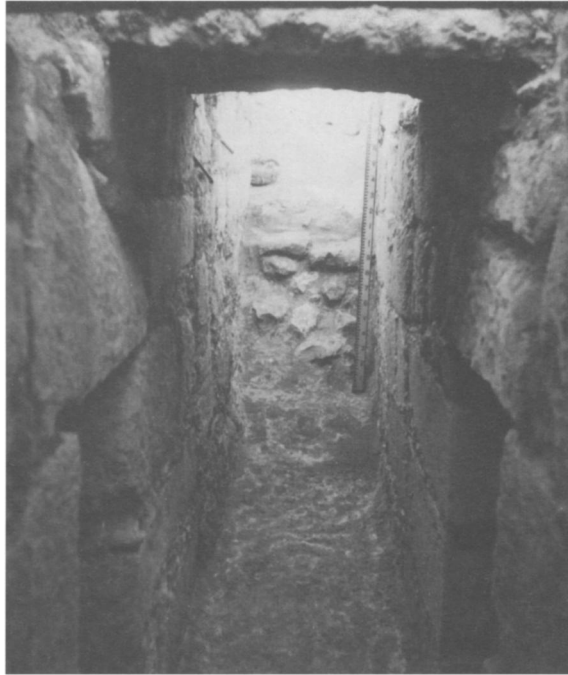


FIG. 4. View from the chamber of the blocking wall of the dromos (courtesy of Dr E. French).

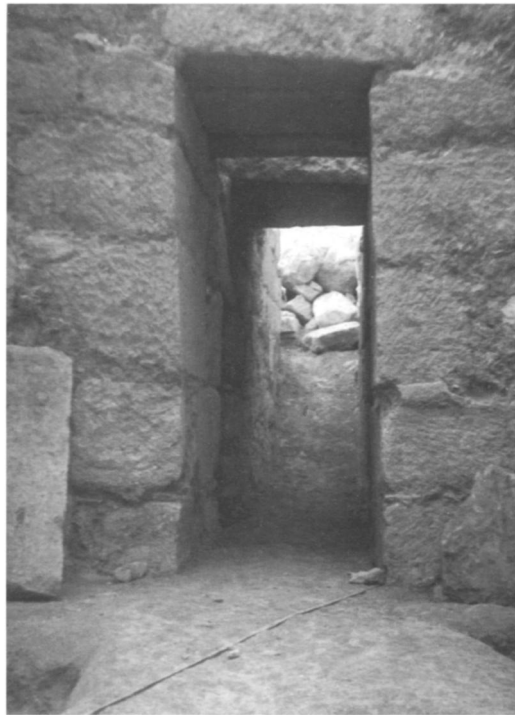


FIG. 5. View of the excavated chamber, showing a covering slab from a grave pit, found displaced near the chamber floor, with grave gamma in the foreground (courtesy of Dr E. French).

The size of the tomb, the use of ashlar masonry (including gypsum), the mason's marks and the inscription, suggest that the structure was intended to advertise high status on the part of its occupant(s). As Hutchinson noted, there are several parallel architectural features in the Isopata Royal Tomb, and we should also compare Isopata tomb 1, the only other large-scale corbel-vaulted tomb at Knossos, and again of LM II date.³⁵ Both Isopata tombs were built of ashlar masonry with mason's marks (though apparently not using gypsum), with the construction technique of inserting small stones in the interstices between the larger blocks, as at Kephala. Both had forehalls, the Royal Tomb's with two side-niches, again as at Kephala. The Kephala Tholos was not as impressive a construction as the Royal Tomb in terms of its size or the quality of its masonry, being more comparable in that respect with Isopata tomb 1. Kephala is only half as large as the Royal Tomb (TABLE 1), and while the latter structure is no longer extant, Evans's description and the surviving photographs show much finer carving of its blocks than is the case for most of Kephala's masonry (FIG. 6). Hutchinson himself observed for Kephala that 'the masonry is not so good as Isopata or the very best Palace work but compares quite well with the second best Palace masonry'.³⁶ In Isopata tomb 1, Evans noted a mixture of rough facing and fine finishing on the stones, which is more akin to the situation at Kephala.³⁷ It is notable, though, that the Kephala tomb seems to make more use of irregular blocks, and of stones in the interstices between blocks, than was the case at either of the Isopata tombs; also, the plaster infilling into which these smaller stones were inserted in both of the Isopata structures is not present at Kephala.³⁸

TABLE 1. Comparative dimensions of the Kephala Tholos, Isopata Royal Tomb and Isopata tomb 1.

Findspot	Kephala Tholos	Isopata Royal Tomb	Isopata tomb 1
Main chamber (square metres)	22.9	51.4	10.4
Forehall length (m) ^a	3.8	6.75	5.49
Forehall width (m)	1	1.58	1.51
Dromos length (m) ^b	3.8	24	15
Dromos width (m)	0.9	2	1.67
Side chamber depths (m)	1.8, 1.35	1.35, 1.18	—
Side chamber widths (m)	0.6, 0.7	1.16, 1.19	—

^a This includes the stomion in the Isopata Royal Tomb and Isopata tomb 1.

^b The dromos of Isopata tomb 1 has not been fully excavated, so its original length is uncertain.

³⁵ See A. Evans 1906 (n. 16) for the Isopata Royal Tomb, and A. Evans, *The Tomb of the Double Axes and Associated Group, and Pillar Rooms and Ritual Vessels of the 'Little Palace' at Knossos* (London, 1914), 6–13 for Isopata tomb 1.

³⁶ From a letter to Wace (19 Mar. 1939, at p. 1). It is also worth noting, though, that Fyfe observed that in the Isopata Royal Tomb, 'the face of the stonework is not finely dressed or rubbed as is the finest Palace work at Knossos. Here tool marks are everywhere visible' (in

Evans 1906 (n. 16), at 164).

³⁷ Isopata tomb 1 is no longer visible, but see Evans 1914 (n. 35), 8 fig. 12.

³⁸ In fact, there were probably more smaller stones in the interstices between the blocks in the Kephala Tholos at the time of its excavation than are preserved today: a number of these, with the soil packing in which they were embedded, have probably been washed away over the past six decades of exposure to the elements.

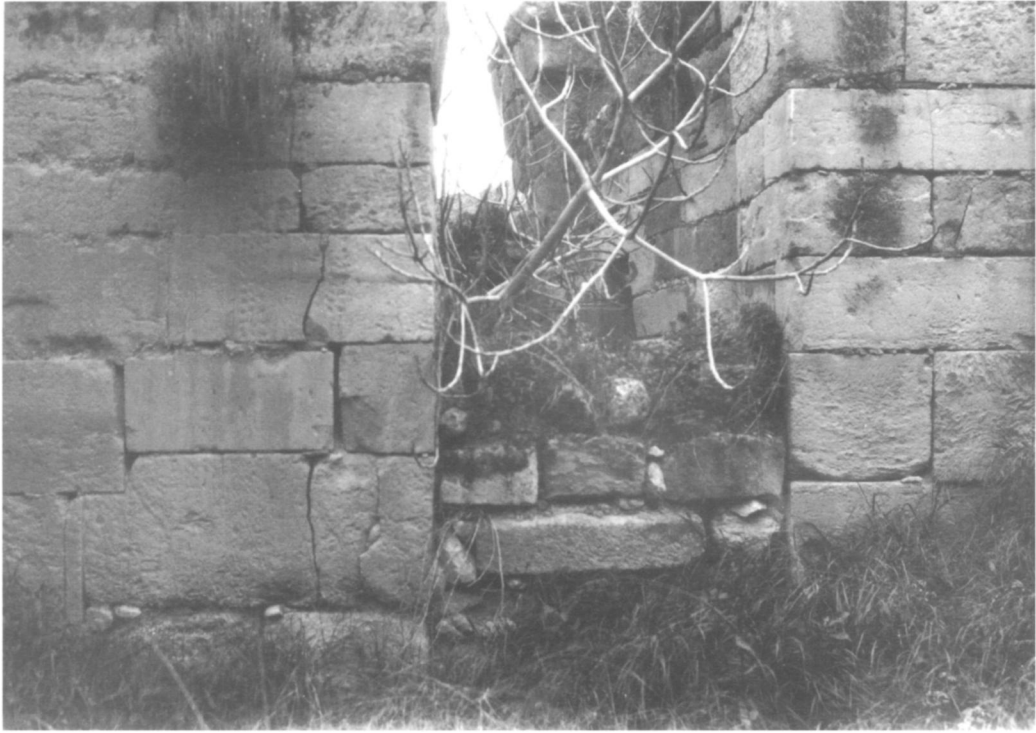


FIG. 6. View of Isopata Royal Tomb, chamber entrance.

The Kephala tomb also differs architecturally in the use of stone walling to line its dromos. Hutchinson held that these walls were actually a later addition to the tomb structure, for several reasons:

I think the tomb originally had a dromos cut in the kouskouras and that the walling was added later because (i) the dromos walls do not bind with those of the fore-hall (ii) the fore-hall has a nice cut lintel which would not show if the dromos were roofed or filled in (iii) Unless the dromos was roofed or filled in its blocking wall would be useless (iv) The dromos has 10 pieces of gypsum in it whereas the fore-hall and tholos have not a single fragment.³⁹

However, both the masonry and the construction techniques in the dromos walls are very similar to those of the forehall, and there is no apparent reason why these two sections of the tomb should necessarily have been bound together, as opposed to abutting, if they were built simultaneously. The question of whether the dromos was lined with stone walls from the outset does not necessarily impinge on the issue of when it was infilled.⁴⁰ Equally,

³⁹ From a letter to Wace (7 Jan. 1939, at p. 3). See also *KT*, 75–6.

⁴⁰ The presence of a blocking wall at the start of the dromos is paralleled in several mainland tholoi, e.g. the Kato Phournos, Lion Tomb, Treasury of Atreus, Clytemnestra, and Tomb of the Genii tholoi at Mycenae,

and the Argive Heraion (Wace 1923 (n. 12), 283–402). It is unclear, however, whether their dromoi and façades were blocked from view immediately after the first burials, or following a period when their architectural grandeur was open to view.

a concern for display in the forehall architecture does not preclude its having been blocked from view immediately after the original burial(s) took place. Indeed, the concentration of gypsum blocks in the dromos⁴¹ could be explained as the result of a strategic decision on the part of the tomb's builders for purposes of display here too, as this was a stone type with high status associations. Both the dromos and forehall provided an advantageous locus for display to viewers, whether short-term (if the blocking wall was constructed soon after the tomb itself) or long-term (if it was added much later).⁴²

The excavators thought that at least certain parts of the tomb were constructed from reused blocks from an older structure.⁴³ For example, Fisher observed a similarity between the seven trapezoidal blocks used to cover the forehall, and corner stones in structures in and near the palace, which might indicate that these tomb blocks were reused from a settlement context.⁴⁴ Such reuse has more recently been suggested for the structure in its entirety by Hood,⁴⁵ and this does indeed seem very likely. There are toolmarks on the faces of many of the larger stones in the main chamber that would be consistent with a (perhaps hurried) reworking of vertically-faced blocks taken from a settlement structure, to produce the necessary curved surface for the inner facing of the corbelled vault (FIG. 7). This contrasts with the generally much finer facing of the forehall and dromos blocks, which did not require reworking to their existing vertical faces (FIG. 8). If this interpretation is correct, however, it should also be added that choicer blocks (that is, with more finely carved faces, straight edges and squared corners) may have been deliberately selected for the building of the forehall and dromos anyway, for the same display purposes advanced above to explain the presence of gypsum in the dromos.

Ceramic vessels

The tomb levels according to which the retained ceramic material has been organized are shown in FIG. 9 (see also Appendix 1). In terms of stratigraphy, the published report presents a picture of heavily mixed material, with ceramics of different periods found mixed at various depths in the tomb's fill. This is borne out by analysis of the retained material, especially the fact that there are several examples of sherds from the same vessels

⁴¹ Although at least one further piece of gypsum was possibly also built into the wall of the main chamber, as noted in a letter from Fisher to Wace, dated 7 Apr. 1939, and sketches in Fisher 66, for 12 May 1939 and Desborough 8, for 5 Dec. 1938. The gypsum piece visible today above the lintel of the south side-niche in the forehall (see FIG. 1) may have been moved to its current position during the conservation and consolidation of the tomb at some point since the excavation.

⁴² It is worth noting that a similar explanation may also account for the comparative monumentality of the dromos (and forehall) of Isopata tomb 1: this is out of proportion with the small size of the burial chamber itself, if compared with the dimensions of the Isopata Royal Tomb, and this area may have been deliberately elaborated in order to impress a more extensive audience than might have been admitted to the interior of the tomb.

⁴³ Hutchinson remarked in the official publication that the dromos walling was from an earlier building (*KT*, 76) and in an unpublished report on the tomb that the forehall material was also in secondary use (BSA archives: Knossos Excavations 1920–70: Knossos Excavation Reports 1935–49, at 1–2). A brief summary of the excavation at the back of Desborough 20, suggests that 'many, if not all' of the blocks used to construct the dromos and forehall are reused.

⁴⁴ Letter to Wace (7 Apr. 1939). The chamber elevation in FIG. 1 shows the block which forms the lintel stone at the chamber entrance, and *KT*, pl. 10 *a* shows the exposed blocks of the forehall roof behind it. Fisher cites possible parallels from the palace's vicinity in *PM* ii. 520 fig. 321 and 553 fig. 350.

⁴⁵ S. Hood, 'Cretans in Laconia?', in J. M. Sandars (ed.), *Philolakon: Lakonian Studies in Honour of Hector Catling* (London, 1992), 135–9, at 137.

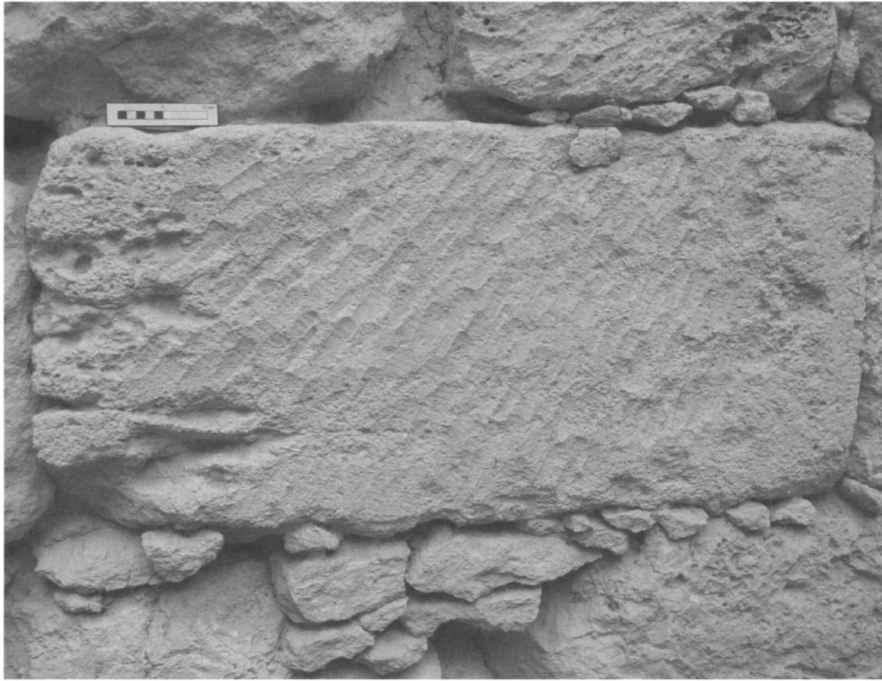


FIG. 7. Working of the face of a block in the chamber wall.



FIG. 8. Comparison of working on the chamber face (to the left) and forehall face (to the right) of the inscribed block.

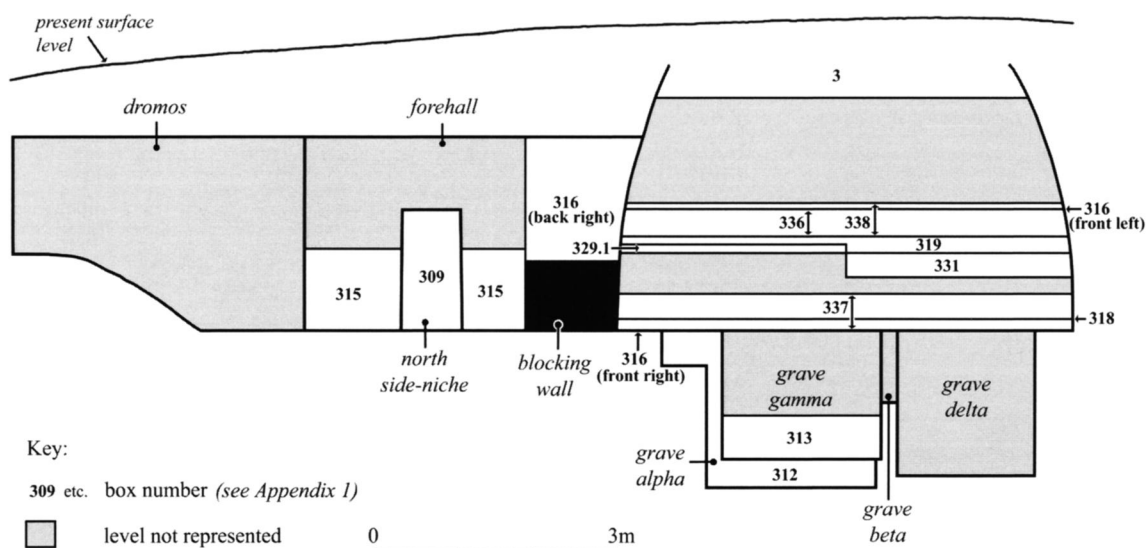


FIG. 9. Levels within the tomb from which ceramic material has been retained.

that appear to have been found at different levels within the chamber (all LM II–III in date).⁴⁶

Roughly 2260 sherds from the interior of the tomb have been retained. This body of material clearly does not represent all the ceramic evidence the tomb produced, though the excavation notebooks do not indicate the quantity or nature of the material discarded. Little ceramic material is retained from the uppermost level of the chamber fill (down to a depth of *c.* 1.7 m): the excavation notebooks mention sherd material in this level, but only one box of sherds from the ‘surface east of the hole in the roof of the forehall’ (Box 3) and a few almost complete vessels (**P77**, **P98** and perhaps **P66**, **P70** and **P99**) have been retained.⁴⁷ More generally, there is a disproportionately high ratio of diagnostic sherds (decorated body sherds, or handles, rims or bases) in the surviving corpus of ceramics from the tomb. The fact that medium and coarse wares are well represented (accounting for roughly 49% of the total number of sherds) is encouraging, as it suggests that selection was not simply in favour of fine wares. However, the relative proportions of ceramics of different periods, shapes, and wares within the surviving corpus must be considered with some caution.

⁴⁶ These are: joining fragments from a LM II–III kylix in Boxes 331 and 336 (uncatalogued); joining fragments of a LM II–III kylix in Boxes 319 and 312 (uncatalogued); non-joining sherds from a LM III A jar in Boxes 336 and 337 (**P44**); the lower part of a LM III C closed vessel in Boxes 312 and 318 (**P74**); and sherds

from a LM II Palace Style Jar in Boxes 313, 318 and 337 (**P27**; see also below, n. 54).

⁴⁷ The depth below the surface to which the material from Box 3 extends is unclear, and has only been estimated in FIG. 3.

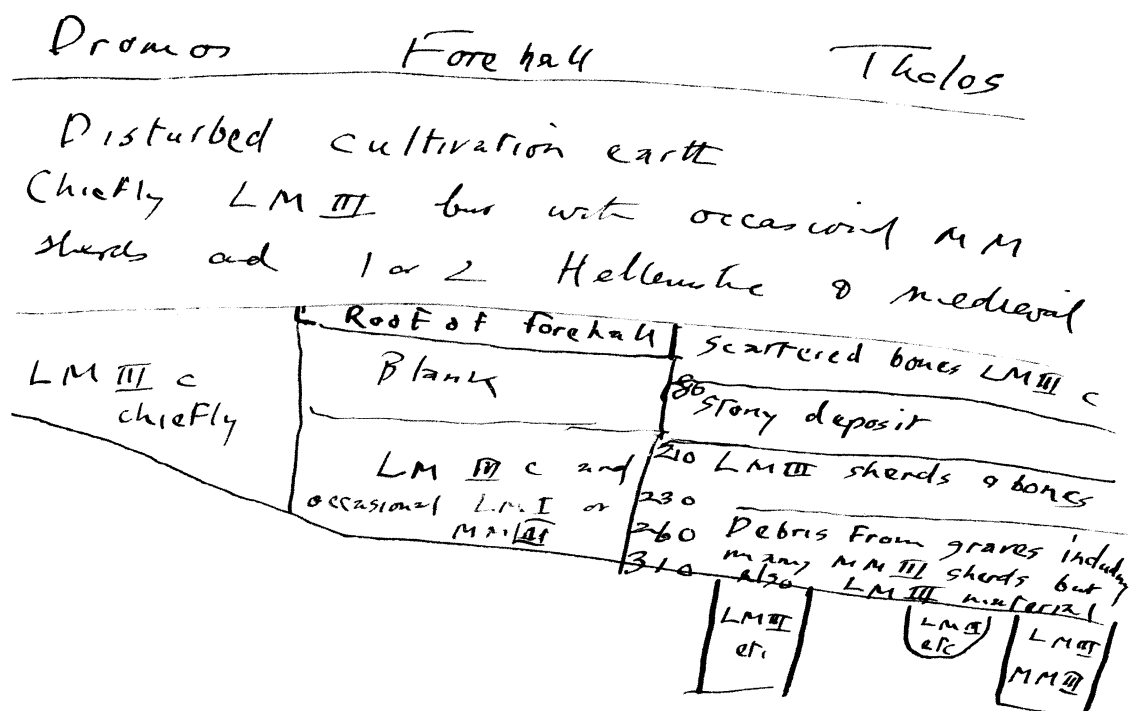


FIG. 10. Preliminary sketch of the tomb levels by Hutchinson (from a letter to Wace of 19 Mar. 1939, at p. 4) (courtesy of Dr E. French).

Despite the high proportion of diagnostic material retained, much of it is still difficult to date, as the sherds are generally small and very abraded. An intrusive Neolithic sherd from the north side-niche of the forehall is the earliest identifiable piece, and there is only slightly more Prepalatial and Protopalatial evidence. There is no mention of EM, MM I or MM II material in any of the excavation notebooks, though the report mentions 'a few MM I and MM II sherds ... found in the deeper strata of the tholos' and a sherd from 'a MM I A cup' in Grave Delta.⁴⁸ Among the retained material is the aforementioned cup (**P₃**—here redated to MM II B or III A), and sherds of a EM III/MM I A tumbler (**P₁**) and MM I bridge-spouted jar (**P₂**), both found in the lower fill of the forehall (see FIG. 13).⁴⁹

By far the majority of the datable sherds from the tomb are Neopalatial. Their distribution across the different areas and levels of the tomb seems to have been fairly ubiquitous, since they are present in all the levels represented by the museum boxes; however, an early (and preliminary) sketch by Hutchinson of the ceramics from the different tomb levels suggests that the Neopalatial material occurred more densely in the main chamber

⁴⁸ *KT*, 77, 79. In a letter to Wace (19 Mar. 1939, at p. 5), Hutchinson says that among the datable tomb pottery, there are 'perhaps a dozen sherds' of MM I or II.

⁴⁹ A MM I B/II rim sherd in Box 317, with light-on-dark decoration, was also noted, possibly from a bridge-

spouted jar. However, its provenance is unclear, as this box's contents seem to include mixed material both from the 1938 tomb excavation and the 1939 tests around the tomb (see Appendix 1).

than in the forehall or dromos (FIG. 10). Very few complete profiles are present, and no joins between sherds were noted. A number of the most finely decorated Neopalatial sherds—mainly LM I A—derive from the main chamber, though it is not clear from which specific levels.⁵⁰ Among the fine and medium-coarse wares, the open shapes are mainly cups (predominantly conical, followed by straight-sided and rounded) and bowls (FIG. 14). In terms of chronological range *within* the Neopalatial period, LM I A is most prominent, especially in the finest wares, though MM III is certainly present; no definite example of LM I B was noted, however. Much of the abundant coarse ware from the tomb may also be Neopalatial, as observed by Hutchinson,⁵¹ though very few complete profiles could be reconstructed and we have a much poorer understanding of coarse-ware stylistic changes for MM–LM Knossos than we have for fine wares. The main recognizable shapes are cooking wares (tripod cooking pots and basins), jugs and pithoi (FIG. 15).

LM II–III material was also distributed widely across the tomb (FIG. 11 *a*), but in far smaller quantities than the Neopalatial ceramics. The LM II material mainly comprises over thirty fragments from Palace Style Jars, which appear to represent up to seven different vessels (P22–7, P36; FIGS. 16–18).⁵² The findspots of the majority of these sherds are uncertain,⁵³ but on the basis of information from correspondence and the published report, it appears that some were found concentrated in the lower levels of the chamber, while a few derive from the blocking wall at the chamber entrance, from the north side-niche and even from above one of the capstones of the forehall (FIG. 11 *b*).⁵⁴ At least two goblets (P19–20) are also attributed to LM II, and the handle of a cup or bowl (P21), and several other sherds may also belong to vessels of this date (P28–36) (see FIGS. 16 and 18).

LM III A and LM III C are also definitely attested among the ceramics; there may also have been activities in the tomb in later LM III B, though this phase is far less conspicuous. The datable material comprises mainly fine ware sherds, mostly from open shapes. The earlier, LM III A, repertoire includes champagne cups, kylikes and jugs or jars (FIGS. 18 and 19). In LM III C, the kylix seems to be superseded by cups, bowls, and deep bowls (FIGS. 20, 21, and 23), though a number of undatable kylix stems look rather late (FIG. 22). The few closed shapes include stirrup jars, and coarseware tripod cooking pots are also represented. The comparatively good state of preservation of some of the LM III C vessels is notable: the remains from at least some of the activities at the tomb in this phase survived any subsequent disturbances better than did the earlier ceramic material.⁵⁵

⁵⁰ These sherds were stored separately in Box 333, and no record is given of their original findspots. All the sherds pictured in *KT*, pl. 11 *a–c* are stored in this box.

⁵¹ *KT*, 77.

⁵² Hutchinson, in a letter to Wace (19 Mar. 1939, at p. 5), refers to roughly 54 sherds of 'Palace amphorae' retrieved from the tomb. However, Hutchinson assigns them a date-range from LM I A to LM II.

⁵³ These were also stored separately in Box 333 (cf. n. 50).

⁵⁴ See *KT*, 78. Vessel P27 had a particularly wide distribution: as well as sherds from grave gamma and 2.8–3.25 m depth in the chamber, two further sherds (now in Box 333) shown in a photograph sent by Fisher to Wace (letter of 23 Feb. 1939) are labelled as 'LM II sherd from blocking wall of tholos'. The accompanying notes say that the small sherd on the right 'came from above the capstone before we got into the tholos at all!'. These seem to be the

same sherds referred to by Hutchinson in a letter to Wace (19 Mar. 1939, at p. 3) as coming from a hole at the top of the otherwise undisturbed blocking wall at the chamber entrance. Hutchinson also notes that one of these sherds joins with two sherds from the north side-niche. In short, then, this vessel appears to have had fragments scattered in the lower levels of the chamber, the entrance and the north side-niche.

⁵⁵ See especially the LM III C vessels catalogued by Cadogan: P61, P64, P66–8, P70–1, P76–8, and possibly P81–2. Apart from the imported Anatolian jug (P35), the only earlier vessels from the tomb that were retrieved complete or almost complete were conical cups (both Neopalatial and LM II–III); this vessel type does generally stand a better chance of complete preservation than do many others because of its small size and sturdiness.

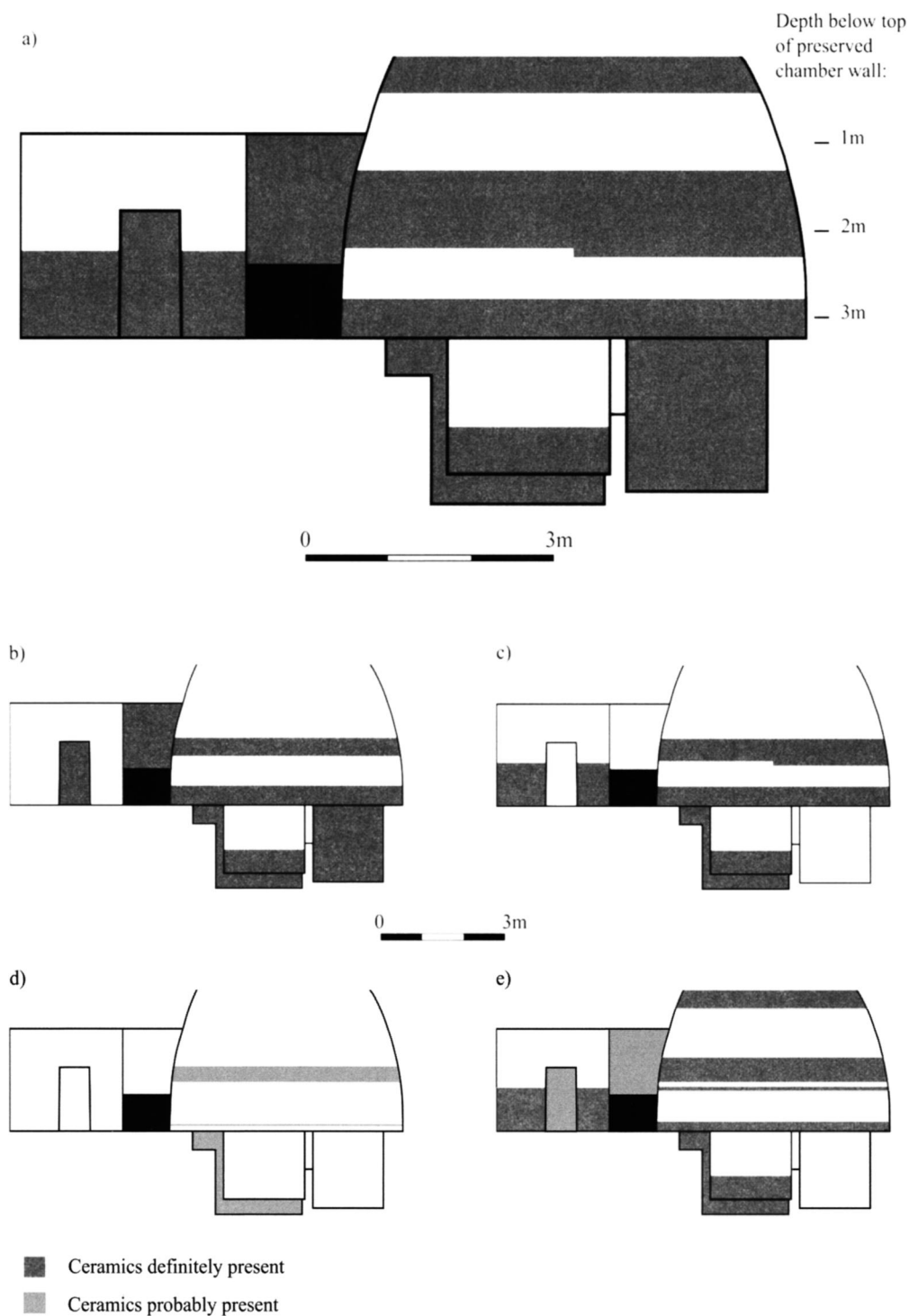


FIG. 11. Distributions of LM II-III ceramic material in the tomb (a) LM II-III generally; (b) LM II; (c) LM III A; (d) LM III B; (e) LM III C.

In terms of spatial distributions within the tomb, the LM III A material derived from various levels in the lower part of the main chamber⁵⁶ as well as from the chamber entrance and north side-niche (FIG. 11 *c*). The known LM III C material also derives from various levels in the chamber fill,⁵⁷ the forehall and possibly the north side-niche and chamber entrance (FIG. 11 *e*). Two actual LM III C burial deposits have been proposed: at a depth of *c.* 2.1 m in the chamber (the so-called 'fifth bone deposit'; see below) and in the forehall. According to the published report, the former comprised four skulls associated with two deep bowls, two stirrup-jars, and an aryballos (corresponding with **P66-7**, **70-1** and possibly **P76**).⁵⁸ The excavation notebooks do not mention such a clear burial horizon, and the association of only one of these vessels (**P71**) with bones is noted.⁵⁹ The forehall's 'disturbed' burial was associated with an amphoriskos (**P82**), probably of LM III C date.⁶⁰ Desborough in fact commented that the majority of sherds from the forehall at about the level of the burial were 'perhaps III B', material which might now be dated to LM III B/C or LM III C.⁶¹ This also conforms with Hutchinson's preliminary sketch of the tomb's stratigraphy (FIG. 10), which characterizes the dromos and much of the forehall material as LM III C.

In the same sketch, LM III C material is also seen to characterize the uppermost levels of the chamber itself. Early Iron Age material (from Subminoan to Early Orientalizing) also derived from these levels and the forehall, as indicated by the retained material, the excavation notebooks and the published report (see FIGS. 12, 23, and 24). Hutchinson stated that the first Protogeometric sherd was found 30 cm below surface level,⁶² and Desborough's notebook records '1 or 2 PG or Geo sherds' in association with human remains in the uppermost levels of the main chamber (at the level of the forehall's lintel stone).⁶³ Fisher noted a possible Geometric sherd between 1.3 and 1.75 m depth in the chamber.⁶⁴ As noted above, little material from the uppermost levels of the chamber has

⁵⁶ Apart from the Stratigraphical Museum material, the publication cites sherds of this date from just above the chamber floor and in grave delta (*KT*, 78-9).

⁵⁷ The material in the Stratigraphical Museum and that studied by Cadogan derive from various levels in the chamber (at depths of 1.1 m, *c.* 1.3 m-2.1 m, 2.2-2.6 m and 2.8-3.25 m, as well as graves alpha and gamma). The excavation and ceramic notebooks are in broad agreement with this: Hutchinson's notebook mentions three LM III C kylix stems at *c.* 2.1 m depth, three small sherds in grave gamma and two joining fragments of a deep bowl at 1.75-2.1 m depth.

⁵⁸ *KT*, 78; Cadogan 1967, 257; V. R. Desborough, *The Last Mycenaeans and their Successors: an Archaeological Survey c.1200-c.1000 BC* (Oxford, 1964), 179.

⁵⁹ Fisher and Desborough noted a stirrup vase associated with bones in the NE or NW part of the chamber at about this depth (Fisher 66, sketch for 10 Dec. 1939); this is presumably **P71**. However, neither of these excavators referred to bowls, a second stirrup jar, or an aryballos at this depth. The association of **P70** with this level is also questionable on the basis of surviving records, which state that it could derive from one of two different locations within the chamber: either below the '3rd bone deposit' (significantly above *c.* 2.1 m depth) or near grave gamma (presumably near floor level). Also, as Cadogan observes (1967, 257), **P76**, if it is the same vessel as

Hutchinson's 'aryballos', was found much lower than this level (at 3 m depth).

⁶⁰ The official report does not mention this burial deposit at all. Desborough and Fisher both noted a small amphora here, Desborough associating it with a burial (Desborough 8, and Fisher 67, for 8 Dec. 1938). An excavation report in BSA archives (Knossos Excavation Reports 1935-39, at p. 2) states that 'Under the lintel at the west entrance to the fore-hall ... we found the remains of a rather disturbed burial associated with a squat stirrup-jar and a miniature amphora, both sub-Minoan in style'. The 'stirrup-jar' probably refers to **P81**, a jug found in the north side-niche on 7 Dec. 1938, though not explicitly associated with human remains by either Desborough or Fisher.

⁶¹ Desborough 8, for 8 Dec. 1938. Similarly, Desborough's comment that 'the greatest amount of pottery [from the tomb as a whole] belongs to the LM III B period' is probably in reference to LM III C material. Fisher writes in notes accompanying a letter to Wace (23 Feb. 1939) that 'the majority of pottery seems to be late, that is of pottery which has been mended, and we have a few stirrup jars and deep bowls, rather approaching the Karphi material, so Vincent says'.

⁶² *KT*, 74.

⁶³ Desborough 8, for 5 Dec. 1938.

⁶⁴ Fisher 67, for 10 Dec. 1938.

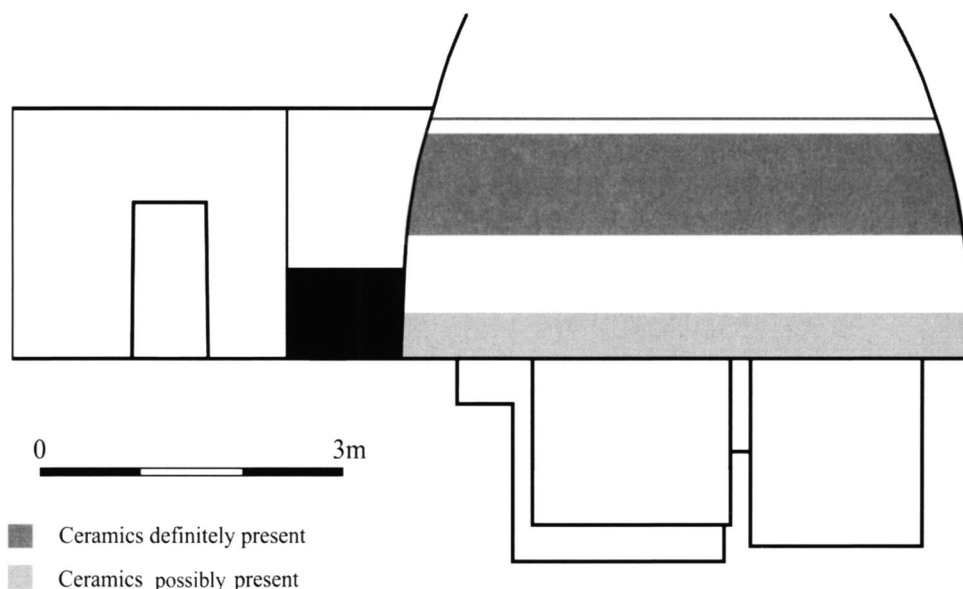


FIG. 12. Distribution of Early Iron Age material in the tomb.

been retained, but what is preserved includes at least one Subminoan vessel (**P98-9**). **P98** may correspond with a stirrup-jar associated with a pithos burial at about 1m depth in the chamber.⁶⁵ Also noteworthy among the Early Iron Age material is a Middle or Late Protogeometric krater (**P100**), whose upper profile has been reconstructed from joining sherds.

Very little ceramic evidence later than the Early Iron Age was recovered. Hutchinson noted Hellenistic and mediaeval sherds;⁶⁶ the retained material produced a glazed sherd from the chamber at 1.75–2.1 m depth, a Roman bowl fragment at 2.1–2.3 m depth, six glazed sherds, and part of a Roman lamp from the north side-niche, and one or two Roman sherds and a Hellenistic fragment from the surface level.

Other artefacts

Other artefacts, of clay, stone, metal, and glass, were found at all levels of the main chamber fill, as well as in the grave pits and in the forehall. These ‘small finds’ are not analysed in detail here, but a catalogue is presented in Appendix 3 on the basis of the excavators’ notes.⁶⁷ The 1956 catalogue included only a selection of these objects (unfortunately, without stating findspots, so that it is not possible in most cases to correlate these individual pieces with those in Appendix 3).⁶⁸ It would be hazardous to attempt to date most of

⁶⁵ Ibid., in a sketch of the chamber for 8 Dec. 1938.

⁶⁶ *KT*, 77.

⁶⁷ Unfortunately, it has not been possible to study this material, now housed in Heraklion Museum.

⁶⁸ The only exceptions are: **SF22** (ivory inlay): no. 17

in *KT*; **SF23** (stone mould): no. 19 in *KT*; **SF25** (sealstone): no. 18 in *KT*; **SF28** (nautilus-shaped faience bead): no. 31 in *KT*; **SF33** (gold ring): no. 2 in *KT*; **SF35** (curved bronze blade): no. 6 in *KT*; **SF37** (gold rosette): no. 3 in *KT*; and **SF52** (gold rosette): no. 4 in *KT*.

these items, given the mixing of material and the lack of clear associations with specific burials; however, it is notable that the more valuable materials (particularly gold and faience) cluster in the lower levels of the chamber, and the objects to which these pieces belonged may therefore have been associated with the earliest burials in the tomb.

Faunal remains

Ox, stag, and ovicaprid remains were recorded by the excavators in various levels of the main chamber.⁶⁹ The ox remains—a possible tooth noted by Desborough and a ‘bone and jawbone’ and possible teeth noted by Fisher—were at c. 1.5 m depth in the south-east area of the main chamber, near the wall, but these have not been retained.⁷⁰ Nor have the remains of a fallow deer, comprising bones and one almost complete antler found at 3–3.1 m depth in the chamber, in the area between graves gamma and delta.⁷¹ The retained material includes a possible ovicaprid tooth from the north side-niche (Box 309), and a horse maxilla from the main chamber (Box 339).⁷²

Human remains

Human remains were noted in various parts of the tomb, including the chamber, chamber entrance (above the blocking wall), and forehall. Despite the evidence for disturbance of the tomb fill (probably on more than one occasion), Hutchinson proposes several burial horizons, all subsequent to the dispersal of the original burials. Six ‘bone deposits’ are identified in the chamber.⁷³ Three of these, at a depth of 0.7–1 m, are assigned to late ossuary use, and a fourth, between 1 m and 1.7 m in depth, consists of two adult skulls. The fifth consists of four skulls at c. 2.1 m. The sixth, just above the chamber floor, ‘hardly counts as a bone deposit at all’. Unfortunately, none of the proposed deposits actually involves intact inhumations, but a possible LM III C date was highlighted above for some of the remains in the ‘fifth deposit’ and for the forehall ‘burial’ (unfortunately, the latter appears not to have been retained). A detailed osteological report on the retained human remains is presented by Dr R. Gowland in Appendix 4.

II. TESTS AROUND THE TOMB

Tests were carried out immediately around the tomb in both the 1938 and 1939 seasons, in order to try to clarify the date of its construction. Excavations took place above and behind both side-niches, those behind tunnelling around to meet the back of the blocks in the main chamber wall. The published report also refers to three trenches dug to the west of the dromos to look for material thrown out from the tomb,⁷⁴ but their precise location

⁶⁹ Hutchinson notes in a report in the BSA archives (Knossos Excavation Reports 1920–1970: Knossos Excavation Reports 1935–49, at p. 3), ‘Besides the antler we also found bones of sheep and oxen and a number of olive kernels, but the animal remains were so scattered that it is difficult to say whether they had been offerings to the dead or intended for some other purpose’.

⁷⁰ Desborough 8, and Fisher 67, for 10 Dec. 1938.

⁷¹ Desborough’s excavation notes indicate that he photographed the stag bones, though it has not been possible so far to trace this photograph. The antler is

sketched by both Desborough (8, for 14 Dec. 1938) and Fisher (67, for same date).

⁷² I am grateful to Dr P. Halstead for identifying these remains. Dr R. Gowland noted further faunal remains mingled with the retained human remains from the tomb: an animal tooth in one of the bags marked ‘Tholos 2.10–2.30’, and eight animal cranium fragments and animal long bone shaft fragments (very weathered) in the bag marked ‘?THOLOS? 1938/3? 2 Crania’.

⁷³ *KT*, 78.

⁷⁴ *KT*, 79.

is unknown and they are not mentioned in the excavation notebooks. The report notes that only one of them yielded material—a few Middle Minoan, Hellenistic and mediaeval sherds (none of which appears to have been kept)—and bedrock was reached by 1m depth.

Ceramic vessels

The retained material from the trials above the south side-niche (Box 314), behind the forehall and side-niches (Box 329.3) and behind the wall of the main chamber on the south side (Box 329.2), amounts to 146 sherds. Those from above the south side-niche include fine, medium and coarse wares, and the datable material is Neopalatial (FIG. 25). The fine ware sherds were mainly from open shapes: conical cups, plus ledge-rim cups, straight-sided cups and possibly bowls. Where decorated, they had either solid monochrome or tortoiseshell ripple; no spiral motifs were present. The semi-coarse and coarseware sherds derived from a pithos, cooking pots, conical cups, and jugs. In his notebook, Hutchinson dated the material that he examined from this context (about 180 sherds) as 'mostly MM III, but including at least 4 examples of LM I sherds';⁷⁵ in the publication, he also noted two MM III B or LM I A sherds retrieved from beneath a block south of the forehall.

Hutchinson dated the material found in probing the back walls of both side-niches and one adjacent wall of the main chamber to MM III.⁷⁶ The material retained from these explorations consists of very small, highly abraded sherds that are difficult to date (FIG. 26): the only recognizable shapes are conical cups, and cup or bowl rims, but the fine ware fabrics at least seem consistent with the known Neopalatial material found within the tomb.

Other artefacts

Fisher noted a Roman glass fragment from a 'dump' on the south side of the dromos.⁷⁷ Two bronze rods have been retained from fill behind the main chamber on the south side.⁷⁸

Faunal remains

Fisher's excavation notebook mentions bones found above the south side-niche, but it is not stated whether these were human or faunal.⁷⁹ No bones, human or animal, have been retained from the tests around the tholos.

III. TRENCHES EAST OF THE TOMB

In May 1939, several test trenches were dug in and around the ruins of a modern house about 25m east of the tomb. They have since been infilled and no traces of them remain

⁷⁵ Hutchinson's notebook Cat. No. 292, at p. 9.

⁷⁶ *KT*, 79.

⁷⁷ Fisher 66, for 11 May 1939.

⁷⁸ The label records that they were found on 12 May 1939, with 'top stones, in fill at S side of Tholos'. Both rods are bent. One is c. 0.09 long and 0.07 in diameter,

with oval section. The other is about 0.18 long, and heavily corroded so that the original diameter is unascertainable, but it is narrower than the first and both its ends seem shaped.

⁷⁹ Fisher 66, for 11 May 1939.

at surface level. Nor are any photographs or detailed plans of the trenches held in the BSA archives, if they were made at all, so we are reliant upon the sketches and descriptions in the excavation notebooks. The approximate locations of the trenches are marked in FIG. 3. All but two were labelled by the excavators (A to H). Trenches C and F were eventually joined, as were E and G, and both FC and EG were then also extended to the east and/or west. A further small hole was then excavated about 3 m beyond the north-west limit of trench FC, to see whether the wall traced in the latter trench continued, and another was opened in the eastern room of the ruined modern house for the same reason.

These excavations produced the remains of a Neopalatial building. Ceramics were revealed in most of the trenches, and walls in FC (c. 0.7 m below the surface) and possibly G (c. 0.40–0.45 m below the surface).⁸⁰ The walls were described by Hutchinson as being ‘of poor masonry’,⁸¹ but in the particularly substantial wall traced in trench FC, Desborough commented that the blocks were ‘distinctly good’, with a possible corner of a door.⁸²

These Minoan remains were found fairly close to the present surface level, with no overlying later structures apart from the modern ruined building. Bedrock was reached at depths ranging from 0.5 m (in trench F) to 3.3 m (in trench A).⁸³ In trenches A and E, Desborough and Fisher both noted a distinct change in soil and pottery at a depth of about 2 m: two almost complete ‘calathoi’ were found at this level,⁸⁴ and the earth below this point in trenches A and E was described as ‘moister and softer’, and the pottery ‘much coarser’ and ‘more plentiful’.⁸⁵ Although the excavators did not speculate on the reasons for this change, it is possible that it relates to a floor level or other deposition horizon.

Ceramic vessels

About 750 sherds have been kept from these excavations, from trenches A, B, E, and FC. It is not clear how selectively the material has been retained, but as with the ceramics from within and around the tholos tomb, fine, medium-coarse, and coarse wares are all represented. The earliest material is Prepalatial and Protopalatial, from trenches A and FC: sherds from a tumbler, footed goblets, a saucer, and possibly a bridge-spouted jar (P110–15; FIG. 27). Almost all the material, however, is MM III or LM I A in date, as noted by the excavators (FIGS. 28–31). Hutchinson implied in the publication that the vast majority were MM III,⁸⁶ but the excavation notebooks do not draw such a distinction between MM III and LM I A except in the case of the lower levels of trench A, where MM III may be in the majority.⁸⁷ Among the material retained from these trenches more generally, dark-on-light spiral decoration is common, suggesting a good proportion of

⁸⁰ Desborough 8, for 16 and 15 May 1939 respectively.

⁸¹ KT, 79.

⁸² Desborough 8, for 16 May 1939. The wall is variously described as running in a westerly and north-westerly direction in the notebooks, so its positioning in FIG. 3 is approximate.

⁸³ This information from Fisher’s and Desborough’s excavation notebooks appears to contradict Hutchinson’s note that kouskouras was reached at 0.6–0.75 m depth in all trenches (KT, 79).

⁸⁴ Desborough 8, for 15 May 1939. Fisher notes an

almost whole ‘calathos’ at 2.3 m depth (Fisher 66, for 15 May 1939).

⁸⁵ Fisher 66, for 15 May 1939 and Desborough 8, for 15 and 16 May 1939. Fisher adds that in trench A, ‘stones and bones begin. No appreciable difference in colour but there is one in consistency’.

⁸⁶ KT, 79.

⁸⁷ Hutchinson’s notes record ‘almost solid MM III (and earlier)’, with ‘1 LM I A sherd’ from a depth of 2–2.9 m in Trench A (Cat. No. 292, at p. 10).

LM I A material. No definite examples of LM I B vessels are apparent. The fine ware shapes represented are mainly conical cups, as well as bowls, straight-sided cups, and rounded cups. Shapes which could be identified among the medium-coarse and coarseware vessels included oval-mouth amphorae, pithoi, jugs, and tripod cooking pots. In general, the sherds from the trenches are in much better condition than the Neopalatial material found in the tomb, and a number of full profiles are reconstructable.

Very little later pottery is mentioned in the excavation notebooks or conserved in the Stratigraphical Museum. Popham has published a LM II cup (P160) which was labelled as deriving from trench FC, though he has suggested that it was originally part of the tomb assemblage.⁸⁸ A LM III A2 champagne cup (P161) derives from trench E; Hutchinson also noted a Roman lamp from this trench.⁸⁹

Other artefacts

Several plaster fragments—plain, or with red or blue paint, and probably from wall decoration—were recovered from trench A (at depths of about 2 m, 2.7 m, and 2.9–3 m) and the east extension of trench FC (at about 1.2 m and 1.9 m).⁹⁰ Trench A also produced a fragment of black steatite at a depth of 2.5 m, described by Fisher as a ‘lion foot’ but unfortunately not included in the catalogue of small finds in the 1956 publication.⁹¹

Faunal remains

Apart from one human skull fragment with material from trench A,⁹² the conserved remains are of ovicaprids. A possible sheep radius has been retained from trench E, and bones, teeth and horn fragments of sheep were noted by Fisher in trench A below 2 m depth.⁹³

DISCUSSION

THE CONSTRUCTION OF THE TOMB

For the construction date of the Kephala Tholos, Late Minoan II is more plausible than Hutchinson’s Neopalatial date for several reasons. The LM II ceramic material retrieved from the Tholos is comparable with other mortuary assemblages of this phase at Knossos. Of the 15 LM II tombs with published assemblages, eight contained one or more Palace Style Jars;⁹⁴ the other vessel types represented at Kephala were also appropriate elements within such assemblages.⁹⁵ In contrast, the extensive amount of Neopalatial material found

⁸⁸ Popham 1977. This may be the same vessel that Hutchinson describes as a ‘LM II kylix’ from this trench: notebook Cat. No. 292, p. 8.

⁸⁹ Hutchinson’s notebook Cat. No. 292, p. 11.

⁹⁰ Desborough 8, for 13 and 19 May 1939, and Fisher 66, for 13, 15, and 16 May 1939.

⁹¹ Fisher 66, for 15 May 1939.

⁹² This may be intrusive, having been moved from one of the other three compartments in Box 316, all of which contained material from the tomb itself (see Appendix 1).

⁹³ Fisher 66, for 15 May 1939.

⁹⁴ These are: the Isopata Royal tomb (Evans 1906 (n. 16)), tombs 1 and 2 of the Isopata cemetery (Evans 1914

(n. 35), 6–15, 33–59), New Hospital Site tombs I, III, and V (S. Hood and P. de Jong, ‘Late Minoan warrior-graves from Ayios Ioannis and the New Hospital Site at Knossos’, *BSA* 47 (1952), 243–77), Katsambas tombs Delta and Epsilon (S. Alexiou, *Late Minoan Tombs at the Harbour-Town of Knossos (Katsambas)* (Athens, 1967)). Katsambas tombs Alpha and Zeta (*ibid.*) also produced such vessels, though it is not clear whether they were associated with the LM II or LM III A burials in these tombs.

⁹⁵ See L. Preston, ‘A mortuary perspective on elites in Final and Post-palatial Crete’, *AJA* 108 (2004), 332 table 2.

within the tomb structure can be plausibly explained as intrusive, deriving from the nearby Minoan building. Hutchinson was unwilling to accept this possibility;⁹⁶ however, the chronological ranges and profiles of the material from the tomb and trench contexts are very similar, with a small amount of Prepalatial–Protopalatial, a heavy emphasis on MM III and LM I A, and no definite LM I B. The vessel shapes are also very similar, although the material from the tomb was in general far more abraded—which would be consistent with its presence here being the result of secondary deposition from the neighbouring earlier structure. It is not possible to state categorically that the Neopalatial material from the tomb is ‘domestic’, as opposed to ‘mortuary’, in character on the basis of the shapes and wares alone, partly because few Neopalatial mortuary assemblages at Knossos have been documented in detail, so that a typically mortuary ceramic repertoire in the Neopalatial period is not readily apparent.⁹⁷ The evidence so far available suggests that a similar range of shapes and wares was used in both domestic and mortuary contexts, and the main difference may prove to be one of relative emphases in terms of particular forms and fabrics. But there seems no compelling reason to argue that the Neopalatial material from the tomb must be funerary in nature, as opposed to redeposited domestic material.

The question of how this material entered the tomb in such a quantity, and indeed permeated every level of the tomb’s fill, is an intriguing one. The slope of the hill is not steep enough to allow for seepage from gradual erosion of the settlement (see FIG. 3); this is reinforced by Hutchinson’s observation that the trenches excavated just to the west of the tomb produced little or no material. Since the wall detected in trench FC was not fully excavated, nor its location precisely recorded, it is unclear how close it actually runs to the Tholos structure, but at any rate the tomb does not appear to have directly intruded upon any part of the settlement building. The presence of the Neopalatial material, then, seems to be the result of deliberate displacement from the neighbouring building by human agency at some point in the past. The most plausible explanation is that it was introduced at the time of the tomb’s construction, as part of the fabric of the new structure. The bulk of the ceramics were probably within an earth matrix brought across from the settlement area to create a mound above the stone vaulting that roofed the main chamber. Such earth mounds were a common feature of tholos tombs, acting to make these largely subterranean structures more conspicuous above ground level (in line with the other elements of ostentation in architecture and assemblages). The recovery of large quantities of Neopalatial sherds from the fill inside the tomb, and particularly in the main chamber, would therefore be a natural result of the eventual collapse of the vault. Reuse of the adjacent building in the tomb’s construction was probably even more extensive than this. It was noted above that the tomb’s masonry had probably been appropriated from an older structure. At least some of these limestone, and perhaps even the gypsum, blocks may have derived from this particular nearby building. The fill, or packing, between the

⁹⁶ For example, a letter from Hutchinson to Wace (18 June 1939) states that ‘There is a building of MM III–LM I date about 50 metres South East of our tholos and it is quite conceivable that material from this may be included in the tholos but if the tholos dated from LM III it seems almost incredible that it should include a fair quantity of MM III material, a few LM I A sherds and not a sherd of

later date in the structure or the filling behind it’.

⁹⁷ Important contributions here are the publication of one of the Poros chamber tombs (P. Muhly, *Μινωικός Λαξευτός Τάφος στον Πόρο Ηρακλείου* (Athens, 1992)) and of the MM burials at Mavro Spelio (L. Alberti, ‘Costumi funerari medio-minoici a Cnosos: la necropoli di Mavro Spelio’, *SMEA* 43/2 (2001), 163–87).

masonry walls of the tomb and the cutting in the bedrock in which the tomb was set was also probably introduced from the same origin, which would explain the presence of the abraded Neopalatial sherds behind and above the side-chambers.

A further argument for a LM II date is architectural, given the various shared features, in terms of details of masonry construction as well as overall design, with the Isopata Royal Tomb and Isopata tomb 1 further north along the same ridge. But equally, the willingness to innovate and to draw upon traditional Cretan ideas, as in the use of ashlar masonry, mason's marks, and gypsum, is also paralleled in other mortuary evidence of this period, and, as argued elsewhere, this experimentation cautions us against any straightforward use of tomb types as indices of the geographical origins of their users.⁹⁸

Given these arguments, what can be surmized about the nature of the original LM II burial(s) in the tomb? The human remains are not identifiable, and the artefacts comprising the assemblages have been dispersed (within the tomb or removed entirely). The ceramic material is, as noted above, consistent with other high status tombs of the period at Knossos. Regarding the other artefact types, it was suggested above that the fragments of more valuable materials, which were found low in the chamber fill, may originally have belonged with the earliest burials in the tomb. These include the stone mould fragment, the gold rivets (or 'studs') from a dagger or sword, the gold ring and gold rosettes, and the stone vase fragments from the chamber floor and grave gamma.

The stag remains found near the chamber floor may equally belong to this period. Given the presence of bones as well as an antler, this is plausibly to be interpreted as a ritual sacrifice (whether at the grave or in a ritualized hunt) and deposition of the animal as part of the funerary rites.⁹⁹ The fallow deer seems to have held high-status associations in the Late Bronze Age, so that this sacrifice would have been an appropriate element of a LM II elite burial in the tomb. Stags appear in the iconography of the LH I shaft graves at Mycenae¹⁰⁰ and on a number of Aegean LBA sealstones, the latter showing the animal in a variety of poses, standing or recumbent, suckling, wounded, hunted or as a sacrificial offering.¹⁰¹ It has been suggested on the basis of the faunal evidence that from the Early Bronze Age controlled, semi-domesticated populations of these animals were kept in the Aegean.¹⁰² They are best represented by faunal remains from the Middle Minoan period onwards, but seem always to have been rare. Jarman notes that 'The Minoans must have gone to considerable trouble to import this animal, and it seems likely that the individuals concerned were at least semi-domestic animals, rather than fully wild... It can never have been a resource of economic significance on Crete, and must have been imported principally for some other purpose'; hunting may have been one aspect of their attraction, with elite control and maintenance of the animals in 'parks'.¹⁰³

⁹⁸ Preston 1999 (n. 15).

⁹⁹ Compare the bull and horse remains from tholos Alpha at Archanes Phourni, from the later phase of mortuary ostentation at that centre in LM III A2 (Y. Sakellarakis and E. Sapouna-Sakellarakis, *Archanes: Minoan Crete in a New Light* (Athens, 1997), 158–68).

¹⁰⁰ Shaft Grave IV produced 2 gold pin heads with representations of stag antlers, a silver rhyton in the shape of a stag, and a gold signet ring depicting the hunting of a stag from a chariot. Shaft Grave III produced several gold pin heads decorated with recumbent stags (G. Karo, *Die Schachtgräber von Mykenai* (Munich, 1930), 50–1 (nos.

45–6), 73–4 (no. 240), 75 (nos. 246–7) and 94 (no. 388).

¹⁰¹ J. Vanschoonwinkel, 'Les animaux dans l'art minoen', in D. Reese (ed.), *Pleistocene and Holocene Fauna of Crete and its First Settlers* (Madison, 1996), 351–412 at 358–9, and 393.

¹⁰² See R. Hubbard, 'Fallow deer in prehistoric Greece, and the analogy between faunal spectra and pollen analyses', *Antiquity*, 69 (1995), 527–38.

¹⁰³ M. R. Jarman, 'Human influence in the development of the Cretan mammalian fauna', in D. Reese (ed.), *Pleistocene and Holocene Fauna of Crete and its First Settlers* (Madison, 1996), 211–29, at 219.

The construction of the Tholos in LM II turned what had probably been a settlement locale (albeit one already abandoned, as the absence of LM I B ceramics suggests) into a mortuary site. The creation of a new funerary landscape, not only here but also more generally along the Knossos valley in LM II, may have been a deliberate strategy on the part of certain elite groups, with the appropriation of specific locations for conspicuous mortuary display providing a physical expression of the establishment of a new political regime at Knossos. However, if this was the case, it seems not, at least at Kephala, to have been an attempt actually to erase the memory of former elite practices and presence, as the use of gypsum and the textual inscription at the chamber entrance indicate a conscious appeal to traditional elite symbolism in this new context.

LATER FUNERARY USE OF THE TOMB

It is unclear when the original burials and their assemblages were disturbed, but use of the tomb appears to have continued in both the LM III A₁ and LM III A₂ phases, as ceramic material of these periods at the site occurred almost exclusively inside the tomb structure, and it is consistent with known burial assemblages of these phases elsewhere at Knossos. The relationship of the buriers and deceased to the original, LM II occupants of the tomb, is an interesting one to consider, especially for the LM III A₂ period, if the LM III A₂ ceramics belong to the later, Postpalatial, part of this phase. The Postpalatial period saw a major contraction of the Knossian elite as an island power on Crete, with a general decline in funerary ostentation at Knossos itself. This was probably motivated (at least in part) by diminishing available resources affecting willingness to sacrifice wealth to the grave, rather than indicating any 'disappearance' of the elite here. Indeed, the evidence suggests that assemblages in this phase echoed the symbolism and aspirations of their wealthier Final Palatial predecessors, but on a lesser scale of actual expenditure in terms of valuable goods. Whether the burying group using the Kephala Tholos in LM III A₂ was directly related to the original occupants or had appropriated this monument, the continuation of funerary rites here may have been at least partly motivated by this same desire to emulate the elite practices of a recent, more prosperous and prestigious era.

The ceramic material dated to LM III B/C and LM III C seems also to be mortuary in character, especially given the close association of LM III C vessels with human remains in one or two locations within the tomb. However, mortuary comparanda elsewhere at Knossos are less numerous for these phases than is the case for LM II or III A. There is a notable decline in tomb use generally at this centre from early in LM III B (or at least, in the use of the archaeologically visible tomb types used previously). This trend through the LM III B phase is an important one to note, as it potentially lengthens the temporal scale of social changes that have usually been ascribed to a brief horizon at the transition between LM III B and LM III C. In other words, while LM III C burial evidence is indeed very scarce at Knossos, this does not mark a sudden shift in mortuary customs, but is rather the culmination of a decline in tomb use that stretched back one or more generations.

The use of the Tholos in LM III B seems limited, if it occurred at all, but evidence for LM III C activities is more secure. Intriguingly, the only other Knossian tombs with documented LM III C use have produced remarkably similar scenarios to the Kephala Tholos. They are the Isopata Royal Tomb, from which Evans illustrates a LM III C stirrup jar, and the Nea Alikarnassos chamber tomb, which produced a LM III C stirrup jar and

jug.¹⁰⁴ On the basis of its architectural similarities with the Tomb of the Double Axes at Isopata, the Nea Alikarnassos tomb seems to have been constructed as a high status monument (possibly also in LM II), as is clearly also the case for the Isopata Royal Tomb. While it is necessary to be cautious in explaining the choice to return to the Kephala Tholos for burial in LM III C, there may have been a common strategy on the part of the users of all three of these tombs, of deliberate association with much older buildings of a high status nature. If so, it should be remembered that by this point the appearance of the Tholos was probably very much altered from its original state, and it may even have been in this phase that the vault of the chamber collapsed. Fallen blocks from the roof were found at most levels of the chamber fill, from a depth not far from the surface¹⁰⁵ down to immediately above the floor,¹⁰⁶ which might indicate a gradual disintegration. Unfortunately, no drawn section of the tomb's fill seems to have been made, but the excavators' notebooks mention a particular concentration of roof blocks between about 1.8 m and 2.2 m in depth,¹⁰⁷ and an undated report of the excavation (of unknown authorship)¹⁰⁸ observes that 'most of the bones and vases dating from the twelfth century BC were found stratified above the debris from the dome'. Moreover, while some LM III C material was also found below this debris horizon, no Early Iron Age material occurred here (with the possible exception of P84), which suggests that the main roof collapse had occurred by this period. The lower levels of the forehall may also have silted up or been infilled by LM III C, but the upper levels and north side-niche were still accessible, as demonstrated by the burial and ceramic evidence.

The stirrup jar and deep bowl (P98 and P99) in the upper levels of the chamber fill suggest that burial activities in the tomb continued into the Subminoan period, as observed by Catling.¹⁰⁹ As noted above, the stirrup jar appears to have been associated with an inhumation in a pithos, buried at a depth of about 1 m; the grave may have been deliberately sealed by a large stone that was found immediately on top of both the pithos and the stirrup jar.¹¹⁰ If this was indeed a SM burial, the practice of inhumation would be consistent with the norm at Knossos, though no parallels for the pithos burial are yet known for this phase. In contrast to LM III C, tomb burial was regaining popularity at Knossos in this period; as well as the establishment of new cemeteries (the North Cemetery and Fortetsa),¹¹¹ reuse of earlier sites is also attested, in the LM II Agios Ioannis tomb¹¹²

¹⁰⁴ See Evans 1906 (n. 16) for the Isopata Royal Tomb. For Nea Alikarnassos, see A. Lembesi, 'Ἀνασκαφικαὶ ἐρευναι—ἐπισήμανσις ἀρχαίων', *AD Chron.* 28 (1973, published 1977), 564–9, at 564–7.

¹⁰⁵ Three blocks from the chamber vault were uncovered on the first day of the excavation, with one of the forehall capstones; see *KT*, 75.

¹⁰⁶ Desborough 8, for 13 Dec. 1938.

¹⁰⁷ Desborough records for 8 Dec. 1938, 'we are now getting to the layer of fallen stones'; on this day, excavation in the chamber went down to 1–1.5 m depth (Fisher 67, for 8 Dec. 1938). At 1.85 m, Desborough notes that the stones 'appear to be less frequent' (Desborough 8, for 10 Dec. 1938). But Fisher then observes that 'they seem to be appearing again about 10 or 15 cms lower. Today go from 1.5 m to 2.1 m depth' (Fisher 67, for 10 Dec. 1938). At 2.1–2.2 m, Desborough notes 'we do seem to be getting rather more worked

blocks' (Desborough 8 for 12 Dec. 1938) and Fisher, in notes accompanying a letter to Wace (23 Feb. 1939), states that 'between 2.10 and 2.20 m we came upon a number of worked blocks. It was, in fact, a very stony area'. Finally, Desborough's review of the tomb excavation notes that 'The fallen blocks were found between two and three metres below the ground level immediately above the floor of the tholos'.

¹⁰⁸ BSA archives: Knossos Excavation Reports 1935–39.

¹⁰⁹ H. W. Catling, 'The Subminoan phase in the North Cemetery', in J. N. Coldstream and H. W. Catling (eds), *Knossos North Cemetery, II: Discussion* (London, 1996), 639–49, at 643.

¹¹⁰ Fisher 67, for 8 Dec. 1938.

¹¹¹ See Catling 1996 (n. 109).

¹¹² S. Hood and J. N. Coldstream, 'A Late Minoan tomb at Ayios Ioannis near Knossos', *BSA* 63 (1968), 205–18.

and the Upper Gypsades cemetery.¹¹³ However, tomb use was still rare, and the known interments appear to have high-status associations, given the valuable artefacts with the Gypsades and Agios Ioannis burials, as well as in the earliest tombs of the North Cemetery (T200 and the warrior burial of T186).

A final period of activity to which attention should be drawn lies within the Protogeometric period. Hutchinson considered all the 'Geometric' material in the tomb to be intrusive—that is, not associated with burial activities.¹¹⁴ The bell krater (P100) found between 1.75 and 2.1 m depth in the chamber, is comparatively well preserved, though it has had to be reconstructed from a number of worn fragments, which might account for it not having been noted at the time of the excavation. This vessel type was commonly deposited in North Cemetery tombs of this period, as components of the assemblages accompanying the interments. The standard burial rite in this period was cremation, rather than inhumation, but no cremated human remains were noted during the Tholos excavation, nor are there any among the retained material.¹¹⁵ While this may be a result of taphonomic processes destroying the burial with which this krater was associated, it is also worth highlighting the possibility that the mortuary activities at the monument in this period did not actually involve burial *per se*. About 150 m to the west of the Tholos, further down the slope, a group of chamber tombs was excavated by Evans and Payne in 1907 and 1927 respectively.¹¹⁶ It was the observation of some Minoan well-cut blocks that first led Evans to excavate here, seeking another corbel-vaulted structure comparable to the Isopata Royal Tomb, which he had excavated three years earlier.¹¹⁷ Upon discovering instead chamber tombs with Early Iron Age burials (with use dating from the Protogeometric period through to Orientalizing), Evans concluded that the blocks must have been removed there from an as yet undiscovered source, which Hood has since plausibly suggested is the Kephala Tholos.¹¹⁸ One of the tombs actually produced a bell krater with decoration similar to that recovered from the Tholos.¹¹⁹ There is also a further chamber tomb with MPG burial use about 300 m to the north-west of the Tholos (possibly a reused LM III tomb).¹²⁰ The area around the Tholos seems, therefore, to have been developed as a mortuary landscape in the Protogeometric period, with the Tholos, if not actually used as a tomb itself, being drawn into funerary activities in these neighbouring tombs on at least one occasion, through the deposition of vessels in the structure and possibly even the removal of masonry from it to be set up at an associated funerary locale.

¹¹³ Tomb 7 (S. Hood, G. Huxley and N. Sandars, 'A Minoan cemetery on upper Gypsades', *BSA* 53–4 (1959), 194–261, at 205–8). Deposit VIa and the two stirrup jars outside tomb VII also appear to be associated with mortuary activities in the cemetery, though not constituting assemblages accompanying a burial.

¹¹⁴ *KT*, 77, 78.

¹¹⁵ Desborough does note 'remains of a large pithos (blackish clay (burnt?))' at a depth of c. 1.5 m, in association with 'many bones' (Desborough 8, for 10 Dec. 1938), and Fisher seems to be describing the same burial when she notes a pithos with bones near the chamber

entrance at 1.3–1.75 m depth (Fisher 67, for 10 Dec. 1938). However, no associated pottery is mentioned that could help date the deposit, nor are burnt bones specifically referred to.

¹¹⁶ See Hood and Smyth 1980 (n. 2), 35, no. 16.

¹¹⁷ H. G. G. Payne, 'Early Greek vases from Knossos', *BSA* 29 (1927–8), 224–98, at 225.

¹¹⁸ Hood and Smyth 1980 (n. 2), at 35 no. 17.

¹¹⁹ Payne 1928 (n. 117), 232 and figs. 3 and 32. 25.

¹²⁰ J. N. Coldstream, 'Five tombs at Knossos', *BSA* 58 (1963), 30–43, at 38.

CONCLUSIONS

The longevity of the Kephala Tholos as a mortuary structure is an unusual phenomenon even for Knossos, and this aspect of the monument is as significant as the debate over the date of its construction. The latter issue has tended to overshadow consideration of the tomb's later use, partly because the interest in the cultural affiliations of LBA Crete in which the Tholos debate has been embedded has had a much higher profile in Aegean archaeological discourse over the past few decades than have issues relating to the transition to the Early Iron Age. More recently, however, increasing attention has come to be paid to perceptions and manipulations of the past among the population of Early Iron Age Crete, an approach principally pioneered by Coldstream, and gathering momentum with studies by, for example, Prent and Wallace.¹²¹

As most scholars who have engaged with this subject have noted, retrospection may have taken different forms at different periods, initiated by diverse social groups with their own specific agendas, and involving a variety of perceptions of the past.¹²² Indeed, there will inevitably have been variations in the nature of the engagement with the past, not only because of changes in local historical circumstances, but also with the transformations in the physical and cultural landscapes in which artefacts and monuments of the past were situated. In the case of the Kephala Tholos specifically, the very appearance of the tomb altered through time, with the collapse of the vault and gradual infilling of the chamber. It is unfortunately not possible to estimate with any reliability the scale and intensity of activity in the tomb in each phase of reuse from LM II onwards, owing partly to the incomplete nature of the retained evidence, and partly to the disturbances caused by the ancient revisitations themselves.

It is also difficult to reconstruct the motivations and social identities of the users in each period, though one theme that could underlie at least some of the episodes of reuse of the monument is that of status assertion, from the extravagant statements of the original builders of the tomb in LM II to the revived interest in, and reincorporation of, the past that took place at Middle Protogeometric Knossos. Yet even with such a common thread running through time, the proportion of the community involved, and their backgrounds, aspirations, and audiences, will have varied greatly. The Final Palatial period was a phase of Knossian supremacy on the island, with the palace the heart of a state-level bureaucracy, albeit probably in a highly unstable political environment at first.¹²³ The LM III A2 use of the tomb may have taken place in the context of the collapse of Knossos' Cretan hegemony, though with the survival of local-level elites. In this phase the tomb may even have been 'appropriated' by a group with no familial connection to the original users, but

¹²¹ e.g. J. N. Coldstream, 'Urns with lids: the visible face of the Knossian "Dark Age"', in Evelyn *et al.* (n. 30), 105–21; id., 'Minos redivivus: some nostalgic Knossians of the ninth century BC', in W. Cavanagh and M. Curtis (eds), *Post-Minoan Crete: Proceedings of the First Colloquium* (London, 1998), 58–61; M. Prent, 'Glories of the past in the past: ritual activities at palatial ruins in Early Iron Age Crete', in R. van Dyke and S. Alcock (eds), *Archaeologies of Memory* (Oxford, 2003), 81–103; S. Wallace, 'The perpetuated past: reuse or continuity in material culture and structuring of identity in Early Iron

Age Crete', *BSA* 98 (2003), 251–77.

¹²² As Whitley has pointed out regarding this last point, the explanation of legitimization through claimed ancestral links with prestigious individuals or groups in the past can actually embrace a variety of different possible scenarios, or could be entirely misleading. Much more work on appeals to the past in different locales and phases is needed before headway can be made on this point. See J. Whitley, 'Too many ancestors', *Antiquity*, 76 (2002), 119–26.

¹²³ See Preston 2004 (n. 95).

seeing a strategic opportunity to lay claim to this prestigious monument when the elite group with whom it had been associated was removed. The LM III C phase saw the culmination of a number of short- and longer-term social and cultural transformations at Knossos, and while this remained an important Aegean centre, it is unlikely to have supported a 'state-level' society. The groups returning to the Isopata, Kephala and Nea Alikarnassos tombs in this environment stand out particularly conspicuously in terms of their burial choices, possibly using these existing monuments in an opportunistic attempt to legitimate status through association,¹²⁴ but operating on a much smaller scale and in a very different political and mortuary environment from their predecessors. This begins to change again in the Subminoan period, as increasing numbers of individuals once more took up tomb use as a forum for ostentation.¹²⁵ Then again, a new scenario pertains in the ninth century, with a renewed retrospection to the Bronze Age past, but one expressed differently from how it was in the twelfth and eleventh centuries.¹²⁶

The Kephala Tholos contributes a useful body of evidence in piecing together social, political and cultural developments at Knossos in the Late Bronze and Early Iron Age, not least in considering strategic uses of the past. One particular theme that might be highlighted within this field of enquiry is that of physical manipulation of 'antique' artefacts through their physical transferral between locales, as well as the veneration of specific locales themselves. If the blocks found at the nearby Middle Protogeometric tombs were indeed derived from the Tholos, this act of appropriation could be compared with the introduction of the masonry to the tomb site by the original builders of the structure in LM II. The symbolic power of particular places is increasingly being acknowledged in Aegean studies of retrospection, but the physicality of memory as embodied in *movable* objects (as also, for example, in the burial of Minoan larnakes and other artefacts in ninth-century tombs of the North Cemetery¹²⁷) adds a further dimension to the intriguing topic of landscapes of memory, wherein the past can be physically, as well as conceptually, relocated.

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¹²⁴ As Wallace points out (2004 (n. 121), 270 n. 79), retrospection to the past in the LM III C and SM periods seems to be as targeted and deliberate as that in the 9th c., though expressed in different ways.

¹²⁵ It is interesting to develop this distinction between the LM III C and SM phases, since we are fortunate enough to have a very refined ceramic chronology that allows temporal changes to be drawn out at this level. Against a LM III C background where the Knossians had

all but abandoned tomb use (as Coldstream has rightly emphasized), the Subminoan period sees a change in the mortuary landscape and an increase in explicit retrospection, both through revisitation of older tomb sites and, more significantly, the construction of new tombs that deliberately echo earlier, Bronze Age designs.

¹²⁶ See Coldstream 1994 (n. 121).

¹²⁷ W. G. Cavanagh, 'The burial customs', in Coldstream and Catling (n. 109), 651–75, at 656–7.

APPENDIX 1: CATALOGUE OF BOXES FROM KEPHALA EXCAVATIONS IN THE STRATIGRAPHICAL MUSEUM, KNOSSOS

Box	Compartment	Location*	Exterior box label	Interior wooden label	Interior paper label
309	—	T	F.A. 309 chamber Dromos – N side	1938 7.12.38 THOLOS North niche SHERDS	309
310	—	T?	F.A. 310 Box 310	1938/3 Box 10 book Tholos on Kephala See Hutchinson note	310
312	—	T	F.A. 312 Grave A	1938/3 Grave A 14.12.38 Tholos	312
313	—	T	F.A. 313 Shaft grave Γ, from bottom	1938/3 Tholos on Kephala Shaft Grave Γ from bottom	406
314	—	E	F.A. 314 Above S chamber, below level of 2 large stones	1938/3 10.5.39 Above S chamber below level of 2 large stones	314
315	—	T	F.A. 315 Dromos east, between side chambers. 0–1.00 m above floor	1938/3 6.12.38 Dromos east between side chambers 0–1 m above floor	315
316	Back left	Tt	F.A. 316 1. Trench A, E of tholos 1–2 m	1939 13.5.39 Tholos E of tholos Trench A 1.00–2.00 m	316 back left
	Back right ¹²⁸	T	2. Doorway blocking above 1.50 m	1938/3 Tholos Sherds from blocking of doorway above 1.50 m 21	316 back right
	Front left	T	3. Inside chamber. Depth 1.75 m	1938/3 Tholos on Kephala Inside chamber Depth 1.75 m	316 left front
	Front right	T	4. ?In floor. South of Pit I	1938/3 ?In floor, S of Pit Γ	316 right front
317	—	T?	F.A. 317 Dromos, just outside lintel??	1938/3 1939 THOLOS Sherds between N wall of dromos 0–.40 OR 15.12.38 Dromos just outside lintel, 1.50–2.00 below bottom of lintel	317
318	—	T	F.A. 318 Tholos chamber, c 3.1 m	1938/3 Tholos on Kephala Chamber At 3.10 m	318
319 ¹²⁹	—	T	F.A. 319? Chamber 2.1–2.3 m	1938/3 12.12.38 THOLOS CHAMBER 2.10–2.30	338
329	1	T	F.A. 329 1. Tholos west	1938/3 12.12.38 Tholos Dutikos 2.20–2.30	—
	2	E	2. South side tholos fill	12.5.39 13.5.39 S side of tholos fill, below top stones	—
	3	E	3. Marked sherds – various areas	—	—

¹²⁸ The wooden label for this compartment was actually found in Box 332, to which it had probably been accidentally transferred.

¹²⁹ The paper labels in this box are probably intrusive, belonging originally to Box 338.

330	—	Tt	F.A. 330 Trench B	East of tholos 0-1 m	1939 tholos	13.5.39 Trench B	THOLOS 0-1 m	E of	330
331	—	T	F.A. 331 1938/3	Kephala tholos 2.30-2.60 m	1938/3 of tholos	13.12.38 2.30-2.60	THOLOS E	—	
332	—	Tt	F.A. 332	Trials east of tholos	1938/3 tholos 1 m wall	7.5.39 N wall Continuation along line of wall	Trials East of Trench FC 0- 1 m	332	
333	—	T	F.A. 333 from chamber	Palace Style sherds	1939 Palace Style Sherds	Kephala Tholos Fine		333	
334	—	Tt	F.A. 334 tholos?	Test in house behind	1938/3 trench in Paspatis' house behind tholos	Tholos Prob deep		334	
335	—	Tt	F.A. 335 Trench A	East of tholos	—			—	
336	—	T	F.A. 336	Chamber 1.75-2.10 m	1938/3 10.12.38 m	Tholos on Kephala Chamber 1.75 m-2.10		336	
337	—	T	F.A. 337	Chamber 2.80-3.25 m	1938/3 [..].12.38 2.80-3.25 m	Tholos on Kephala Box 12 Chamber		337	
338	—	T	F.A. 338	Chamber 1.70-2.10 m	1938/3 Chamber 1.70-2.10 m	Tholos on Kephala		338	
339	—	T	F.A. 339 pithos	Chamber I LM II	1938/3 Chamber I	Tholos on Kephala		339	
1	1	?	1938/3 TRIALS Misc	Round tholos ?MIXED?	—			—	
	2	Tt	1938/3	E of tholos Trench E 0-1.00 m	1938/3 3.5.39 0-1 m	Tholos on Kephala Trench E E of tholos		—	
2 ¹³⁰	1	?	1938/3 13.5.39	Tholos on Kephala Fill in top stones of wall on S side of tholos	1938/3 tholos N wall m (Bet N wall of side chamber and chamber wall)	13.5.39 Trench (F-C) 1-2 m	East of	—	
	2	?	[..].5.39	Tholos on Kephala Trench FC Between N wall of side chamber and chamber wall 0-1,01-2 m	1938/3 of tholos. Top stones (in top stones of wall on S side of tholos)	4.5.39 Fill at S side		—	
3	—	T		Surface East of the hole in the roof of the forehall 1938/3 [or 2?]	1938/2 [Added text:] Presumably 1938/3 (25/8/78 S Hood)	Surface east of rock		—	

* T = Tomb; E = Exterior of tomb; Tt = Test trenches east of tomb.

¹³⁰ This box has no inked number on the exterior, but '319' is written in chalk. The wooden label in compartment 1 gives two different findspots, and the exterior label a

third. The wooden labels in the two compartments of this box may have been changed over.

APPENDIX 2: CATALOGUE OF THE CERAMIC MATERIAL

The catalogue is organized according to the three contexts discussed in the text: tomb interior, tomb exterior and trenches. Within these categories the material is organised in chronological order as far as is possible. Only Early Minoan to Early Iron Age material has been included. Most of the sherds that are datable within this period and of recognisable shape have been selected for cataloguing (accounting for about 10% of the total corpus of material in the Stratigraphical Museum). These catalogued sherds are not representative in the case of the medium-coarse and coarse wares, as so little of the curated material in these wares is currently diagnostic in terms of shape or date. However, the various fine ware shapes are more fully represented. For vessels already catalogued by Cadogan and Popham, their descriptions are not repeated here, but dates are given, as a few differ from those originally assigned. All vessel measurements are in cm.

TOMB INTERIOR

Prepalatial and Protopalatial

P1 (FIG. 13) Tumbler. Base only. D. (base) 2.8. Handmade, with paring on the sides. Fine clay, with orange core and cream surface on exterior. Plain. EM III/MM I A. Forehall, 0–1 m above floor (Box 315).

P2 (FIG. 13) Bridge-spouted jar. Rim fragment. Handmade. Fine, pink-cream clay. Black decoration:

rim band on interior; exterior solid with two added diagonal white stripes running down from the rim. MM I. Forehall, 0–1 m above floor (Box 315).

P3 (FIG. 13) One-handed cup. One-third preserved, including rim and handle. Buff fine clay. Red paint: solid interior and exterior. MM II B or III A. Chamber (Box 333).

Neopalatial

P4 (FIG. 14) Conical cup. One-fifth preserved. Fine, pink-buff fine clay. Plain. Marks of burning on rim. Very irregular. MM III. Chamber, 2.1–2.3 m depth (Box 319).

P5 Rounded cup. Base sherd. D. (base) 2.8. Fine, buff clay, hard-fired. Black solid decoration on interior and exterior; added white vertical stripes on interior and exterior. MM III. Forehall, 0–1 m above floor (Box 315).

P6 (FIG. 14) Conical cup. One-third preserved. D. (base) c. 3.8, (rim) 7–8; H. 3.9. Fine, soft, orange clay with red decoration: solid exterior (interior and base decoration unclear). Unevenly made. MM III–LM I A. North side-niche (Box 309).

P7 (FIG. 14) Conical cup. One-quarter complete. H. 4.6. Soft buff clay with small inclusions. Plain. Uneven rim and base. MM III–LM I A. North side-niche (Box 309).

P8 (FIG. 14) Straight-sided cup. Rim sherd. D. (rim) c. 11. Fine, pink-buff clay. Red-brown decoration: solid interior; tortoise-shell on exterior. MM III–LM I A. Chamber (Box 333).

P9 (FIG. 14) Rounded cup or bowl. Base sherd. D. (base) 3.8. Fine orange-buff clay with black decoration: blobs on interior; base band and reeds on exterior; spiral on base. LM I A. Cf. Watrous 1992, fig. 12 no. 31 (Kommos, Deposit 2). North side-niche (Box 309).



FIG. 13. Prepalatial and Protopalatial ceramics from the tomb (1:3).

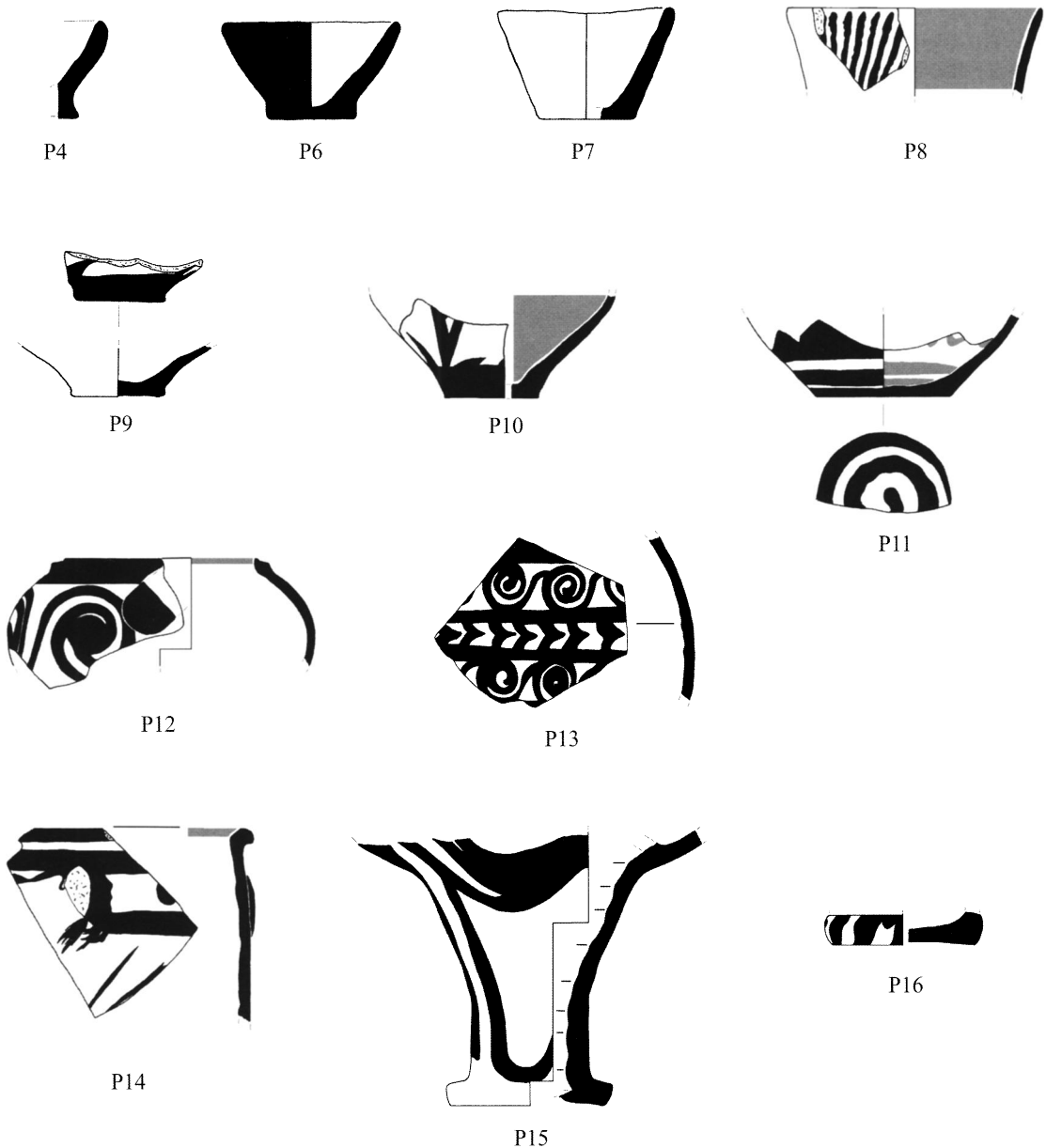


FIG. 14. Neopalatial ceramics from the tomb (1:3).

P10 (FIG. 14) Rounded cup. Base only. D. (base) *c.* 4. Fine, pink-buff clay. Brown lustrous paint: solid interior; exterior with band at base and reed sprays. LM I A. Chamber (Box 333).

P11 (FIG. 14) Bowl. Base only. Semi-coarse clay, grey core and red towards surface. Cream slip and black paint: interior has bands and wavy line; exterior has

bands; spiral on base. LM I A. Chamber (Box 333).

P12 (FIG. 14) Bridge-spouted jar. Rim and part of one handle preserved. D. (rim) *c.* 9. Fine, pink-buff clay. Black lustrous paint: rim band and spirals; upper face of handle solid. LM I A. Chamber (Box 333).

P13 (FIG. 14) Jug or bridge-spouted jar. Body sherd. Fine, buff clay. Black lustrous paint on exterior: series

of running spirals alternating with chevrons. LM I A. Cf. Watrous 1992, fig. 14 nos. 115 (jug/jar) and 123 (bridge-spouted jar) (Kommos, Deposit 3—both LM I A–B). Chamber (Box 333).

P14 (FIG. 14) Jar or basin. Rim band with base of horizontal handle. Fine, buff clay. Orange-brown lustrous paint: rim solid; interior rim band; exterior with bands at rim and reed pattern below. LM I A. Chamber (Box 333).

P15 (FIG. 14) 'Strainer'? Lower part of body only. Semi-coarse, orange clay. Red-brown paint: solid interior; exterior with wavy lines. Cf. P138. LM I A. Chamber west side, 2.2–2.3 m depth (Box 329).

P16 (FIG. 14) Cup rhyton. Base only. D. (base) 7.

Fine, pink-cream clay. Black lustrous paint on exterior: vertical wavy bands around base. Torus base. LM I B or II. Chamber (Box 333).

P17 (FIG. 15) Ovoid pithos. Several sherds from the rim and upper body. Coarse cream clay. Wavy 'rope' band in relief, with incised slashes, below rim, and orange-brown decoration: 'trickle' pattern on exterior. LM I. Chamber (Box 339).

P18 (FIG. 15) Conical pithos or 'tub'. Four rim sherds. Coarse clay, pink and cream. Black paint: interior rim band; exterior with vertical stripes of differing widths on outer and upper faces of rim. Neopalatial. Chamber (Box 339).

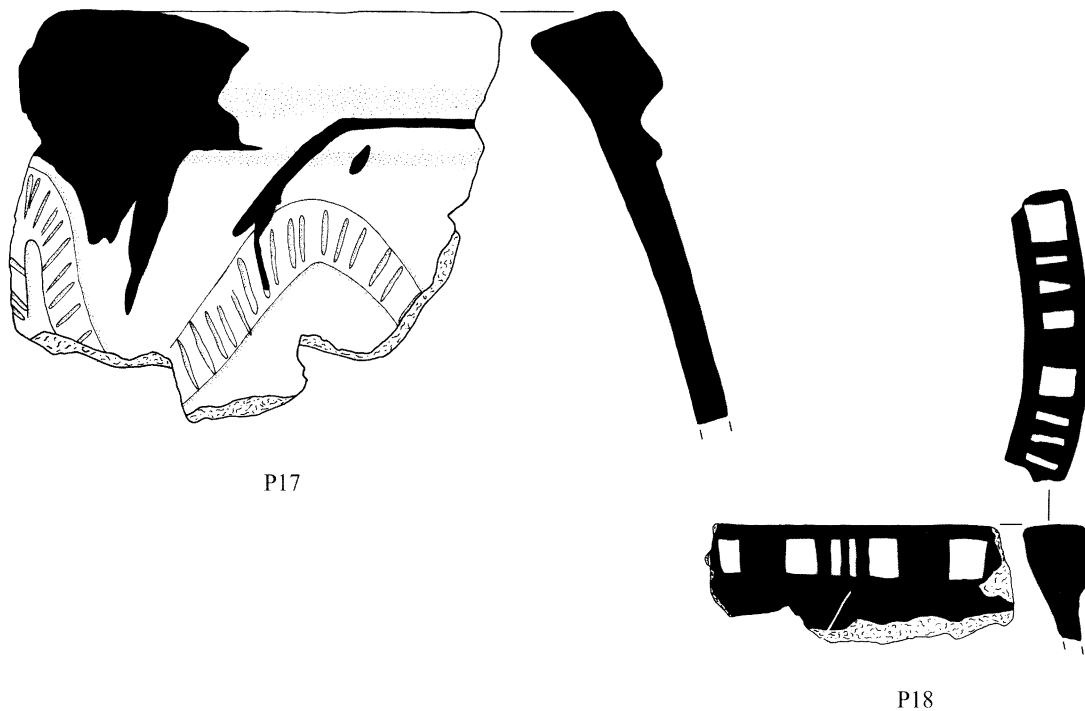


FIG. 15. Neopalatial pithoi from the tomb (1:4).

Final Palatial and Post-Palatial

P19 (FIG. 16) Goblet. Rim sherd. Fine, buff clay, hard-fired. Plain. LM II. Grave alpha (Box 312).

P20 (FIG. 16) Goblet. Rim sherd with part of strap handle. Fine, cream, soft clay. Fugitive traces of red paint on interior. Handle and exterior plain. LM II. Chamber, 1.7–2.1 m depth (Box 338).

P21 (FIG. 16) Cup or bowl. Part of wishbone handle. Fine, cream, soft clay. Fugitive traces of black paint: decoration unclear. LM II. Cf. *MUM* i. 79 no. L 76; ii, pl. 51 e and 147 5; also Watrous 1992, fig. 19: deposit 16 no 358. Chamber, 1.7–2.1 m depth (Box 338).

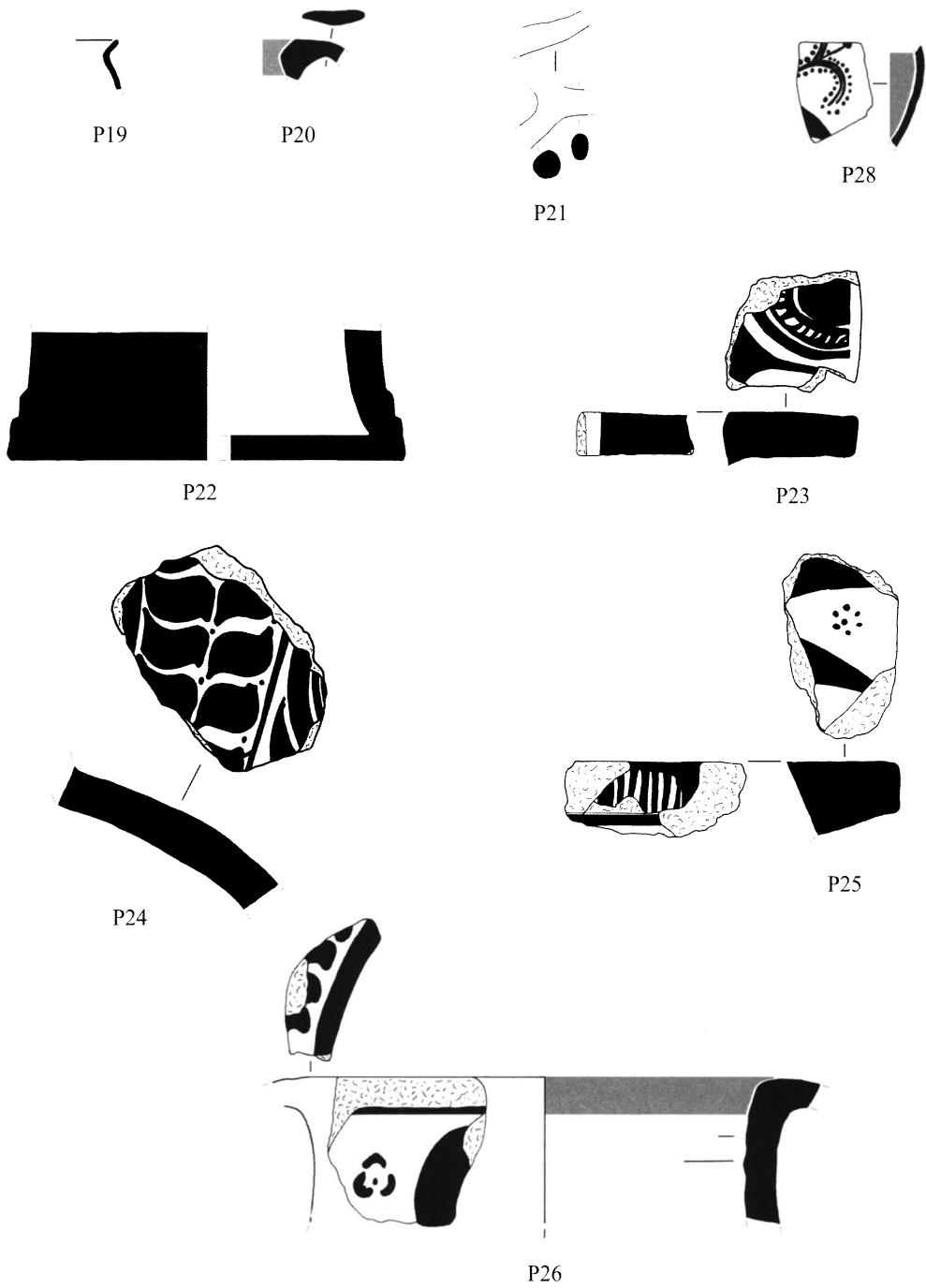


FIG. 16. LM II ceramics from the tomb (1:3).

P22 (FIG. 16) Palace Style Jar. Four sherds from base and lower body. Semi-coarse, pink-cream clay. Red-black lustrous paint: solid at base. LM II. Chamber (Box 333).

P23 (FIG. 16) Palace Style Jar. Rim sherd. Semi-coarse, orange-pink clay. Orange-brown decoration: multiple arcs on the upper face, decoration on outer face unclear, solid on lower face. Cf. Niemeier 1985, 251 no. XVIII B 12, pl. 22. LM II. Chamber (Box 333).

P24 (FIG. 16) Palace Style Jar. Sherd from upper body. Semi-coarse, pink clay, hard-fired. Cream slip on exterior with red-brown lustrous paint: double row of quirks with alternating dots, just below neck. Cf. Niemeier 1985, 239 no. IV A 1, pl. 9. LM II. Chamber (Box 333).

P25 (FIG. 16) Palace Style Jar. Rim fragment. Semi-coarse clay, grey core and cream surface. Orange paint: adder mark alternating with dot rosettes on upper face of rim, vertical bands on outer face of rim. For dot rosettes, cf. LM II bridge-spouted jar from the Knossos New Hospital Site cemetery (Hood and de Jong,¹³¹ 267–9 no. III.3 and fig. 11). LM II. Chamber (Box 333).

P26 (FIG. 16) Palace Style Jar. Rim fragment. Pink semi-coarse clay. Cream slip. Orange decoration: band and row of quirks on upper face, trefoil motif on outer face. For trefoil motif, cf. Palace Style jar from Katsambas tomb Alpha (Alexiou 1967,¹³² 41 no. 2, and pl. 3 *b*). LM II. Chamber (Box 333).

P27 (FIG. 17) Palace Style Jar. 14 sherds, from lower, middle and upper body. Estimated H. c. 67 (based on vessels with comparable widths at shoulder and near base). Semi-coarse, orange-pink clay. Cream slip on interior and exterior, and orange-brown paint on exterior: bands and rock pattern on lower body; tricurved arch with papyrus fill on main body, row of quirks and foliate band just below neck. For shoulder decoration, cf. Niemeier 1985, 246 no. XIII A 1, pl. 9, and 242 no. VII B 2, pl. 15. LM II. Chamber (Box 333), Chamber, c. 3.1 m depth (Box 318), Chamber, 2.8–3.25 m depth (Box 337), grave gamma (Box 313). See also n. 54 in main text.

P28 (FIG. 16) Goblet. Body sherd. Cream, fine clay. Black paint (very faded): solid interior; exterior with floral motif. LM II? Chamber, 1.75–2.1 m depth (Box 336).

P29 (FIG. 18) Goblet. Sherds from base, stem, lower bowl and rim. D. (base) 6.2, (rim) c. 0.16. Fine, pink-cream clay. Black lustrous paint: solid interior; exterior with bands near rim, and on stem and base. LM II or III A? Chamber, 1.75–2.1 m depth (Box 336).

P30 (FIG. 18) Goblet. Rim sherd. D. (rim) c. 15. Fine, orange, hard-fired clay with grey core and red lustrous decoration: solid interior and exterior. LM II or III A1. Provenance uncertain (Box 310).

P31 (FIG. 18) Jug. Part of handle. Fine buff clay. Black lustrous paint: horizontal stripes on upper face of handle. LM II or III A1. Chamber, 1.75–2.1 m depth (Box 336).

P32 (FIG. 18) Jug. Upper body sherd. Fine, buff clay. Cream slip on exterior and orange-red paint: bands and quirks. LM II or III A1. Chamber, 1.75–2.1 m depth (Box 336).

P33 (FIG. 18) Jug or jar. Three body sherds. Fine, buff clay. Orange paint on exterior: tricurved arch net. LM II or III A. Chamber, 1.75–2.1 m depth (Box 336).

P34 (FIG. 18) Jug or jar. Two neck sherds, non-joining. Fine, pink-cream clay. Cream slip and black paint on exterior: band of quirks on neck. LM II or III A. Grave gamma (Box 313).

P35 Jug. See Cadogan 1967, 265 no. 13, 265 fig. 5, and pl. 50. Identified by J. Rutter as a Western Anatolian import.¹³³ Cf. parallels from the Unexplored Mansion (*MUM* i. 47 no. L43 and 62 no. M105; ii, pl. 86 *a* (M105) and *b* (L43), in LM II deposits), Katsambas (Alexiou¹³⁴ 50 no. 3 *a* (10018) and pl. 17 *b*, in an LM II tomb) and Kommos (Watrous 1992, 43 no. 740 and fig. 31, in an early LM III A2 deposit). Probably a LM II or III A deposition. Chamber, 1.5–2.3 m depth.

P36 (FIG. 18) Palace Style Jar. Rim sherd. Coarse clay, pink with grey core. Cream slip and red-black paint: interior rim band; bands on exterior with bands; rock pattern on upper face of rim. Cf. *PM* ii. 401 fig. 231 and Niemeier 1985, 235–6 no. II A 3, pl. 4 (from the Royal Villa, Knossos). LM II or III A. Chamber (Box 339).

P37 (FIG. 19) Kylix. Rim sherd. Fine clay, grey at core and orange towards surface. Red lustrous paint: solid interior and exterior. LM III A1. Chamber, 1.7–2.1 m depth (Box 338).

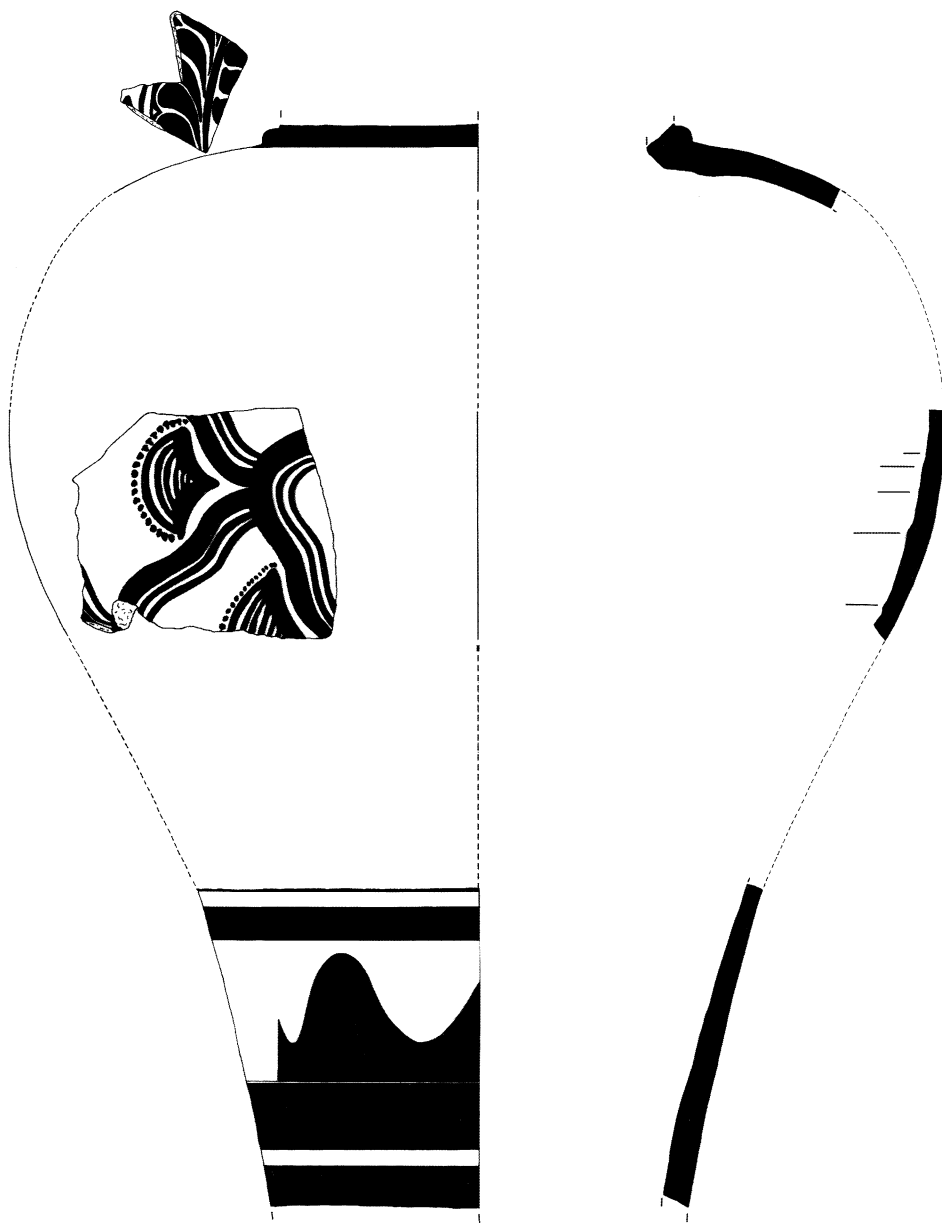
¹³¹ Hood and de Jong (n. 94), 243–77.

¹³² Alexiou 1967 (n. 94).

¹³³ J. Rutter, 'Southwestern Anatolian pottery from Late Minoan Crete: evidence for direct contacts between Arzawa and Keftiu?', in J. Warner (ed.), *Pottery and Society:*

The Impact of Recent Studies in Minoan Pottery. Gold Medal Colloquium in Honor of Philip P. Betancourt (104th Annual Meeting of the Archaeological Institute of America, New Orleans, Louisiana, 5 January 2003) (forthcoming).

¹³⁴ See n. 94.



P27

FIG. 17. LM II ceramics from the tomb (1:4).

P38 (FIG. 19) Pedestalled bowl/cup? Rim and bowl. Fine buff clay. Red paint: solid interior and exterior. LM III A1. Chamber, 1.7–2.1 m depth (Box 338).
P39 (FIG. 19) Kylix. Lower part of bowl only. Semi-coarse, orange clay, hard-fired. Plain. LM III A2.

Forehall, 0–1 m above floor (Box 315).
P40 (FIG. 19) Champagne cup. Base sherd. D. (base) 5.5. Semi-coarse, light orange clay. Plain. LM III A2. Grave gamma (Box 313).
P41 (FIG. 19) Champagne cup. Base and stem only.

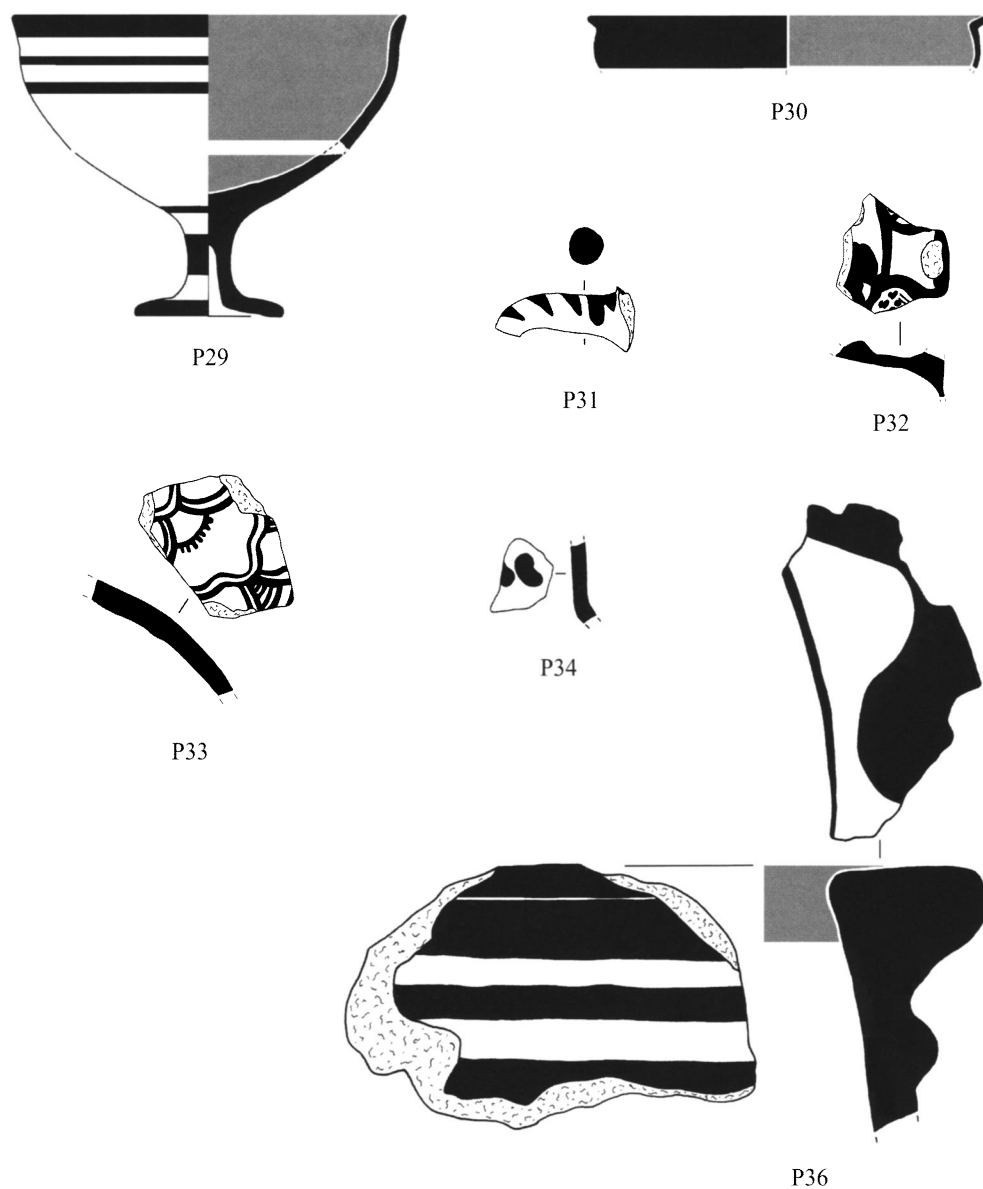


FIG. 18. LM II or III A ceramics from the tomb (1:3).

D. (base) *c.* 5.3. Fine, cream clay. Plain. LM III A2. Chamber, 2.1–2.3 m depth (Box 319).

P42 (FIG. 19) Stemmed bowl? Base and lower part of bowl. D. (base) *c.* 5.8. Fine, buff clay. Plain. LM III A2? Chamber, 1.75–2.1 m depth (Box 336).

P43 (FIG. 19) Kylix. Rim and body sherds. D. (rim)

c. 14. Fine, buff clay. Plain. LM III A. Grave alpha (Box 312).

P44 (FIG. 19) Jar. Two rim sherds. D. (rim) *c.* 16. Fine, pink-cream clay. Black paint (very faded): interior rim band; exterior rim band and floral patterns on neck; wavy pattern on rim. LM III A.

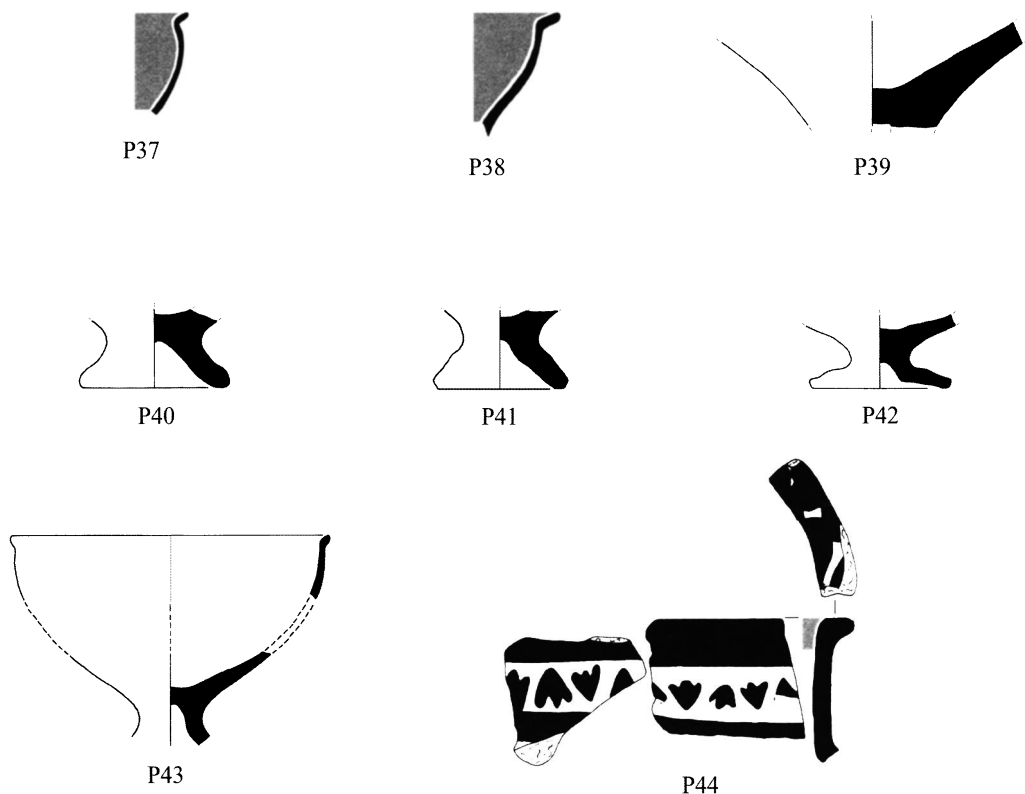


FIG. 19. LM III A ceramics from the tomb (1:3).

Chamber, 1.75–2.1 m (Box 336) and 2.8–3.25 m depth (Box 337).

P45 Kylix. Rim sherd with vertical handle. Fine buff clay. Plain. LM III A? Chamber, 1.75–2.1 m depth (Box 336).

P46 Cup or bowl. Body sherd. Fine, cream clay. Brown-black paint: solid interior; exterior has a band of horizontal chevrons with two linear bands below. LM III A? Chamber, 1.75–2.1 m depth (Box 336).

P47 Champagne cup. Base only. D. (base) 5. Fine, greeny-cream clay. Plain. LM III A2 or III B. Grave alpha (Box 312).

P48 Champagne cup. Stem and lower part of bowl only. Fine, pink clay. Cream slip on interior and exterior. Plain, unburnished. LM III A2 or III B. Forehall, 0–1 m above floor (Box 315).

P49 Bowl. Rim sherd, with part of one horizontal handle. D. (rim) c. 16. Fine, buff clay; plain. LM III A2 or III B. Grave alpha (Box 312).

P50 (FIG. 20) Kylix. Rim sherd. Fine, cream clay. Orange-black paint: solid interior; rim band, floral motif and pendent semi-circles on exterior. Cf. *MUM*

ii, pl. 126 d (LM III B sherds). LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P51 (FIG. 20) Kylix. Rim sherd. Fine, cream clay. Brown-black paint, very faded: interior rim band; exterior has rim band and papyrus pattern. Cf. *MUM* ii, pl. 126 d (LM III B sherds). LM III B or III C. Chamber, c. 3.1 m depth (Box 318).

P52 (FIG. 20) Kylix. Rim sherd. Fine, buff clay. Black lustrous paint: interior rim band; exterior with rim band and lily. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P53 Cup. Body sherd. Fine, buff clay. Brown-black paint: solid interior; exterior with floral decoration. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P54 (FIG. 20) Cup or bowl. Rim sherd. Fine, cream clay. Brown paint: solid interior; exterior with rim band and diagonal bands below. LM III B or III C. Chamber, c. 3.1 m depth (Box 318).

P55 (FIG. 20) Cup or bowl. Rim sherd. Fine, buff clay. Brown-black paint: solid interior; exterior with rim band and concentric circles(?). LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

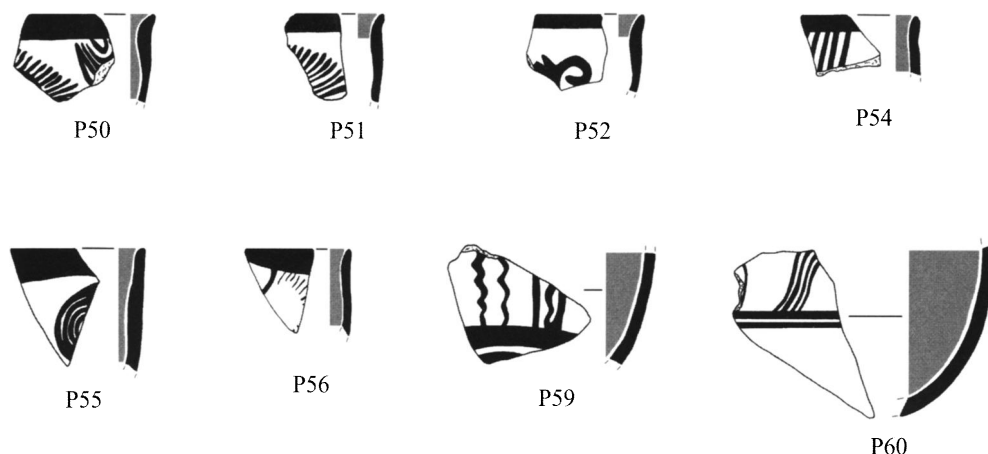


FIG. 20. LM III B or III C ceramics from the tomb (1:3).

P56 (FIG. 20) Cup or bowl. Rim sherd. Fine, buff clay. Brown-black paint: solid interior; exterior with rim band and horizontal flower. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P57 Cup or bowl. Rim sherd. Fine, pinky clay. Red-brown paint, very faded: solid interior; exterior with rim band and concentric(?) circles. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P58 Cup or bowl. Body sherd. Fine, buff clay. Orange-red paint: solid interior; exterior with diamond motif and band. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P59 (FIG. 20) Cup or bowl. Body sherd. Fine, brown clay. Orange paint: solid interior; exterior with bands and vertical straight and wavy lines. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P60 (FIG. 20) Cup or bowl. Body sherd. Fine, cream clay. Brown-black paint: solid interior; exterior with bands and vertical wavy lines. LM III B or III C. Chamber, 1.75–2.1 m depth (Box 336).

P61 Shallow angular bowl. See Cadogan 1967, 265 no. 18. LM III C. Chamber, 2.2–2.3 m depth.

P62 (FIG. 21) Bowl. Base sherd. D. (base) 3.4. Fine, cream, soft clay. Plain. LM III C. Grave alpha (Box 312).

P63 (FIG. 21) Bowl. Rim and upper body sherd. D. (rim) 15. Fine, pink-cream clay, hard-fired. Brown-black paint: solid interior; exterior with rim band and wavy horizontal line. LM III C. Chamber, 1.75–2.1 m depth (Box 336).

P64 Handleless spouted bowl. See Cadogan 1967, 261 no. 4, 260 fig. 2, and pl. 48. LM III C. Chamber, 1.31–1.85 m depth?

P65 (FIG. 21) Deep bowl. Body sherd. Fine, pink-

cream clay. Red paint: solid interior; double band on exterior below handle, arch behind handle; handle with solid upper face. LM III C. Forehall, 0–1 m above floor (Box 315).

P66 Deep bowl. See Cadogan 1967, 261 no. 7; Popham 1978, 185 no. 5 and fig. 1 *e* and pl. 25 *e*. LM III C. Chamber, 1.5–2.3 m, or 0–3 m depth.

P67 Deep bowl. See Cadogan 1967, 261 no. 8, 260 fig. 2, and pl. 48. LM III C. Chamber, above 2.3 m depth.

P68 Deep bowl. See Cadogan 1967, 263–5 no. 11, 260 fig. 2, and pl. 48. LM III C. Chamber at 1.75 m depth, immediately south of entrance.

P69 (FIG. 21) Stirrup jar. Part of stirrup handle. Fine, pinky clay. Orange paint on exterior: spiral on top of stirrup handle, bands down sides of arms. LM III C. Chamber or chamber entrance, surface level (Box 3).

P70 Stirrup jar. See Cadogan 1967, 261 no. 2, 263 fig. 4, and pl. 49. LM III C. Chamber 'under 3rd bone deposit' or grave gamma.

P71 Stirrup jar. See Cadogan 1967, 263 no. 10 and fig. 4, and pl. 49. LM III C. Chamber, north side, at 2.25 m depth.

P72 (FIG. 21) Stirrup-jar? Upper body sherd. Fine, pink clay. Cream slip and brown-black paint (very faded) on exterior: band of hatched diamonds with band below. LM III C. Grave gamma (Box 313).

P73 (FIG. 21) Stirrup jar? Two non-joining upper body sherds. Fine, buff clay, hard-fired. Exterior burnished, with red-brown paint: groups of vertical chevrons. LM III C. Chamber, 1.75–2.1 m depth (Box 336).

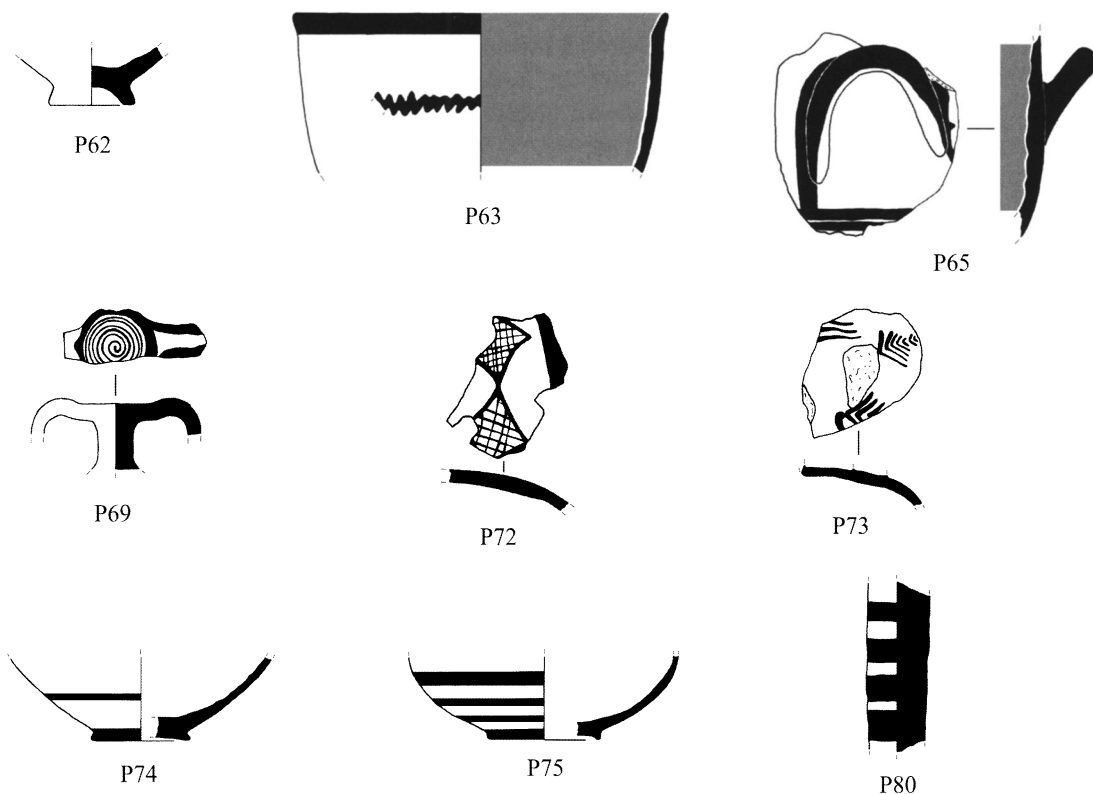


FIG. 21. LM III C ceramics from the tomb (1:3).

P74 (FIG. 21) Stirrup jar? Base only. D. (base) *c.* 4.2. Fine, pink-buff clay, hard-fired. Cream slip and red paint on exterior: narrow bands at base and on lower body. LM III C. Chamber, *c.* 3.1 m depth (Box 318) and grave alpha (Box 312).

P75 (FIG. 21) Stirrup jar? Two sherds from base and lower body. D. (base) *c.* 4. Fine, pink clay. Cream slip and brown paint on exterior: bands. LM III C. Chamber, 1.75–2.1 m depth (Box 336).

P76 Jug. See Cadogan 1967, 261 no. 6, 262 fig. 3, and pl. 48. LM III C. Chamber, at 3 m depth, between graves gamma and delta.

P77 Jug. See Cadogan 1967, 265 no. 12, 262 fig. 3, and pl. 50. LM III C. Chamber or chamber entrance, surface level.

P78 Tripod cooking pot. See Cadogan 1967, 265 no. 15, 264 fig. 5, and pl. 50. LM III C. Provenance unknown.

P79 Tripod cooking pot. Part of one leg. Coarse, orange-brown clay. Vertical groove on outer face.

Plain. LM III C. Chamber, 1.75–2.1 m depth (Box 336).

P80 (FIG. 21) Kylix. Stem only. Fine, cream clay. Brown paint: bands around stem. LM III C? Chamber entrance, above 1.5 m (Box 316, back right compartment).

P81 Narrow-necked jug. See Cadogan 1967, 263 no. 9, 262 fig. 3, and pl. 49. LM III C? North side-niche, 1.4 m below lintel.

P82 Amphoriskos. See Cadogan 1967, 261 no. 3, 262 fig. 3, and pl. 48. LM III C? Forehall, at 1.98 m depth.

P83 (FIG. 23) Bowl. Upper body and rim, with base of one handle. Fine, orange clay. Red paint: solid interior and exterior. LM III C or Subminoan. Chamber, 1.75–2.1 m depth (Box 336).

P84 (FIG. 23) Bowl. Three sherds from rim, body and handle. Fine, buff clay. Black paint: solid interior; exterior solid on upper body except for reserved area behind handle. LM III C or

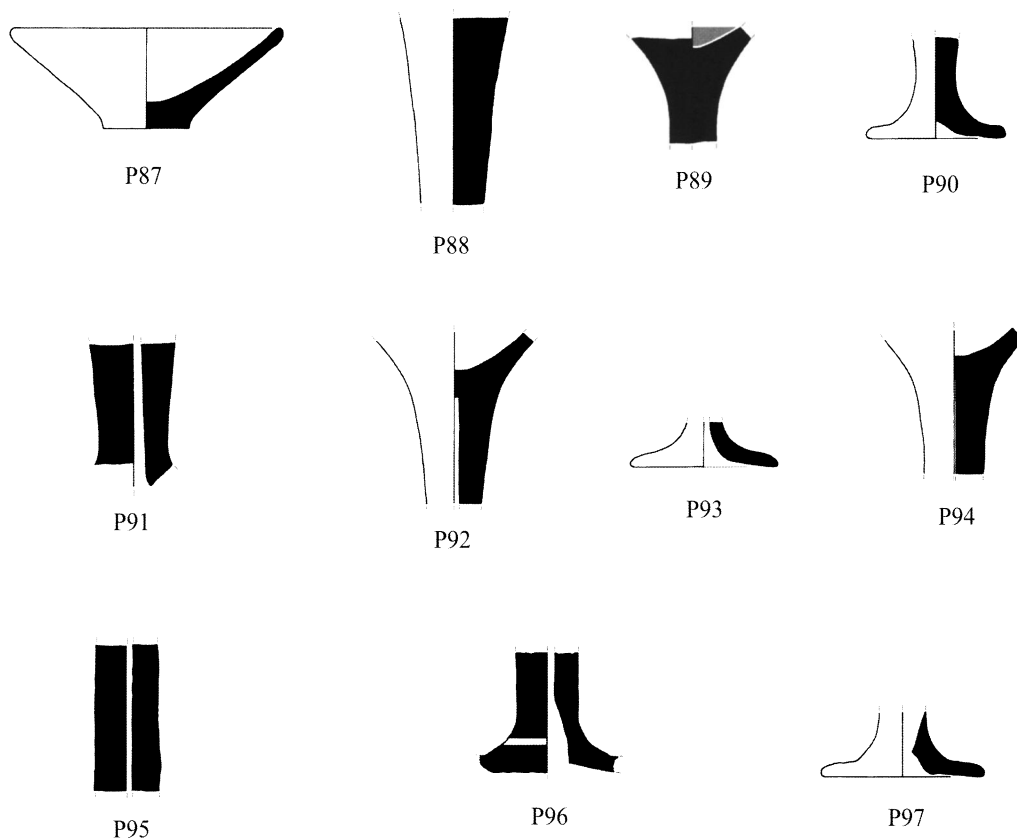


FIG. 22. LM III ceramics from the tomb (1:3).

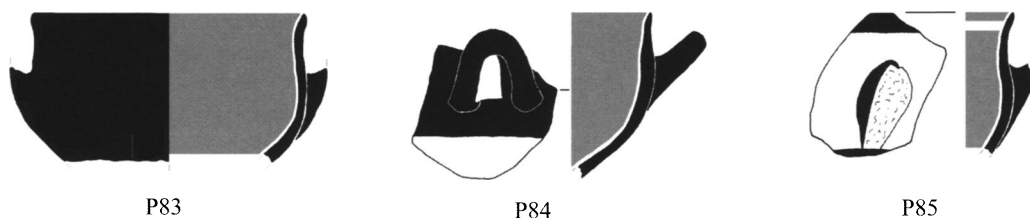


FIG. 23. LM III C or Subminoan ceramics from the tomb (1:3).

Subminoan. Chamber, 2.8–3.25 m depth (Box 337).

P85 (FIG. 23) Bowl. Rim and upper body with part of one handle. Fine, cream clay. Brown paint: interior solid with reserved band just below rim; exterior with rim band, line around base of handle, and band below handle. LM III C or Subminoan.

Chamber, 1.75–2.1 m depth (Box 336).

P86 Deep bowl. Rim sherd with part of handle. Fine, buff clay. Brown-black paint: interior solid with reserved rim band; exterior solid except reserved area behind handle. LM III C or Subminoan. Chamber, 1.75–2.1 m depth (Box 336).

P87 (FIG. 22) Conical cup. Half preserved. D. (base) 3.4, (rim) 11; H. 4. Fine, buff clay. Plain. LM III. Chamber, 1.75–2.1 m depth (Box 336).

P88 (FIG. 22) Kylix. Part of stem only. Orange, very hard-fired clay with grey core; small black and red inclusions. Plain. Stem solid. LM III. Chamber, 2.1–2.3 m depth (Box 319).

P89 (FIG. 22) Kylix. Upper stem and lower bowl. Fine clay, grey at core and brown towards surface, hard-fired. Black lustrous paint: solid interior and exterior. LM III. Chamber, 1.7–2.1 m depth (Box 338).

P90 (FIG. 22) Kylix. Base and lower stem. D. (base) c. 5.2. Fine, buff clay. Plain. LM III. Chamber, 1.75–2.1 m depth (Box 336).

P91 (FIG. 22) Kylix. Stem only. Fine, deep red clay, very hard-fired. Red-brown decoration on exterior: solid. LM III. Forehall, 0–1 m above floor (Box 315).

P92 (FIG. 22) Kylix. Stem and lower bowl. Fine,

cream-pink, hard-fired clay. Plain. LM III. Chamber, 2.1–2.3 m depth (Box 319).

P93 (FIG. 22) Kylix. Base sherd. D. (base) c. 6. Fine, buff clay. Plain. LM III. Chamber, 2.1–2.3 m depth (Box 319).

P94 (FIG. 22) Kylix. Stem and lower part of bowl. Fine, cream clay with pink core. Plain. LM III. Chamber, 2.1–2.3 m depth (Box 319).

P95 (FIG. 22) Kylix. Part of stem only. Fine, buff clay. Black paint: solid. Clumsily made. LM III. Chamber, 2.8–3.25 m depth (Box 337).

P96 (FIG. 22) Kylix. Part of base and lower stem. Fine, buff clay. Brown paint on exterior: band on base and solid stem. LM III. Chamber, 2.8–3.25 m depth (Box 337).

P97 (FIG. 22) Kylix. Base and lower stem. D. (base) c. 6.5. Fine, cream clay. Decoration unclear. LM III. Chamber, 2.8–3.25 m depth (Box 337).

Early Iron Age

P98 Stirrup jar. See Cadogan 1967, 261 no. 1, 263 fig. 4, and pl. 49. Subminoan. Chamber, 1.1 m depth.

P99 Deep bowl. See Cadogan 1967, 265 no. 14, 260 fig. 2, and pl. 48. Subminoan. Chamber, 1.31–1.85 m depth.

P100 (FIG. 24) Bell krater. 31 sherds (some joining) from rim, handles and most of body; no base sherds. D. (rim) 30. Fine, pinky-orange clay. Red paint: possible interior rim band; exterior has rim band and concentric circles enclosing a cross on upper body; stripe along outer face of handles. Middle–Late Protogeometric. Chamber, 1.75–2.1 m depth (Box 336).

P101 (FIG. 24) Kalathos. Rim sherd. D. (rim) c. 24. Fine, orange-red clay. Red-black paint: solid interior

and exterior; group of short strokes on upper face of rim. Protogeometric? North side-niche (Box 309).

P102 (FIG. 24) Amphora? Two body sherds, non-joining, possibly from same vessel. Fine, pink-cream clay. Brown paint on exterior: chequer pattern, bands and zigzag. Early Geometric? Chamber, 1.75–2.1 m depth (Box 336).

P103 (FIG. 24) Krater? Body sherd. Fine, pink-cream clay. Brown paint: solid interior; exterior with hatched zigzag. Late Geometric. Chamber, 1.75–2.1 m depth (Box 336).

P104 (FIG. 24) Skyphos or kotyle. Body sherd. Fine, buff clay. Brown-black paint: solid interior; exterior has band of concentric circles with bands above and below. Late Geometric or Early Orientalizing. Chamber, 1.75–2.1 m depth (Box 336).

TOMB EXTERIOR

Neopalatial

P105 (FIG. 25) Conical cup. One-third preserved. D. (base) 3.5; H. 3.6. Fine, pinky-buff clay. Plain. MM III–LM I A. Above south side-niche (Box 314).

P106 (FIG. 25) Conical cup. One-third preserved. D. (base) 3.9, (rim) 6.7; H. 3.8. Fine, pink clay. Plain. MM III–LM I A. Above south side-niche (Box 314).

P107 (FIG. 25) Ledge-rim cup. Rim sherd. D. (rim) 11. Fine, buff clay. Red paint: solid exterior and interior. MM III–LM I A. Above south side-niche (Box 314).

P108 (FIG. 25) Bowl/cup. Rim sherd. D. (rim) c. 12. Fine, orange-buff clay. Brown-black paint: solid interior; exterior with rim band and tortoiseshell ripple. MM III–LM I A. Above south side-niche (Box 314).

P109 (FIG. 25) Large closed vessel. Body sherd. Fine, buff clay. Black paint on exterior: bands framing a row of solid circles. LM I A. Above south side-niche (Box 314).

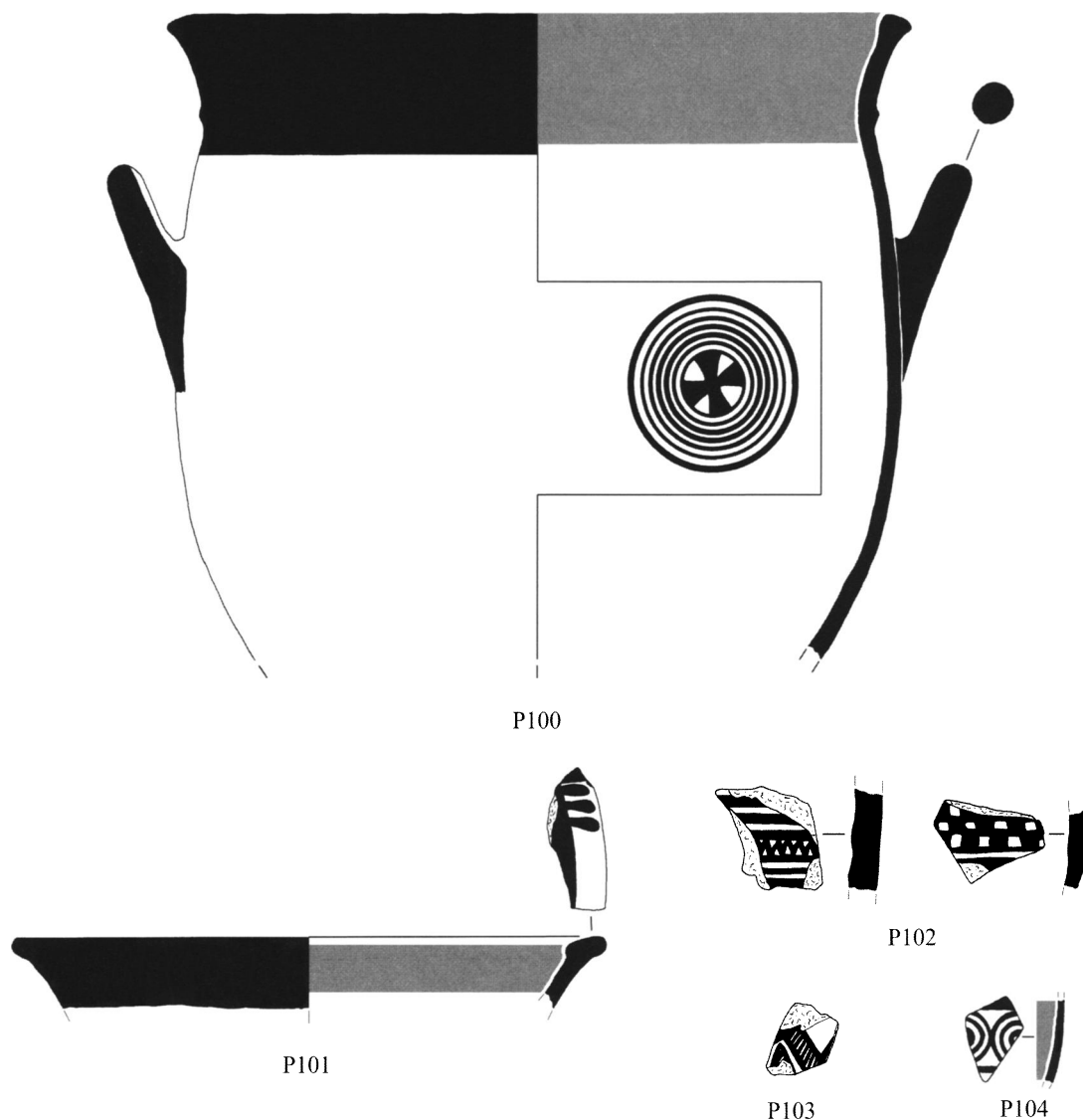


FIG. 24. Early Iron Age ceramics from the tomb (1:3).

TRENCHES EAST OF TOMB

Prepalatial and Protopalatial

P110 (FIG. 27) Tumbler. Base only. D. (base) 2.7. Handmade, with paring of the sides. Fine, buff clay. Plain. EM III or MM I A. Trench A, 1–2 m depth (Box 316, back left compartment).

P111 (FIG. 27) Footed goblet. Lower half only. D.

(base) 4.5. Upper body handmade and pared; base handmade. Fine, pink-orange clay. Black paint: solid interior; exterior solid, with traces of added white linear decoration; base plain. EM III or MM I A. Trench FC, 0–1 m depth (Box 332).

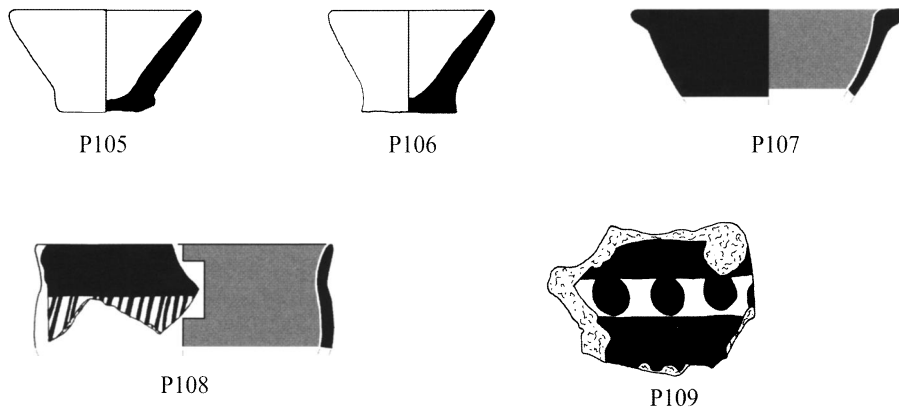


FIG. 25. Ceramics from above the south side-niche (1:3).

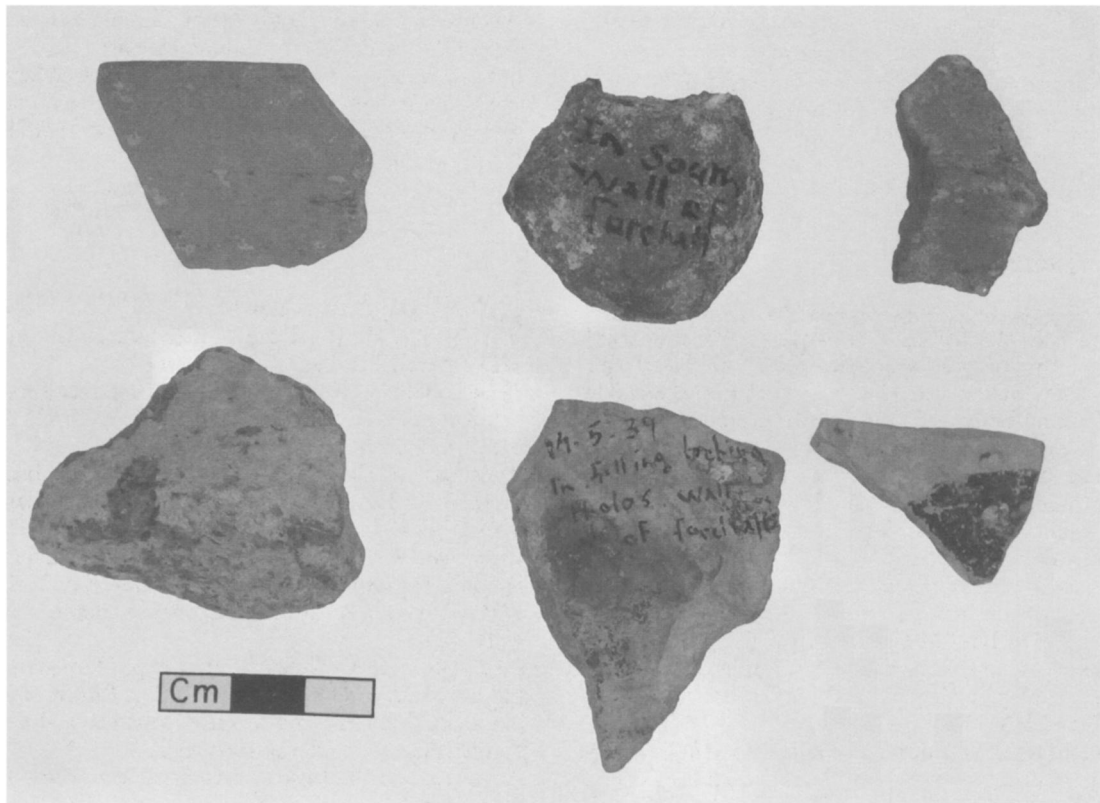


FIG. 26. Sherds from explorations behind the walls of the side-niches, forehall and main chamber (Box 329.3).

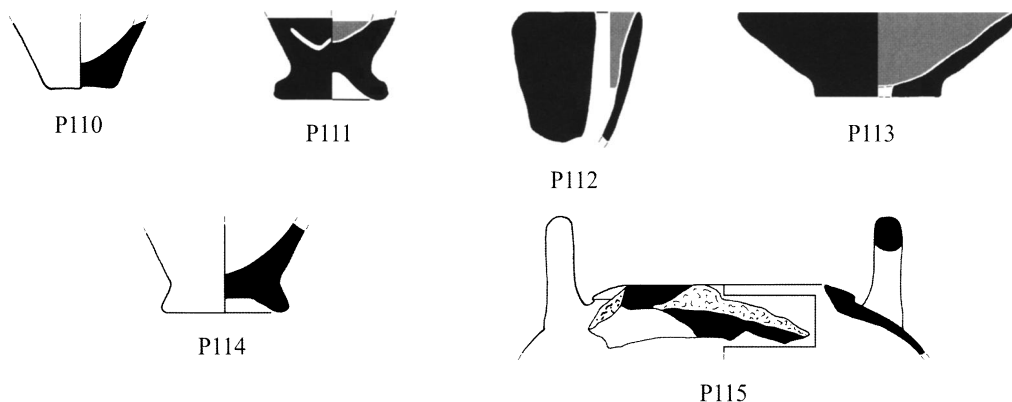


FIG. 27. Prepalatial and Protopalatial ceramics from the trenches east of the tomb (1:3).

P112 (FIG. 27) Footed goblet. Rim and body sherd. Handmade. Fine, cream clay. Black paint: upper body band on interior; solid exterior. MM I. Trench A (Box 335).

P113 (FIG. 27) Saucer. One-third preserved. D. (base) *c.* 5, (rim) 11; H. 3.2. Fine, orange clay. Red paint: solid interior and exterior. MM II A. Trench A? (Box 334).

P114 (FIG. 27) Footed goblet. Lower half only. D.

(base) 5.1. Handmade. Fine, pink clay. Faint traces of brown paint on exterior and interior, but decoration unclear. Protopalatial. Trench A, 1–2 m depth (Box 316, back left compartment).

P115 (FIG. 27) Bridge-spouted jar. Part of collared rim and one handle. D. (rim) 10.4. Fine, buff clay. Red paint: decoration unclear. MM II or MM III. Trench A (Box 335).

Neopalatial

P116 (FIG. 31) Bridge-spouted jar. Half preserved. D. (base) 5.3, (rim) 11; H. to rim 12.6. Fine, buff clay. Brown paint: interior with rim band and speckles below; exterior with trickle and speckle effects on body and base. MM III. Trench FC, 0–1 m depth (Box 332).

P117 (FIG. 28) Conical cup. One-third preserved. D. (base) 3. Fine, buff clay. Plain. MM III–LM I A. Trench A, 1–2 m depth (Box 316, back left compartment).

P118 (FIG. 28) Conical cup. Two-thirds preserved. D. (base) 2.6, (rim) *c.* 7.4; H. 3.8. Fine, buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P119 (FIG. 28) Conical cup. Complete. D. (base) 4.2, (rim) 7.4; H. 3.5. Fine, buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P120 (FIG. 28) Conical cup. Half preserved. D. (base) 4.4, (rim) *c.* 7.3; max H. 3.9. Fine, pink clay. Plain. Very irregular rim. MM III–LM I A. Trench A (Box 335).

P121 (FIG. 28) Conical cup. One-third preserved. D. (base) 4.6, (rim) 10; H. 5.3. Fine, buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P122 (FIG. 28) Conical cup. Half preserved. D. (base) 3, (rim) 7.1; H. 4.2. Fine, orange-buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P123 (FIG. 28) Conical cup. Half preserved. D. (base) 3.4, (rim) 9.8; H. 4. Fine, buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P124 (FIG. 28) Conical cup. Half preserved. D. (base) 4, (rim) 10; H. 4.6. Semi-coarse, cream clay. Plain. MM III–LM I A. Trench A (Box 335).

P125 (FIG. 31) Conical cup. One-third preserved. D. (base) 4.5, (rim) 14; H. 4.3. Fine, buff clay. Plain. MM III–LM I A. Trench FC, 0–1 m depth (Box 332).

P126 (FIG. 31) Miniature conical cup. One-quarter preserved. D. (rim) 8–9. Fine, buff clay. Brown-black paint: solid interior and exterior. MM III–LM I A. Trench FC, 0–1 m depth (Box 332).

P127 (FIG. 28) Bell cup. Three-fifths preserved. D. (base) 3.5, (rim) 7.6; H. 6.6. Fine, buff clay. Plain. MM III–LM I A. Trench A (Box 335).

P128 (FIG. 29) Bell cup. Rim sherd. D. (rim) 8. Fine, buff clay. Red-brown paint: rim band and trickles on interior and exterior. MM III–LM I A. Trench

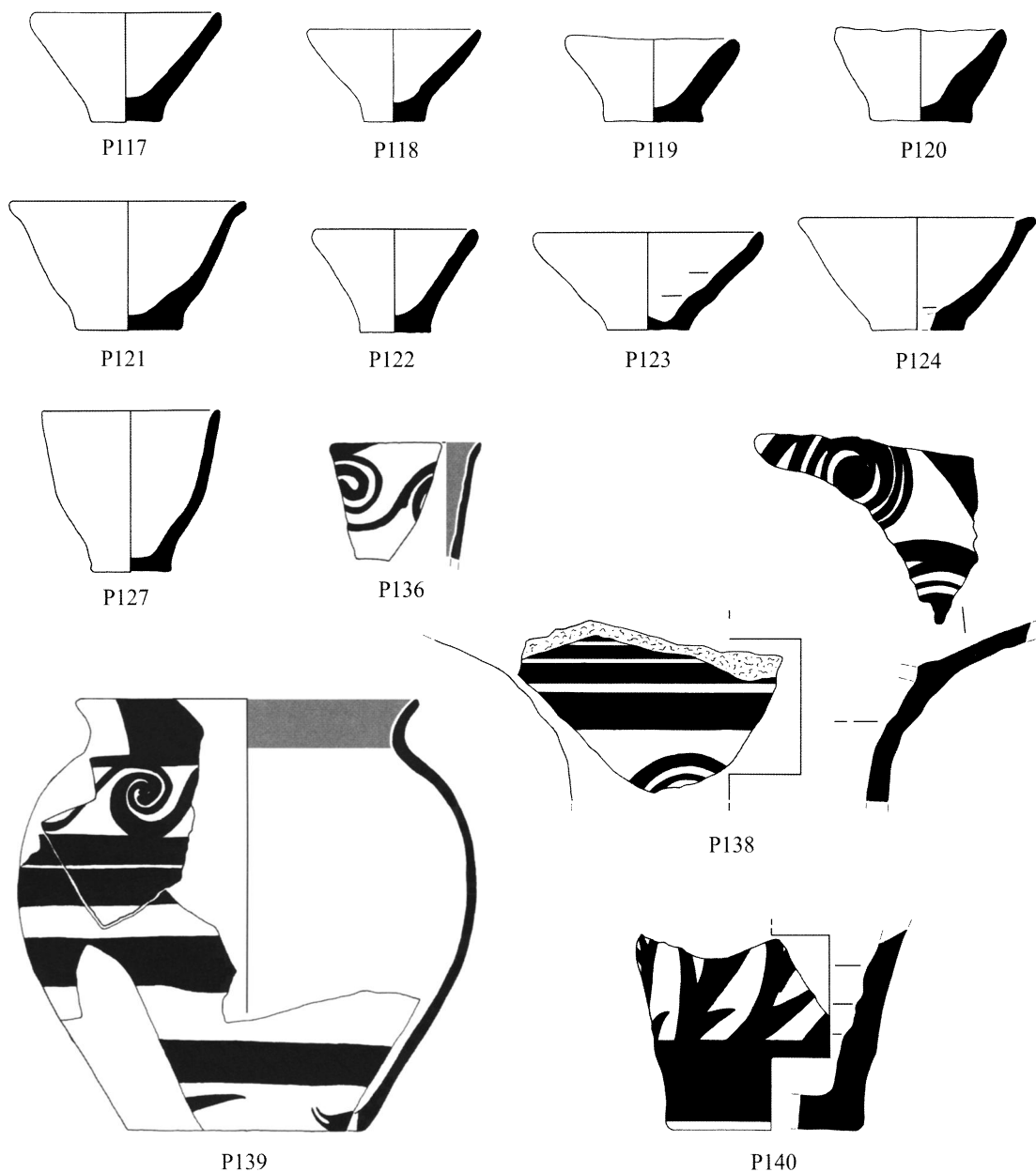


FIG. 28. Neopalatial ceramics from Trench A (1:3).

A, 1–2 m depth (Box 316, back left compartment).
P129 (FIG. 29) Straight-sided cup. Rim sherd. Fine, buff clay. Orange-brown paint: solid interior; exterior with rim band and tortoiseshell ripple below. MM III–LM I A. Trench A (Box 335).

P130 (FIG. 29) Straight-sided cup. Base only. D. (base) 7. Fine, buff clay. Brown-black paint: solid interior; exterior with two base bands and tortoiseshell ripple above; base decoration unclear. MM III–LM I A. Trench A (Box 335).

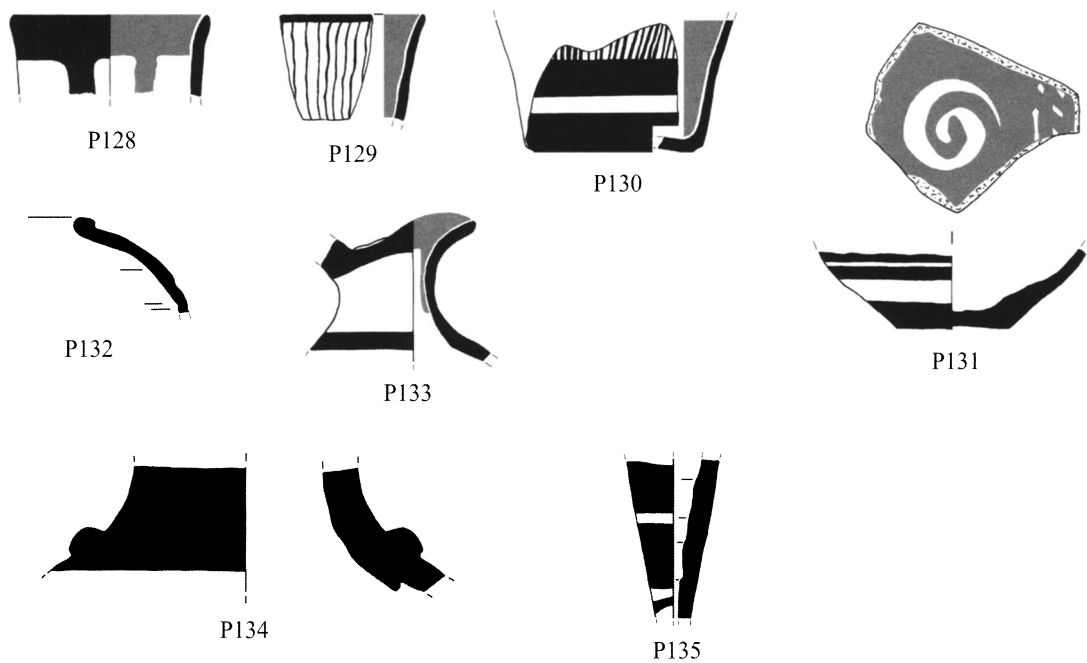


FIG. 29. Neopalatial ceramics from Trench A (1:3).

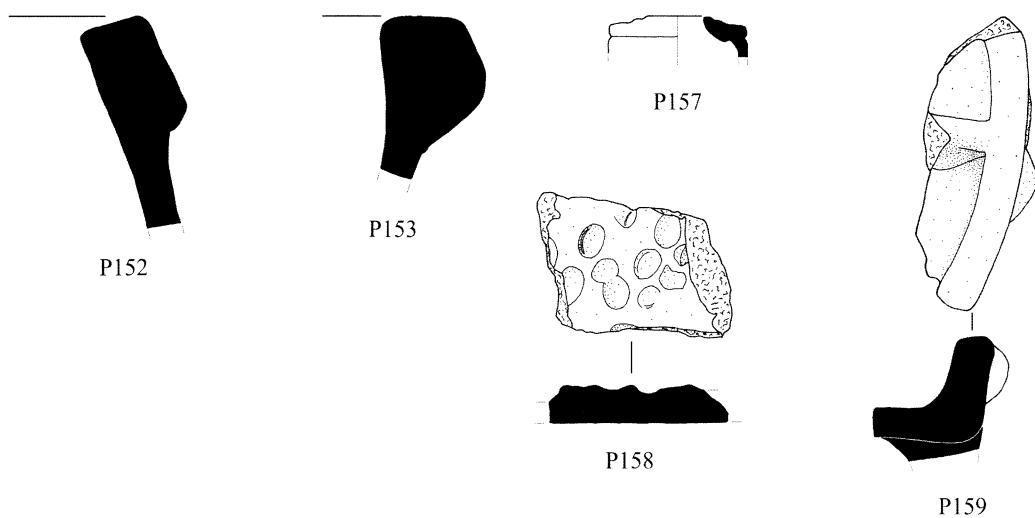


FIG. 30. Neopalatial ceramics from Trench A (1:3).

- P131** In-and-out-bowl. Base sherd. D. (base) 4.5. Fine, buff clay. Brown-black paint: interior with spiral at base and cross-hatching above; exterior with bands; base plain. MM III-LM I A. Trench A (Box 335).
- P132** (FIG. 29) Bridge-spouted jar. Rim sherd. Fine, buff clay. Red paint on exterior: solid. MM III-LM I A. Trench A, 1-2 m depth (Box 316, back left compartment).
- P133** (FIG. 29) Jug. Spout and neck only. Fine, buff clay. Red decoration: rim band and trickle on interior; rim band and lower neck band on exterior. MM III-LM I A. Trench A (Box 335).
- P134** Ewer? Neck sherd. Semi-coarse, pink clay. Cream-brown slip and black paint on exterior: solid down to base of neck. MM III-LM I A. Trench A (Box 335).
- P135** (FIG. 29) Conical rhyton. Lower body only. Fine, buff clay. Red-brown paint on exterior: broad, uneven bands. MM III-LM I A. Trench A, 1-2 m depth (Box 316, back left compartment).
- P136** (FIG. 28) Straight-sided cup. Rim sherd. Fine, orange-buff clay. Brown paint: solid interior; exterior with band of spirals. LM I A. Trench A (Box 335).
- P137** In-and-out bowl. Two sherds, from base and rim. D. (base) 5, (rim) c. 13.8; H. c. 8.1. Fine, buff clay. Brown-black paint: interior with wavy bands near rim and solid at base; exterior with bands and trickle; spiral on base. LM I A. Trench A? (Box 334).
- P138** (FIG. 28) 'Strainer'? Body sherd. Semi-coarse, pink clay. Orange paint: spirals on interior; bands and spirals on exterior. Cf. **P15**. LM I A. Trench A (Box 335).
- P139** (FIG. 28) Jar. About one-third preserved. D. (base) 10, (rim) 14.6; H. 17.6. Fine, cream clay. Black paint: rim band on interior; exterior has rim band, spiral band below rim, and bands on body. LM I A. Trench A (Box 335).
- P140** (FIG. 28) Large closed vessel. Base only. D. (base) 8.5. Fine, buff clay. Brown paint on exterior: base band and reed sprays. LM I A. Trench A (Box 335).
- P141** Large closed vessel. Base sherd. D. (base) 18. Semi-coarse, orange clay with small grey-black inclusions. Fugitive black paint: exterior has bands alternating with reed sprays and wavy lines; reed sprays on base. LM I A. Trench A? (Box 334).
- P142** (FIG. 31) Pithoid jar. Rim sherd. Coarse, pinky clay. Black paint: interior rim band; reed sprays on upper face of rim; band of dots on exterior face of rim with band(?) below. LM I A. Trench FC, 0-1 m depth (Box 332).
- P143** Conical cup. One-third preserved. D. (base) 3.7, (rim) 8.8; H. 4.8. Fine, buff clay. Plain. Neopalatial. Trench A? (Box 334).
- P144** Conical cup. Complete except small chip missing from rim. D. (base) 4.2, (rim) 9; H. 4.2. Fine, buff clay. Very fugitive traces of red paint: solid interior and exterior. Neopalatial. Trench A? (Box 334).
- P145** Conical cup. Complete except small chips missing from rim. D. (base) 3.9, (rim) 8.8; H. 4. Semi-coarse, orange-brown clay. Plain. Neopalatial. Trench A? (Box 334).
- P146** Conical cup. Half preserved. D. (base) 3.8, (rim) 9.9; H. 4.7. Fine, buff clay. Plain. Neopalatial. Trench A? (Box 334).
- P147** Conical cup. One-third preserved. D. (base) 4, (rim) 8.5; H. 4.4. Semi-coarse, grey clay. Plain. Irregular shape (pinched). Neopalatial. Trench A? (Box 334).
- P148** Conical cup. Three-quarters preserved. D. (base) 3.6, (rim) 8.4; H. 4.5. Fine, pinky-buff clay. Orange paint: solid interior and exterior. Roughly made. Neopalatial. Trench B, 0-1 m depth (Box 330).
- P149** Ledge-rim cup. Upper body preserved. D. (rim) 11. Fine, buff clay. Orange paint: solid interior and exterior. Neopalatial. Trench A? (Box 334).
- P150** In-and-out bowl. Base sherd. D. (base) 7. Fine, buff clay. Red-black paint: bands on interior and exterior; possible spiral on base. Neopalatial. Trench A, 1-2 m depth (Box 316, back left compartment).
- P151** Oval-mouth amphora. Rim sherd with one handle. Coarse clay, orange with grey core. Red decoration on exterior: stripe down upper face of handle, band round neck, band round base of handle. Neopalatial. Trench A (Box 335).
- P152** (FIG. 30) Pithos. Rim sherd. Coarse, orange-pink clay. Black decoration: solid on upper face of rim, possible band on exterior just below rim. Neopalatial. Trench A, 1-2 m depth (Box 316, back left compartment).
- P153** (FIG. 30) Pithos. Rim sherd. Coarse, orange-grey clay. Plain. Neopalatial. Trench A (Box 335).
- P154** (FIG. 31) Pithos. Rim sherd. Coarse, orange-red clay. Plain. Neopalatial. Trench FC, 0-1 m depth (Box 332).
- P155** (FIG. 31) Pithos. Rim sherd. Coarse, creamy clay with red inclusions. Plain. Neopalatial. Trench FC, 0-1 m depth (Box 332).
- P156** (FIG. 31) Pithos. Rim sherd. Coarse clay, orange with pink core. Plain. Neopalatial. Trench FC, 0-1 m depth (Box 332).
- P157** (FIG. 30) Lamp. Rim sherd. D. (rim) 5.5. Coarse, brown clay. Plain, but with coating of charcoal on the interior. Neopalatial? Trench A (Box 335).
- P158** (FIG. 30) Tray? Base(?) sherd. Th. 1.7. Fine, buff clay. Plain. Cf. stone 'tray' in Catling *et al.* 1979, 95 no. S.6. Neopalatial? Trench A (Box 335).
- P159** (FIG. 30) Tripod cooking dish. Rim sherd with part of one leg and a horizontal handle.

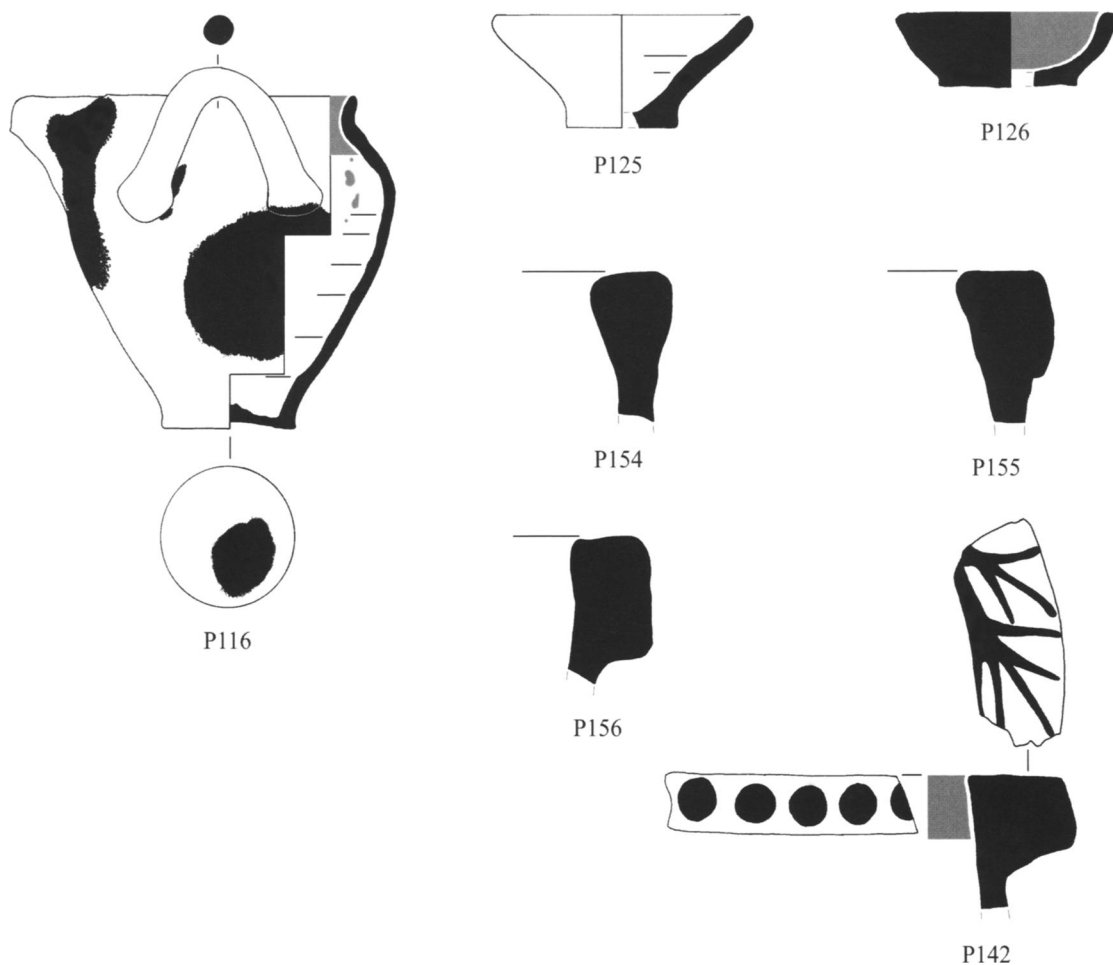


FIG. 31. Neopalatial ceramics from Trench FC (1:3).

Coarse, orange-brown clay. Plain. Part of moulded internal 'divider' preserved. Neopalatial? Trench A (Box 335).

Late Minoan II-III

P160 Tall cup. See Popham 1977, 186-8 no. 4 and fig. 1 c, and pl. 26 c-d. LM II. Trench FC.

P161 Champagne cup. Foot and lower body only.

D. (base) 6. Fine, cream clay. Plain. LM III A2. Trench E, 0-1 m depth (Box 1.2)

APPENDIX 3: SMALL FINDS FROM THE TOMB

CHAMBER

SF	Object	Depth (m)	Area
1	Medieval coin	0.5	?
2	Black steatite bead	0.5	?
3	Bronze ring	0.7	central
4	Bronze pin	c. 0.9	central
5	Bronze tweezers	c. 1	central
6-7	2 clay whorls	c. 1	east of entrance
8	Clay whorl	> 1	south
9	Clay whorl	c. 1.5	entrance fill
10	Bronze pin fragment	c. 1.6	south
11	Bronze ring fragment	c. 1.7	central
12	Obsidian fragment	1.75	north
13	Steatite bead/whorl	c. 1.8	east of entrance
14-15	2 clay whorls	c. 1.8	east of entrance
16	Bronze nail/pin	2.2	north
17	Purple steatite whorl	2.2	central
18	Bronze ring fragment	2.2	north, on a finger bone
19	Bronze ring fragment	2.2	north, near SF16
20	Bronze blade fragments	2.25	east of entrance
21	Fawn steatite whorl	2.25	central, near SF15
22	Ivory inlay fragment	2.3-2.6	east of entrance
23	Steatite mould	2.6	east of entrance
24	Grey steatite bead	c. 2.6	north
25	Steatite sealstone	c. 2.6	central
26	Bronze pin/punch	c. 2.6	central
27	Bronze tweezers	c. 2.6	central, near SF24
28	Faience bead, nautilus design	2.6-2.8	east of entrance, near SF22
29	Faience bead, biconical	2.6-2.8	east of entrance
30	Steatite button	2.8	central
31	Green schist button	c. 2.8	central
32	Gold-plated bronze stud	3	east
33	Gold ring fragment	3	south(?), near SF29
34	Clay whorl	3.1	edge of grave delta
35	Bronze knife, curved	3.15	east
36	Bronze pin	3.15	east, lying on SF32
37	Gold rosette	3.15	near south edge of grave gamma
38	Gold stud	3.15	south edge of grave gamma, near SF34
39	Bronze fragments	floor level	between graves beta and gamma
40	Gold fragments	floor level	between graves beta and alpha

GRAVE PITS

SF	Object	Grave
41	Clay bead fragment	alpha
42	Obsidian fragment	alpha, at 1.5 m depth
43	Clay whorl	beta
44	Faience bead	beta
45	Clay button	beta
46	Steatite fragment	gamma
47	Steatite bead	gamma
48	Bone pin	gamma
49	Clay whorl	delta
50	Bronze ring	delta
51	Faience pendent bead	delta
52	Gold rosette fragment	delta
53	Steatite button	delta
54	Obsidian blade	delta
55	Faience fragments	delta

FOREHALL

SF	Object	Depth (m)	Area
56	Bronze pin	1.98	below P81

APPENDIX 4: THE HUMAN SKELETAL REMAINS

BY REBECCA GOWLAND

INTRODUCTION

The human remains analysed in this report were excavated in 1938 from the Kephala Tholos. Excavations indicated that four graves had originally been cut into the floor of the tomb and these were likely to have been the burial place of at least four individuals, presumably buried as primary, articulated inhumations. The tomb had undergone some considerable disturbance in antiquity as a result of robbing and reuse of the tomb for further burials. No skeletal remains were found within the graves; it is likely that they were dispersed throughout the tomb during these episodes of disturbance. As a result, all the human bones recovered were disarticulated, commingled, and highly fragmentary.

An indication of the various levels that the human bones came from within the tomb can be gleaned from the excavation records and published report; however, detailed contextual information is lacking. No previous osteological analysis of these skeletal remains has been undertaken and this is consistent with the general lack of such studies from Knossian Bronze Age cemeteries. As a result it was not possible to contextualize the findings from the skeletal remains in this tomb within a biocultural framework for the Minoan period. Another limitation of this analysis relates to the policy of selective retention of cranial remains during excavation, a practice that creates a number of interpretive difficulties that will be discussed further below.

Despite these limitations, useful information could still be derived from the human bones. The skeletal material was examined in order to estimate the minimum number of individuals present and, where possible, to identify sex and estimate age at death. Each bone fragment was analysed for the presence of any pathological lesions or abnormalities. The methods used in this analysis and the results are presented below. A detailed catalogue of the bones has been submitted to the archive of the British School at Athens.

MATERIAL

Human remains from the Kephala excavations are stored at Knossos in a box labelled '1938/3 THOLOS (2.10–2.30 + SKULL A)'. This contains seven bags with the following labels:

- 1 '1938/3 THOLOS 2.10–2.30'
- 2 '1938/3 THOLOS 2.10–2.30'
- 3 '1938/3 THOLOS 2.10–2.30'
- 4 '1938/3 THOLOS 2.10–2.30'
- 5 'SQUIRE 1938/13 Tholos on Kephala 8.12.36 Above fallen material'
- 6 '1938/3 THOLOS 5.12.38 SKULL A 2 crania'
- 7 '?THOLOS? 1938/3? 2 crania'

The remains from Bag 7 are not discussed in this analysis, owing to the uncertainty over whether they actually derive from the Kephala excavations. Further remains were mixed with the sherd material in the following boxes in the Stratigraphical Museum: 309, 310, 312, 313, 316 back left, 316 front left, 316 back right, 316 front right, 317, 318, 319, 331, and 337.

METHODS

Sexing

The bones of the pelvis provide the most reliable criteria for determining sex. However, owing to the absence of pelvic bones in this sample, sex estimations were based upon the diagnostic criteria of the skull.¹³⁵ Estimating sex using the skull can be problematic because a degree of overlap exists between the sexes with respect to the relevant morphological

¹³⁵ W. M. Krogman and M. Y. İşcan, *The Human Skeleton in Forensic Medicine* (Springfield, Ill., 1986); J. Buikstra and D. H. Ubelaker, *Standards for Data Collection*

from Human Skeletal Remains (Ankara Archaeological Survey Research series no. 44; Fayetteville, Ark., 1994).

features. Different skeletal populations also vary in terms of the extent and range of sexual dimorphism they exhibit. These factors caused particular problems in the analysis of this sample because there were only a few individuals present (making it difficult to assess the full range of variation) and the bones are incomplete and highly fragmented.

The majority of sex determinations were based upon the morphological characteristics of the temporal bone, in particular the mastoid process and appearance of the zygomatic arch. All temporal bones were seriated according to robusticity in an attempt to gauge the extent and range of sexual dimorphism within the group. Because of the limitations mentioned above, the sex determinations made in this report have been stated as 'probable' male or female only. No attempt was made to determine the sex of the juvenile bones as there are currently no reliable methods available. This is because of the considerable degree of overlap in sexual dimorphism that exists prior to skeletal maturity.

Ageing

The absence of pelvic bones has also meant that skeletal age estimation of the adult skeletons has been limited to the examination of dental attrition using D. R. Brothwell's criteria¹³⁶ and only a few complete molar dentitions were present. Dental wear ageing is problematic because this method was derived from a skeletal population that is temporally and geographically distant from the one being studied. Dental wear is dependent on dietary and cultural practices as well as age and can vary significantly between populations. However, an examination of another skeletal report on Minoan human remains,¹³⁷ where dental age indicators could be compared to other skeletal age indicators, indicates that dental wear was broadly comparable to the parameters used by Brothwell.

Age estimation using cranial suture closure was not used in this study, in part because of the incomplete and fragmentary condition of the skull fragments present, but also because it is a notoriously inaccurate indicator of skeletal age at death. Unfortunately, the majority of bones present could not be assigned to an age category any more precise than 'adult'.

Immature skeletal remains can be aged much more accurately than adults because of the variety and rapidity of the developmental changes that occur during the growth period. The immature individuals were assigned ages based upon dental development and eruption.¹³⁸ Dental development is considered the most accurate method of ageing sub-adult skeletal remains.

Pathology

Each bone fragment was examined macroscopically for evidence of pathological conditions including: degenerative and infectious diseases, endocrine and metabolic disorders, nutritional deficiencies, trauma, and other congenital or bony abnormalities. The dentition was also examined for any pathological conditions or abnormalities.

¹³⁶ D. R. Brothwell, *Digging Up Bones*, 2nd edn. (Ithaca, 1981).

¹³⁷ B. P. Hallager and P. J. P. McGeorge, *Late Minoan III Burials at Khania* (Göteborg, 1992).

¹³⁸ C. F. A. Moorees, E. A. Fanning, and E. E. Hunt,

'Age variation of formation stages for ten permanent teeth', *Journal of Dental Research*, 42 (1963), 1490-502; D. H. Ubelaker, *Human Skeletal Remains*, 2nd edn. (Washington, DC, 1989).

RESULTS

Preservation

Overall, preservation was extremely poor and, as table 2 demonstrates, the bones recovered from the tomb were almost entirely derived from the skull, though some postcranial remains had been retrieved and retained. The primary reason for the predominance of cranial bones is likely to be a selective bias on the part of the excavators—hinted at in the published report.

It is only relatively recently in the UK that human bones have been considered to have any kind of interpretative importance for archaeological sites. It was common practice in excavations of the earlier twentieth century either to discard human bones or to keep only the skulls as these were seen as potentially useful for addressing questions, pertinent at the time, concerning 'race'.

It is also possible that the excavators simply missed some of the smaller post-cranial bones entirely, or did not recognize them as distinctively human, therefore increasing the likelihood of their being discarded. The selective bias created by the excavators obviously severely limits the interpretative value of the assemblage. For example, it was not possible to use the differential frequencies of skeletal elements to identify particular burial rites (e.g. secondary burial practices).

Taphonomic factors are also likely to have contributed to the predominance of cranial bones in the skeletal assemblage. It has frequently been observed at sites with poor bone preservation that those of the skull are more resilient than most post-cranial bones to post-depositional diagenesis. This is because cranial bones contain a higher proportion of dense compact bone as opposed to the spongy, more porous, cancellous bone.

As mentioned above, the cranial bones were highly fragmented and bone deposits commingled. Many of the cranial bones were also extremely weathered, exhibiting erosion of the ectocranial and endocranial surfaces and smoothing of the fragment edges, indicating that some of the crania had been broken within the burial environment for some time. This probably occurred during the various episodes of disturbance through robbery and later burial. The bones excavated from the higher levels of the tomb generally exhibited greater levels of weathering than those from the lower levels. However, the fact that, in some instances, bones excavated from the same levels showed marked differences in the degree of weathering is a further indication of the level of disturbance of the tomb contents prior to excavation. Those elements present in each context have been listed in table 2. It should be stressed that the numbers in each column more often refer to fragments than to complete bones. Furthermore, those bones in the 'unidentified' row for both long bones and cranial bones tended to be extremely small fragments, often only about 2 cm in length.

Minimum number of individuals

The minimum number of individuals (MNI) tends to be a very crude measure, calculated from the repetition of skeletal elements. In this study it was possible to refine this calculation further by a comparison of skeletal elements within and between the several contexts. The minimum number of individuals in each context, together with information concerning age and sex, is presented below.

TABLE 2. Number of bone fragments of each type excavated from different layers of the tomb (a more detailed catalogue of fragments has been deposited in the BSA archive).

Context		Bags 1-4 (2.1-2.3 m)	Bag 5 (‘Above fallen material’)	Bag 6 (‘2 crania’)
Bone	Side			
Parietal	R	1	2	4
	L		1	5
	U	18	3	5
Temporal	R	5	1	2
	L	3		1
	U	1		1
Frontal		13	2	5
Orbit	R	2		
	L	3	3	1
Occipital		4	5	5
Basi-Occipital		2	1	
Sphenoid		17	6	2
Zygomatic	R	2		
	L	2		
	U		1	
Maxilla	R	4	1	
	L	1		
	U	1		
Mandible	R	1		4
	L	1		2
	U			2
Unident. cranial frag.		31	26	37
Cervical vert.		3		
Femur				2
Tibia				2
Fibula				2
Clavicle				1
Unident. long bone frag.				63
Ribs				5

Bags 1-4 (at ‘2.10-2.30 m’). In the published report this level is referred to as containing the ‘fifth deposit’ of human remains, producing four skulls, one from the west and three from the east side of the chamber. The bone fragments in this layer represent a minimum of five individuals. These include: one juvenile aged approximately seven years, two probable males, one probable female, and one adult of unknown sex. Age at death was estimated from the dental remains of two adults (possibly belonging to those aforementioned): one was 17-25 years of age and the other 25-35 years.

Bag 5 ('Above fallen material'). This layer probably corresponds with a depth of above 2.1 m, above the densest level of fallen roof blocks in the chamber fill and may correspond to Hutchinson's 'deposit 4', at 1–1.7 m depth. It contains a minimum of three adults, including at least one probable female.

Bag 6 ('2 crania—between 1–1.70 m'). The label date (5th December) suggests that this material derives from Hutchinson's 'deposits 1–3'; however, the depth cited (1–1.7 m) would correspond with 'deposit 4'.

The latter was said by Hutchinson in the published report to have produced two skulls. These remains represent a minimum of seven individuals. These include one juvenile aged 7–10 years, and six adults, including one probable male. This was the only layer from which a few fragmented post-cranial remains had been retained.

DISCUSSION

If one were to treat each deposit as though a distinct layer, and assume that no mixing of bones occurred between them, then the minimum number of individuals represented by the group would be two juveniles and thirteen adults, including three probable males and two probable females. However, given the vagueness of the context labels, and the probability of mixing of the skeletal remains in antiquity, the tomb should be considered a single deposit. This reduces the minimum number of adults to ten, although this still includes the three probable males and two probable females. The number of juveniles remains unchanged.

A small quantity of human bones was also curated with the ceramic material from the tomb. This consisted of a highly fragmented mix of cranial and post-cranial bones. Most of the fragments were less than 5 cm in size. The remains were predominantly adult (MNI = 2), but there was also a long bone shaft fragment belonging to an infant (less than one year of age) and a cranial fragment of a juvenile. This would alter the previous MNI for the tomb treated as a single deposit by only one individual (the infant).

Dentition and dental pathology

This section discusses the dental remains and dental pathologies or abnormalities observed. The dental remains consisted primarily of mandibular and maxillary fragments and loose teeth rather than complete dentitions. TABLE 3 summarizes the dentitions and loose teeth present.

Caries. Only a single tooth exhibited a carious lesion (FIG. 32), giving a caries prevalence of 2.9% for the group. A carious lesion forms when ingested carbohydrates become trapped around the teeth together with plaque and become fermented by micro-organisms. This process creates an acid environment that dissolves the mineral phase of the teeth, producing a cavity.¹³⁹ The caries prevalence for this sample is low when compared to other Minoan sites. For example, at Khania Odos Palama the caries prevalence was very high at 36.9%, at Armenoi it was 17.7% and at Ailias 9%.¹⁴⁰

¹³⁹ S. Hillson, *Teeth* (Cambridge, 1986).

¹⁴⁰ Hallager and McGeorge 1992 (n. 137).

TABLE 3. Information on dental remains.

Circumstance	No.
Post-mortem loss	35
Ante-mortem loss	5
Congenital absence	2
Unerupted	2
Deciduous	2
Loose teeth	11
Erupted teeth with jaw	22

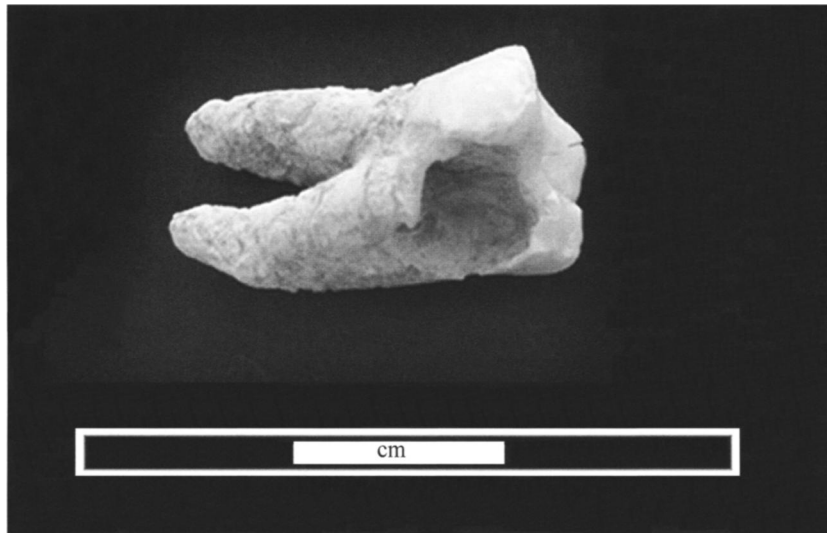


FIG. 32. A carious lesion on a lower right first molar.

Abscesses. At least two individuals in this group had suffered from abscesses and the prevalence for the group was 3.1%. One of the abscesses was on the maxilla (FIG. 33) and the other was on the mandible. The latter also exhibits periodontal disease in the form of new bone growth and pitting around the edges of the abscess sinus (FIG. 34). An abscess forms as a result of the exposure and infection of the pulp cavity by micro-organisms. The infection tracks down the tooth and pus will accumulate at the root apex, eventually resulting in a sinus.¹⁴¹ Any factors that result in the exposure of the pulp cavity will

¹⁴¹ Hillson 1986 (n. 139); C. Roberts and K. Manchester, *The Archaeology of Disease*, 2nd edn. (New York, 1995).

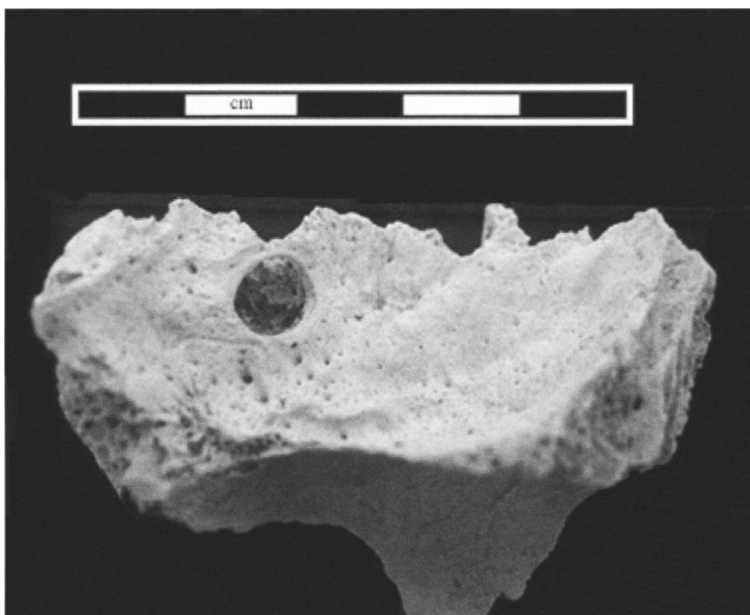


FIG. 33. Maxillary abscess sinus.

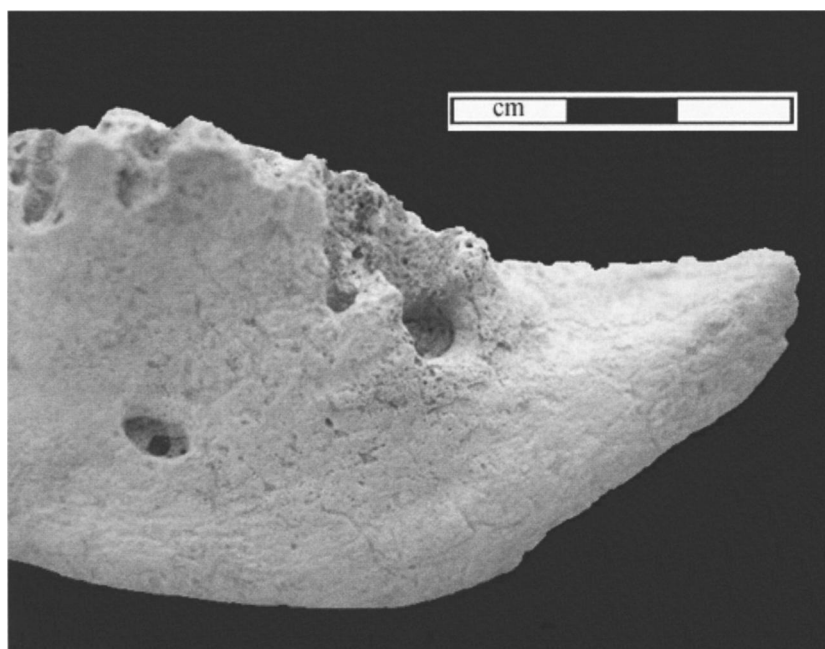


FIG. 34. Abscess sinus and periodontal disease on a mandible.

predispose the teeth to infection and abscesses are frequently associated with chronic caries and severe attrition. The abscess prevalence in this group is comparable with those from other Minoan sites: at Khania Odos Palama it was 1.3%, at Armenoi 2.5% and at Alias 4.9%.¹⁴²

Ante-mortem tooth loss. When an individual loses a tooth during life, the alveolar bone surrounding the socket will gradually close over. Ante-mortem tooth loss had occurred with a prevalence of 8% in this sample. Tooth loss may occur for a number of reasons, including dental disease, violence and severe attrition. Four of the teeth 'lost ante-mortem' were molars and one was a lower central incisor. Ante-mortem loss of the posterior teeth is more common in archaeological populations and usually results from dental disease. By contrast, loss of the anterior teeth (the incisor) is usually associated with old age, violence, or in the case of the upper central incisors, diseases such as leprosy and syphilis.

Dental abnormalities. One individual had laterally rotated upper canines. Rotated teeth are not uncommon from this period and have also been observed in three individuals from Khania Odos Palama.¹⁴³

Pathological lesions

In the absence of soft tissues palaeopathological information is restricted to those diseases that affect the bones. These tend to be long-term, chronic conditions and the bones are often involved only in the later stages of these diseases. As a result, bones showing no evidence of disease do not necessarily indicate a healthy individual, rather than one who died before a disease progressed to bone or suffered from a more acute condition that does not affect bone. These interpretative limitations are compounded in this sample by the highly fragmented and incomplete condition of the skeletons. Owing to the almost complete absence of post-cranial bones, the diseases observed were limited to those that manifest on the skull.

Porotic hyperostosis and cribra orbitalia. Porotic hyperostosis and cribra orbitalia refer, respectively, to the porous appearance of the ectocranial surface of the cranial vault and orbits and the expanded condition of the inner diploic space (the middle portion of bone when viewed in cross section). These conditions have been associated with iron deficiency anaemia and reflect the body's attempts to increase red blood cell production by expanding the red bone marrow in the diploic space. This leads to a thinning of the outer table of the skull and a porous appearance to the ectocranial surface.¹⁴⁴ This condition does not necessarily indicate an iron deficient diet, but may also occur in response to an infection of the gastro-intestinal tract.¹⁴⁵ It has also been suggested that a reduction in the amount of iron in the body occurs as an immune response to exposure by an infectious disease.¹⁴⁶ Two fragments from two separate individuals from layer 2.10–2.30 exhibited healed porotic hyperostosis (FIG. 35). The orbits of three individuals exhibited cribra orbitalia, but these

¹⁴² Hallager and McGeorge 1992 (n. 137).

¹⁴³ Ibid.

¹⁴⁴ M. Lewis, 'Non-adult palaeopathology: current status and future potential', in M. Cox and S. Mays (eds), *Human Osteology in Archaeology and Forensic Science* (London, 2000), at 39–57.

¹⁴⁵ D. J. Ortner, *Identification of Pathological Conditions in Human Skeletal Remains* (New York, 2003), at 369.

¹⁴⁶ P. Stuart-Macadam, 'Porotic hyperostosis: changing interpretations', in D. J. Ortner and A. C. Aufderheide (eds), *Human Palaeopathology: Current Synthesis and Future Options* (Washington, DC, 1991), 36–9.

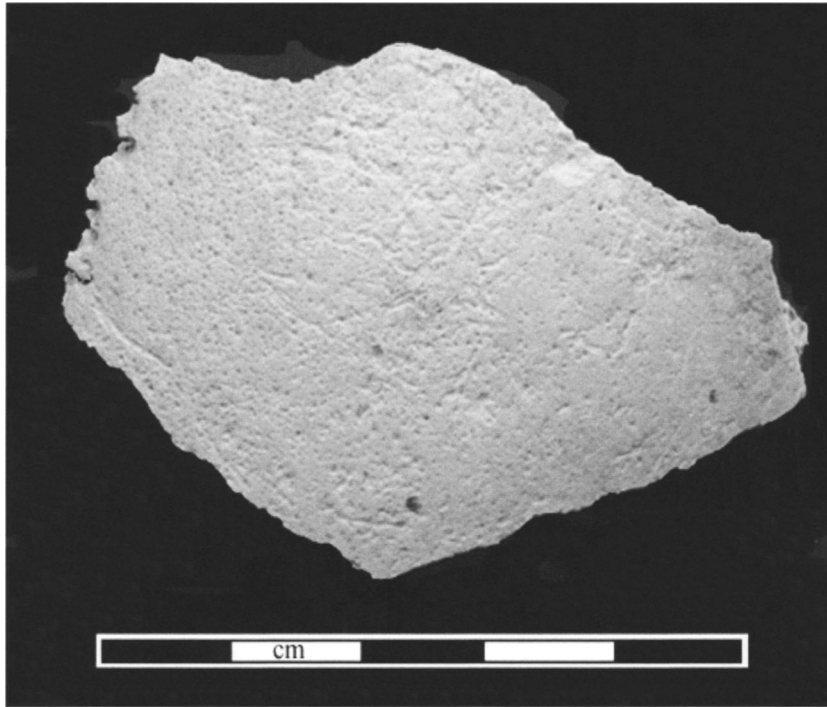


FIG. 35. Healed porotic hyperostosis on a cranial fragment.

were all adult individuals and the lesions showed evidence of healing (FIG. 36). Given that the lesions present were healed rather than active at the time of death it is unlikely that they were caused by an inherited haemolytic anaemia such as thalassaemia, a disease which commonly affects central and eastern Mediterranean populations. Thalassaemia has been observed at the Minoan cemeteries of Khania Odos Palama and Armenoi.

Overall, the incomplete nature of the skeletons from this tomb meant that the identification of specific diseases was difficult because accurate diagnosis often requires an examination of the distribution of lesions throughout the entire skeleton.

Non-metric traits

Non-metric traits are natural skeletal variants rather than pathological features. Those found on the skull and teeth do have an element of heritability to them, although they should not be used to verify genetic links between individuals within the same tomb or cemetery. One individual had an unfused metopic suture. This is the suture that runs down the front of the skull and usually fuses by approximately one year of age, but in some individuals is retained into adulthood.

CONCLUSIONS

Interpretation of this skeletal assemblage was severely hampered by a number of factors, including: the lack of contextual data, the heavy disturbance of the bones, the selective retention of particular skeletal elements by the excavators, and the heavily fragmented

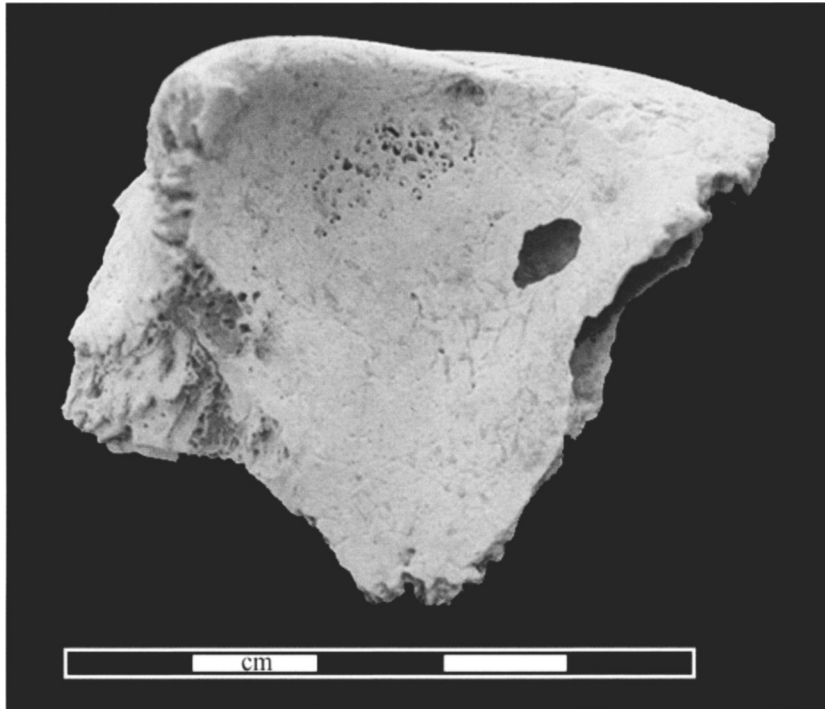


FIG. 36. Cribra orbitalia.

and incomplete condition of the bones. Despite these problems, some additional information has been obtained from this analysis. A minimum number of individuals buried in the tomb has been deduced and it is now clear that a possible infant, and children at least as young as seven years of age, as well as both male and female adults, were interred. In addition it has been demonstrated that some of these individuals suffered from health stress that may be related to an inadequate diet or infectious diseases. Dental pathology was also observed in the form of caries, abscesses and periodontal disease. The pathological information that could be retrieved from these remains was severely limited, but the conditions were consistent with those observed from other Minoan sites. Further analysis of skeletal assemblages from other cemeteries would provide a better picture of the local Knossian, and broader Cretan, populations through time.