

THE PALAIKASTRO KOUROS

A MINOAN CHRYSSELEPHANTINE STATUETTE
AND ITS AEGEAN BRONZE AGE CONTEXT



J. A. MACGILLIVRAY, J. M. DRIESSEN AND L. H. SACKETT

BRITISH SCHOOL AT ATHENS STUDIES



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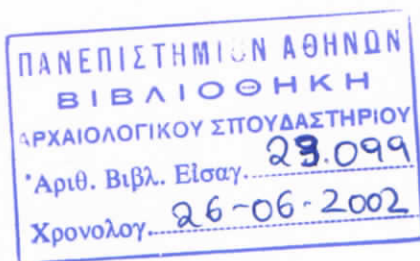
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Credits for the illustrations

Acknowledgement is made to the following sources for PLATES:

The Ashmolean Museum, Oxford (PLATE 30 *b*).
 The Boston Museum of Fine Arts, Boston (PLATE L).
 The National Archaeological Museum, Athens (PLATE 29 *a, b*).
 The Royal Ontario Museum, Toronto (PLATE 31 *a*).
 The Seattle Art Museum (PLATE 30 *a*).
 The Walters Art Gallery, Baltimore (PLATE 31 *b, c*).

Other FIGS. and PLATES have been contributed by the following individuals:

R. Dawnay (RD); N. Dolia (ND); J. M. Driessen (JMD); D. G. Evely (DGE); P. Jerome (PJ); J. A. MacGillivray (JAM); S. A. MacGillivray (SAM); M. S. Moak (MSM); A. Moraitou (AM); P. Murray (PM);

A. Nikakis (AN); D. Parfitt (DP); G. P. Ploumidi (GPP); R. Porter (RP); and L. H. Sackett (LHS) as follows:

RD: FIGS. 9.2, 10.1-2, 10.5-7; PLATE N *b*.
 ND: FIGS. 7.1 (after Musgrave), 9.3; PLATES 18 *c* (after Moak), J *f* (after Moak).
 JMD: FIGS. 1.1-2, 1.7, 1.9, 2.1-7; PLATE C.
 DGE: FIG. 1.8.
 PJ: FIG. 1.10.
 JAM: FIG. 14.1; PLATES 5, B *b*.
 PM: FIG. 2.7.
 SAM: PLATES 16, 17, 18 *a-b*, 24-25, J *f-g*.
 MSM: FIGS. 5.1-3; 5.4: *b-d*, 5.5, 8.2-3; PLATES 9, 10 *b-c*, 11-14, 15 *c*, 18 *c*, 19-22, A, E, F-H, J *a-e*, K.
 AM: PLATE 7 *a-d*.
 AN: FIGS. 3.1; PLATES 7 *e-f*, 8 *a-b*.
 DP: FIG. 6.1.
 GPP: PLATE N *a*.
 RP: FIG. 11.1.
 LHS: FIGS. 1.3-6; PLATES 1-4, 6, 10 *a*, 15 *a-b*, 23, B *a, B c, D*.



Abbreviations and terminology

ANM	Agios Nikolaos Museum	m	metre
Athens NM	Athens National Archaeological Museum	max.	maximum
Class/Hell.	Classical to Hellenistic	N	north/northern
D.	diameter	n.	footnote
E	east/eastern	pres.	preserved
EBA	Early Bronze Age	S	south/southern
EIA	Early Iron Age	SM	Siteia Museum
fr(s).	fragment(s)	TC	terracotta
H.	height	Th.	thickness
gm.	gramme	W	west/western
L.	length	W.	width
		Wt.	weight

TECHNICAL TERMS

Gc	gas chromatography
Ir	infrared reflectance spectroscopy
TC	terracotta
Xps	x-ray photoelectron spectroscopy

SYMBOLS

#	<i>zembil</i> or basic site locus unit, named for the recycled rubber baskets used to collect ceramics during excavation.
↑	absolute height above sea level in metres.

GLOSSARY

<i>ammouda</i>	sandstone, locally quarried at ta Skaria.	<i>sideropetra</i>	blue limestone slabs from Cape Sidero.
ashlar	square hewn stone masonry blocks laid in horizontal courses.	socle	stone-built foundation for a mud-brick wall.
<i>polythyron</i>	literally 'with many openings'—hence a Minoan Hall with multiple doors.	<i>thymiaterion</i>	incense burner.
		<i>xoanon</i>	wooden cult statue.
		<i>zoma</i>	Minoan belted kilt.

I

The excavation

Hugh Sackett and Alexander MacGillivray

with contributions by Jan Driessen and Doniert Evely¹

INTRODUCTION

Archaeological excavations in the Aegean Bronze Age town at Roussolakkos (PLATE B *a*) were conducted by members of the British School at Athens in three distinct operations. The earliest, in 1902–06, revealed the Main Street with blocks of large houses on either side (FIG. 1.1), the Temple of Diktaian Zeus, outlying cemeteries, dwellings, and the peak sanctuary on Mount Petsophas (PK I–V). The second campaign, in 1962 and 1963, after testing several areas, concentrated on Block N at Roussolakkos and the occupation of Kastri, the coastal hillock that gave the area its modern name of Palaikastro (PK VI–VII). The most recent excavations, from 1986 to the present, preceded by a topographical and magnetic survey in 1983, exposed buildings further to the N (FIG. 1.1: Buildings 1–7).² All three stages revealed parts of an extensive Bronze Age town which flourished during the successive periods of Palatial Crete (20th–15th centuries BC) in architecture, the arts, trade and religious activity.³ All three stages also produced ample evidence of a violent conflagration that swept through the town at the close of the LM IB ceramic phase, in the first half of the 15th century BC.

The Kouros was found, burnt and badly fragmented in different trenches over the years 1987, 1988 and 1990, starting before the architectural context could be understood.

After the 1983 topographical survey, a new site grid had been laid out by David Smyth and Jan Driessen, composed of 5.0 m square trenches denoted by letters (AA, AB, AC *etc.*) on the E–W axis and by numbers (01, 02, 03 *etc.*) on the N–S axis. All site records during excavation start with the horizontal location on this grid. The area where the LM I Kouros fragments were found, in the NW part of Building 5 and the adjacent sector of 'Harbour Road' with its 'Plateia' (plan at FIG. 1.2; views at PLATE 1 *a–c*), falls into the grid squares EQ 89–92, ER 91–92 and ES 91–93. The plan at FIG. 1.3 shows the position of the drawn stratigraphic sections in relation to both the excavation grid and the architectural features. The Kouros find-spots are also located on this plan.

The following account summarises the detailed observations made during the 1987, 1988 and 1990 excavations by site supervisors and architects. Its purpose

is to make clear the find spots of the various components that make up the Palaikastro Kouros—both their horizontal positions (on plan) and their vertical positions in the stratigraphic record. The lists of *zembil*, or basket/lot, numbers used at the time of discovery, essential for professional verification and future inspection, are confined here to notes.

THE PLATEIA, EXCAVATION OF THE IVORY TORSO AND OTHER FINDS (FIGS. 1.2, 1.7; PLATES 2 *a, b, d*; 5 *a–b*)

The open area in the street SW of Building 1, dubbed the Plateia, is defined by setbacks in the façades of Buildings 3 and 5. It was first located in trench ER92 in 1987, referred to then as area 33 (PK 1987, fig. 2), and was fully cleared when excavation was extended in 1988.⁴

The first fragments of the statuette, including the torso and one arm (shown *in situ* at PLATE 2 *c*), were found on 28 April 1987. It is worth noting that before and after this date work was interrupted by two bouts of heavy rain, bringing over a year's rainfall and causing major flooding. Thus the ivory was subjected to unusually wet conditions shortly before its removal from the earth. The context was a destruction level, clearly identified by the brilliant red earth of its burnt mudbricks and the dense mass of sandstone blocks fallen from the walls of Building 5, as well as the scatter of pieces of charcoal—the remains of charred wooden beams.

1 The excavations were directed by LHS and JAM; this summary was written by LHS, based on the field work of S. E. Thorne, S. A. Hemingway and A. Zissimatou, and the stratigraphical sections were drawn by him. The list of Kouros fragments and other finds, given in the APPENDIX to Part I and entered on the plan at FIG. 1.7, was compiled by JMD, who drew the architectural plans in this and the following chapter. The commentary on objects from contexts associated with the Kouros was contributed by DGE.

2 PK Survey; PK 1986–88; 1990–91; 1994/96.

3 A recent graphic summary of the site, featuring the Kouros, is given at Ashton and Taylor 1998, 48–51.

4 The excavation units were labelled: baulks ER92E–ER93E, ER92N, ER91N, EQ92E.



Fig. 1.1. Palaikastro, plan of the Neopalatial town site at Roussolakkos, showing Building 5 in relation to the other excavated blocks. Drawing by E. Mahy and JMD; conjectural streets shown in dotted lines.

Fragments of ivory, gold and Egyptian blue pigment—the first parts of the Palaikastro Kouros to come to light—lay, with other associated finds, on or near the gravel road surface at the bottom of the destruction level, in a layer of black ash sometimes several centimetres thick. These are numbered on the plan at FIG. 1.7 with the numerical sequence 62–95, 97–8.⁵ The blue pigment (nos. 70, 76 and 83 on plan) was seen to be spangled with tiny gold discs, and was found adhering directly to blackened earth.

After the removal of the ash deposit down to the road surface at depth 8.60–8.69†, further cleaning⁶ produced two other associated finds: a further fragment of gold leaf (99) and the fragment of a monochrome ogival cup (96).⁷

The stratigraphy is illustrated in the cross section drawn across the Plateia, A–A' at FIG. 1.4, which shows some of these finds at D, E, F, in the destruction level (no. 7). Though disturbed and levelled off in the immediately succeeding periods (LM II–IIIA₁, level nos. 4–6), the destruction level was in most places effectively sealed over by a later (LM IIIA₂) gravel road surface (level no. 3).⁸ The section also shows subsequent disturbance at a higher level, notably a late LM III robbing pit for the façade of Building 1 (level no. 9), and an even later (post-Minoan) quarrying pit (level no. 1a).

Further finds belonging to or associated with the statuette were found in 1988, most lying in the ashy layer beneath the stone fall (PLATE 2 *d* at left), and affected to varying degrees by fire. These include twelve objects of ivory or bone, sixteen of gold, and five serpentine or crystal parts of the statuette. Other objects are discussed by Evely below including stone objects, obsidian fragments, and objects of clay (a modelled boar, an animal horn, the muzzle of a bull's head rhyton, and an ogival cup). In addition three animal jaw bones were found.⁹ On the plan at FIG. 1.7 and included in the list below (APPENDIX to Part I), are those numbered 131–63, 165, 167–8, 171–3, 175–6, 347. After the conclusion of the 1988 season, and continuing into the following year, considerable effort was made to sieve all the soil from these areas, with commensurately valuable results.¹⁰ Listed but not on plan are objects from the sieve, nos. 180–1, 184–6, 197–204.

BUILDING 5, THE DISCOVERY OF THE LEGS AND SANDALS

(finds listed in the APPENDIX to Part I below)

Room 1 (PLATES 2 *b*; 5 *b*; 6).

Excavation of Room 1, the paved hall entered directly from the Plateia, was begun in 1987 and completed in 1988.¹¹ Although the stratigraphy revealed traces of late re-occupation floors,¹² the fine paved floor at 8.91† was reached without any destruction deposit which could be associated with either the LM IB levels or with the statuette fragments found in the adjacent spaces on ei-

ther side, at the NE and SW. This suggests that LM II or early LM III inhabitants completely cleared the room out.¹³ However, this paved room must have been open at the time of the LM IB destruction, and it is an important part of the statuette's architectural context, described in detail in Chapter 2 and interpreted in Chapter 6.

Room 2 (PLATE 3 *a*, *b*).

Excavation of Room 2, the find place of the statuette's legs and sandals, was begun in 1987–8 and completed in 1990.¹⁴ In 1990, Room 2 was excavated as a unit, at first keeping a thin 0.30 m wide baulk for reference at the SE side, shown in Section C–C' at FIG. 1.6¹⁵ (cf. PLATES 3 *b*, 6 *e*). Three re-occupation floors were encountered overlying the burnt destruction layer of the LM IB period; their association with structural changes to the building is discussed in Chapter 2. They are shown stratigraphically on the section (FIG. 1.6) at the bottom of level nos. 2, 3 and 4: a LM IIIB pebbled floor at 9.84–10.02†, traces of a yellow clay floor with multiple surfaces at 9.82–4†,¹⁶ and an earth floor levelling

- 5 Of these catalogued items fifteen included fragments of gold, seven were ivory (or bone), three preserved traces of Egyptian colouring, and three were shells or shell beads; one was a stone lamp fragment, four were ceramic (including fragmentary incense burner, ogival cup and conical cup), one was of plaster and three were obsidian blades or flakes. A full list is given in the APPENDIX to Part I.
- 6 This was excavated as level 7, #1241.
- 7 Continued cleaning under the supervision of Mark Moak produced other similar fragments (see his discussion below.)
- 8 A better preserved, and more representative, area of this road surface is seen at FIG. 1.5, Section B–B', level no. 3a.
- 9 Nos. 158–9, 172: 2 sheep or goat, 1 pig; we thank Sheilagh Wall Crowther for the identifications. The small number and their find-positions on the street/plateia surface make it difficult to attach any cult-significance to these, a conclusion with which Sheilagh is in agreement.
- 10 Objects recovered from the sieve included the feet, eyes and an ear of the statuette. See discussion by Moak in Chapter 5 below, and by Evely, in this Chapter, an assessment of the value of other finds recovered.
- 11 It was excavated as ER 91 by Anna Zissimatou on April 22–28, 1987 and between March 22 and April 18, 1988.
- 12 Pebbled flooring was found at 9.62–9.77† in the E corner of the room, traces of a clay floor above the paving at 9.35†, and a whitish trodden surface at 9.53†, or about 0.62 m above the paved floor.
- 13 A few centimetres of red earth deriving from burnt mud-brick (#0354) lay over the paving slabs, but could well derive from a second (LM IIIA) burnt destruction.
- 14 The upper levels were excavated by Anna Zissimatou in 1987–8, the lower by Seán Hemingway in 1990.
- 15 From that time onwards, the Room was designated as 'B5R2'. Excavation took place between 15 May and 26 June, 1990.
- 16 This is associated with the lower block of the internal step at the SW corner of the room, indicating that this entrance was already in place at this time.

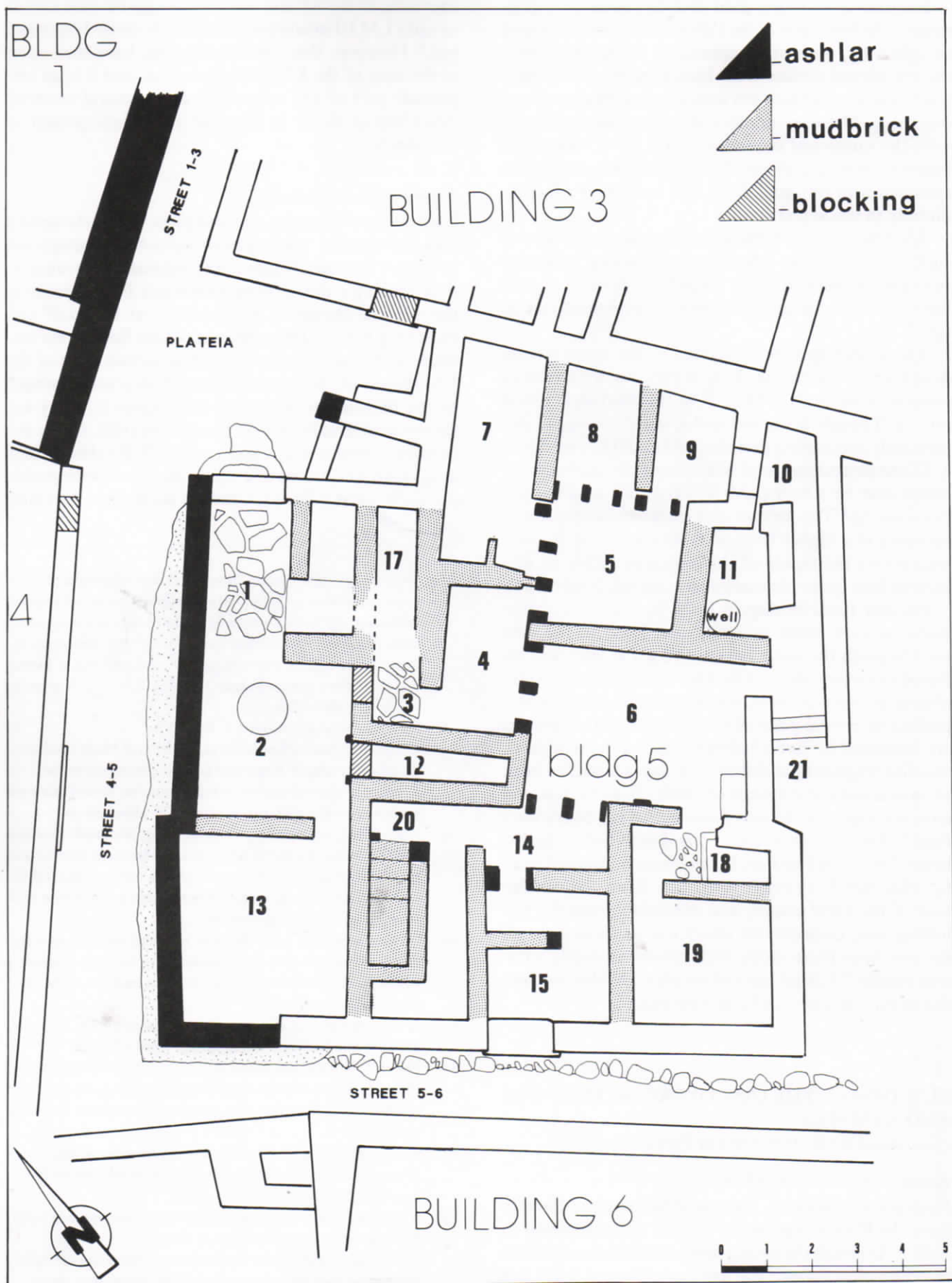


Fig. 1.2. Sketch plan of Building 5 and immediate surrounds, giving the architectural context of the Kouros fragments, at Rooms 1, 2, and 13 and the Plateia. (JMD)

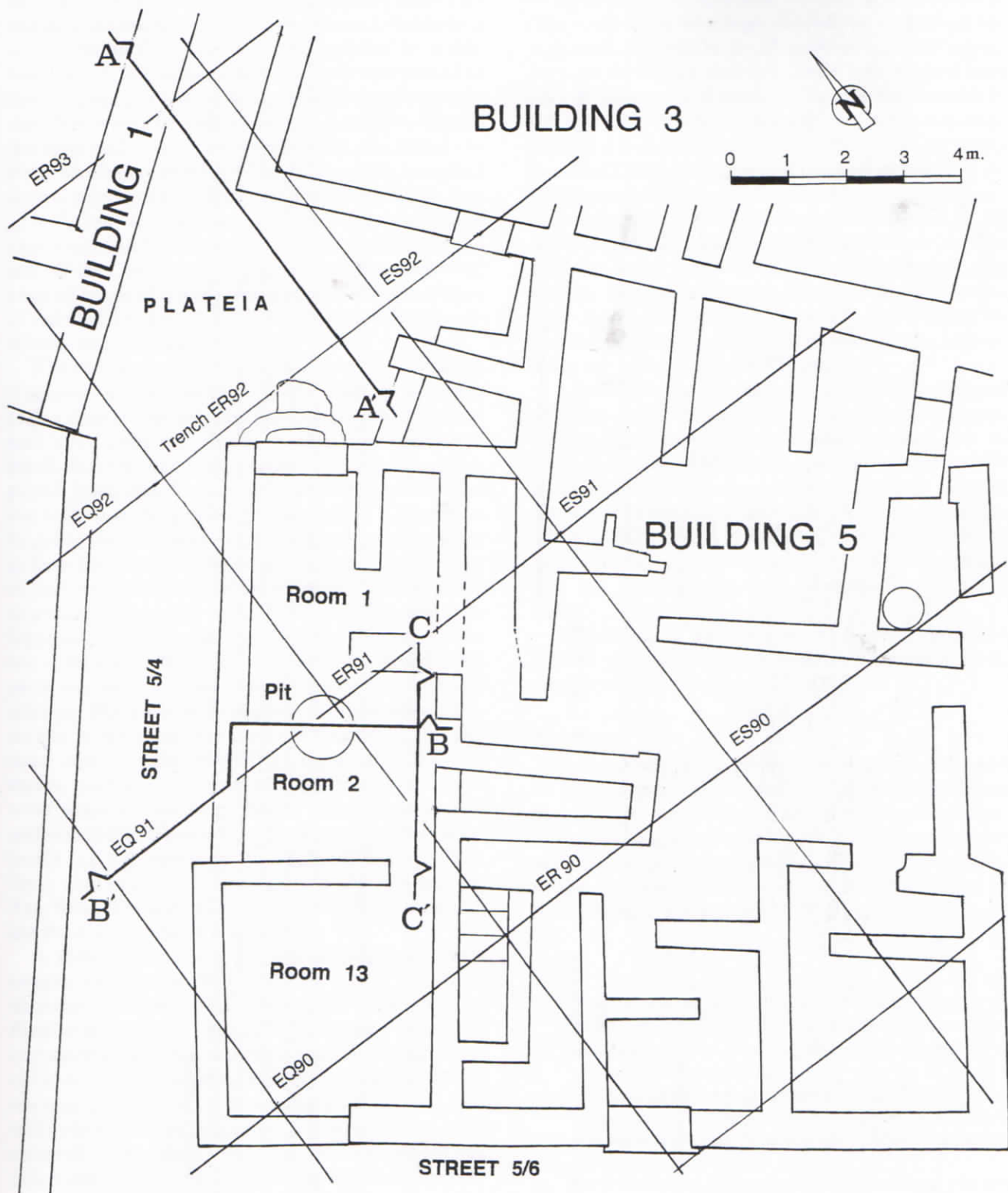


Fig. 1.3. Sketch plan showing position of drawn stratigraphic sections in relation both to Building 5 and to the excavation grid system. Asterisks mark find-spots of major Kouros fragments. (LHS)

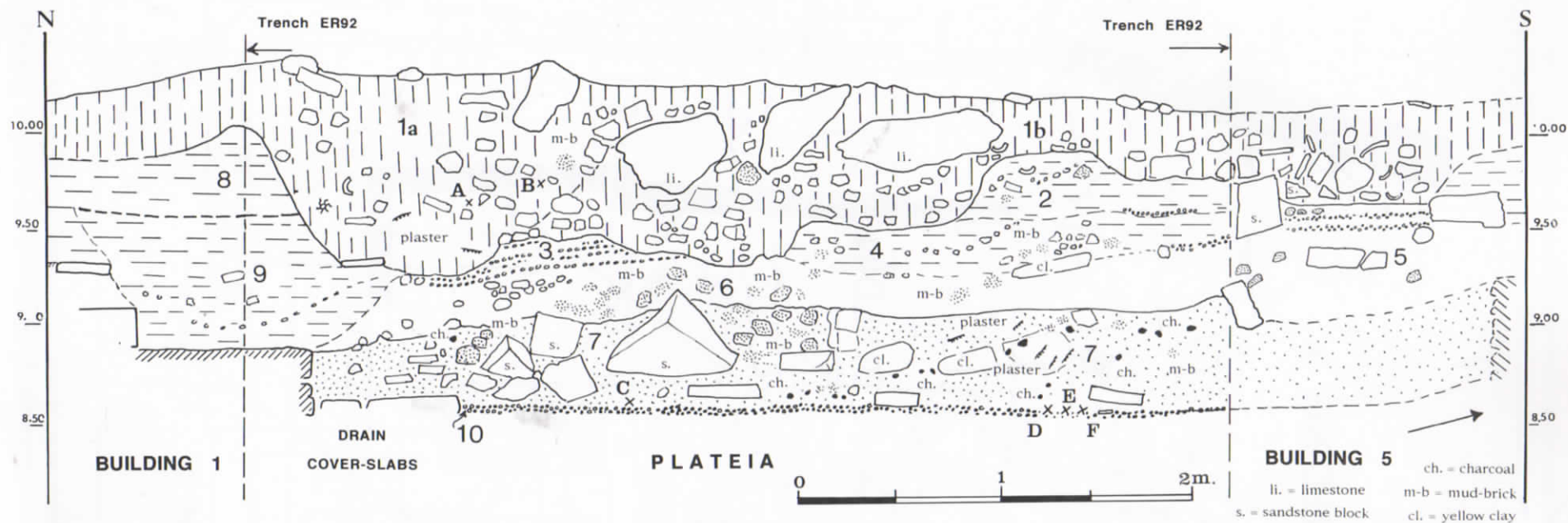


Fig. 1.4. Section A-A' across Plateia: Trench ER92 (E), extended to show relation to Buildings 1 and 5 (LHS).

Finds: (A) Class./Hell. sherd; (B) Disc loomweight; (C) #161, Gold foil frs.; (D, E, F) #74-6, Gold foil, ivory arm, Egyptian blue.

Levels: (1a) Post-Minoan robbing pit; (1b) Loose brown earth, heavy stone tumble, burnt mud-brick, plaster etc: redeposited destruction debris and fall from Building 3; (2) Firm reddish earth with much disintegrated mud-brick: redeposited destruction debris (LM III); (3) Pebble levels: LM III street surfaces; (4) Compact reddish earth: silt from destruction debris (LM III); (5) Area of LM III disturbance and rebuilding; (6) Burnt mud-brick, small stones etc: disturbed destruction debris (LM IB/IIIA?); (7) Burnt mud-brick, large sandstone blocks, yellow clay patches, plaster, charcoal frs, ash: undisturbed LM IB destruction debris, including upper floor fall; (8) Firm yellowish earth with mud-brick frs, and pebble: LM III re-occupation of Building 1; (9) Similar: silt in robbing pit for Building 1 s façade; (10) Gravel and sand surface of Plateia (LM IB).

the LM IB destruction at 9.70↑. After the clearance of whatever stone masonry had fallen into the room at that time, only 0.12–0.20 m of red earth, deriving from the burnt mud-bricks of the LM IB destruction, lay over the black ash layer in which the statuette's ivory legs and gold sandals were found. As in Room 1, the earliest re-occupation floor here was distinguished by a thin layer of whitish earth, which we have interpreted as *δοματόχωμα*, or builder's impermeable roofing material; thus it may be little more than a temporary trodden level made during building activity. Associated objects, which may well have derived from the disturbed destruction layer below, included stone tools (cat. nos. 5, 6, 8, 100) and fragments of ivory (4), obsidian, a loomweight and charcoal. Though poor, this floor did seal off the LM IB destruction below in the sense that, once all traces of it were removed, the distinctive layer of red mud-brick earth could be isolated with full confidence and excavated separately.¹⁷

The red earth at depths from 9.50–9.70↑ contained fragments of obsidian (nos. 11–12, S20), an amphora (14), a conical cup (17), disc loomweight (18) and stone tool (101), along with sherds of other large vessels and much disintegrated white plaster. This red layer comprised fallen and decomposed building material from the walls including plastered mud-brick. The objects found in this layer somewhat above the floor, are likely to have fallen from above, whether from a second floor or roof, or from a raised feature inside the room, such as a shelf, cupboard or table. The ivory of the statuette legs (nos. 19, 20) appeared at depth 9.49↑ in the SE corner of the room (PLATE 3 *d–e*), while the red mud-brick earth was being cleared down to the underlying black ash layer. Black ash lay throughout the room some 0.07–0.10 m in thickness over a pebble floor at 9.42↑,¹⁸ and must represent the debris from burnt structural elements, such as roof beams and wall frames as well as other wooden furnishings. Found in this black layer, in addition to the statuette legs (19, 20) and amphora fragments (14, 27) were separate fragments of ivory (S27, S30), gold (21), serpentine (13) and obsidian (22, 23, S14, S28). These must have come to their position on the floor during the fire destruction.¹⁹

A feature of especial interest in this floor was a roughly circular pit (PLATE 3 *b–c*), 1.30 × 1.20 m in diameter, first noted while cleaning the black ash at the floor level of 9.42↑. The pit was 0.69 m in depth and contained a fill of red and black earth overlying a base of black saturated earth of a greasy consistency. It was too near the door to Room 1 to have served for a centrally placed column. A number of small schist and other slabs (all *c.* 0.8 m thick) and a pithos base fragment had fallen into the cavity and were lying one above another around the sides. Some of these seem to have formed a paved cover for the pit at floor level, and to have been supported by an upright wooden post or a cross-beam, as suggested by charcoal remains, found in the pit at 8.87–9.07↑ and measuring 0.44 × 0.13 × 0.20 m.²⁰ Also

found in this pit were an ogival cup (16) and a polished bone point (15). A cross section of the pit with suggested reconstruction is included with Section B–B' at FIG. 1.5. For this the upper members of the double layer of collapsed slabs have been restored as a paved cover. The lower slabs have been adjusted as vertical pit linings, such as might be found in a simple cist or repository, on the theory that they could have slipped from their original vertical position. The thicker elements in the charcoal remains are restored as cross-beams supporting a wooden cover whose planks may be represented in the thinner charcoal remains, although it remains possible that a single vertical beam was used as a central support. The association of an amphora (14, 27) and an ogival cup with the cist, the former near its edge, the latter in the fill with other collapsed materials, may indicate an association with libations. Another possibility is that the cist was a receptacle for an object (or objects) that should remain unseen for a time, a possibility considered below in Chapter 14.

A large cuboid stone of green serpentine was found set horizontally on the floor, a little to the E of this pit. Its upper surface is worn to a smooth polish, but no special assemblage of finds was found in association with it; so it stands alone as a possible cult object. Further discussion is given by Driessen in Chapter 6 below (the stone is illustrated at PLATE B *c*, its position is shown on plan at FIG. 2.3; stratigraphically at FIG. 1.5: 7b and FIG. 1.6: 7a; cf. also PLATES 6 *e* at centre and 3 *b* at right).

A sounding in the SE corner of Room 2 revealed a LM IA pit and traces of a possible destruction level, numbered 13 in Section C–C' at FIG. 1.6.

Room 13

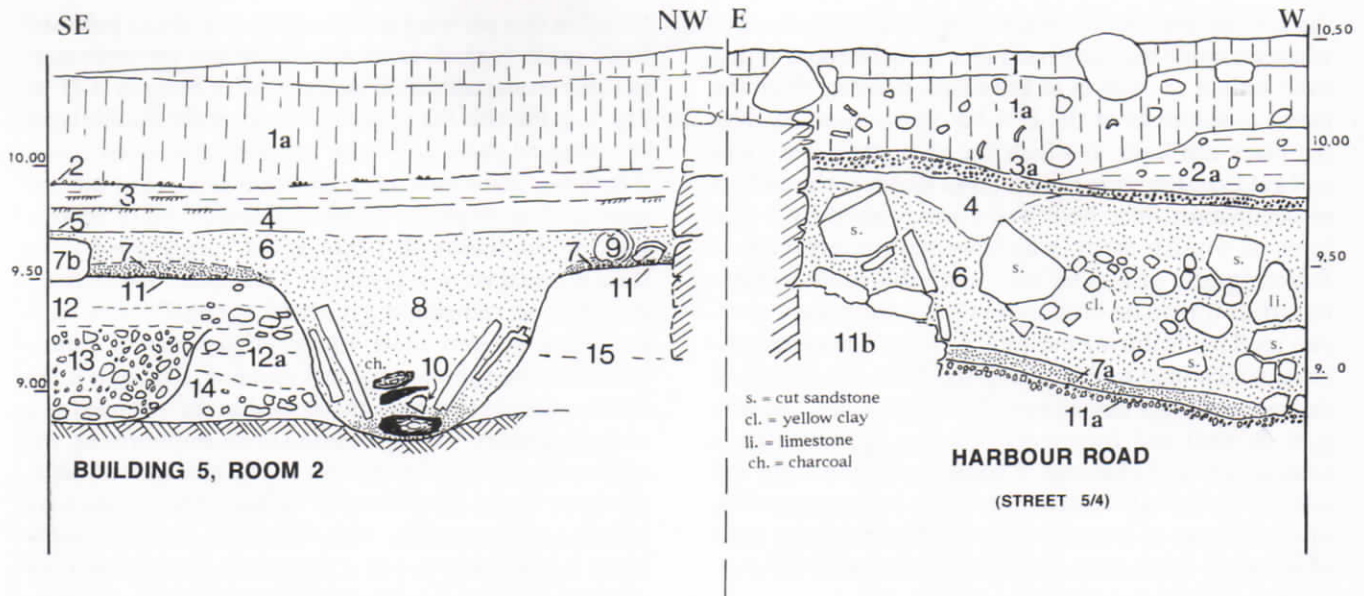
The storage room, 13, connects to Rooms 1 and 2 and its only entrance during the LM IB period was from Room 2, so it forms a significant element in the context of the chryselephantine statuette, and a short account of its excavation is appropriate. The stratigraphy is basically the same as that found in the Plateia, and in Rooms 1 and 2. Complete LM IB storage jars were

17 This was done in levels 14–15 (#0507–0510); 17 (#0512); 61 (#0631–3) and 65 (#0641). Starting with level 15 and continuing through the underlying black ashy level to the floor all soil was kept for wet sieving.

18 The black ashy layer was excavated as levels 16 (#0511), 17–18 (#0513–4), 25–7 (#0523–6), 34 (#0533) and 62 (#0635). It rose higher in irregular areas, as at the E wall where beams had burnt (up to 9.69↑ there).

19 See P. Harrison in Chapter 4a below for discussion of the evidence provided by the burning marks.

20 The black earth fill was removed as #0539, the charred wood as #0579. Peter Kuniholm of Cornell University inspected the carbon but found it too poorly preserved to be of chronological use.



Hypothetical reconstruction of repository or libation pit(?). (Scale as above)

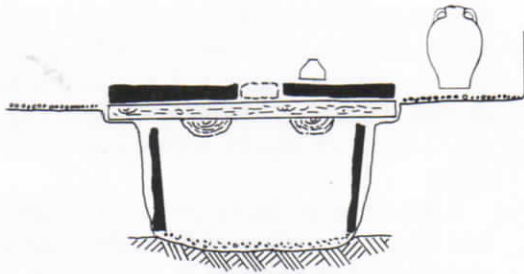


Fig. 1.5. Section B-B' across pit in Building 5 Room 2, and to Street. (LHS)

Key to levels and features:

- | | |
|---|--|
| 1. Surface soil. | 7b. Green serpentine boulder. |
| 1a. Reddish brown silt and stones: post-abandonment wash. | 8. Pit fill (red earth, ash, carbon) with collapsed slabs, pithos base fr. and charred wood; greasy black earth at bottom (soil samples 143 and 145): LM IB. |
| 2. Pebble floor (LM III). | 9. Oval-mouthed amphora (14). |
| 2a. Compact red-brown earth: LM III wash. | 10. Ovoid cup (16). |
| 3. Distinctive yellow clay floors, with 2 to 3 relayings (earlier LM III). | 11. Pebble floor (LM IB). |
| 3a. Gravel and pebble layer: LM III street surface. | 11a. Gravel surface of street (LM IB). |
| 4. Reddish earth, decayed mud-brick, plaster and small stones: redeposited destruction debris. | 11b. Stone-built kerb or buttress for Building 5 street façade (LM I). |
| 5. Levelling surface with whitish clay: first re-occupation surface (connect with rebuilding?). | 12. Red-brown wash level with trace of intermediate trodden surface (LM IA). |
| 6. Red mud-brick debris, fallen plaster, fallen building blocks in street: LM IB burnt destruction level. | 12a. Similar to 12 (earlier). |
| 7. Black ash and much fallen plaster, context of gold and ivory statuette frs. | 13. Stone-filled pit (LM IA). |
| 7a. Black ash in street (LM IB). | 14. Compact red earth (no sherds; carbon flecks; one obsidian fr), close over natural rock. |
| | 15. Not excavated. |

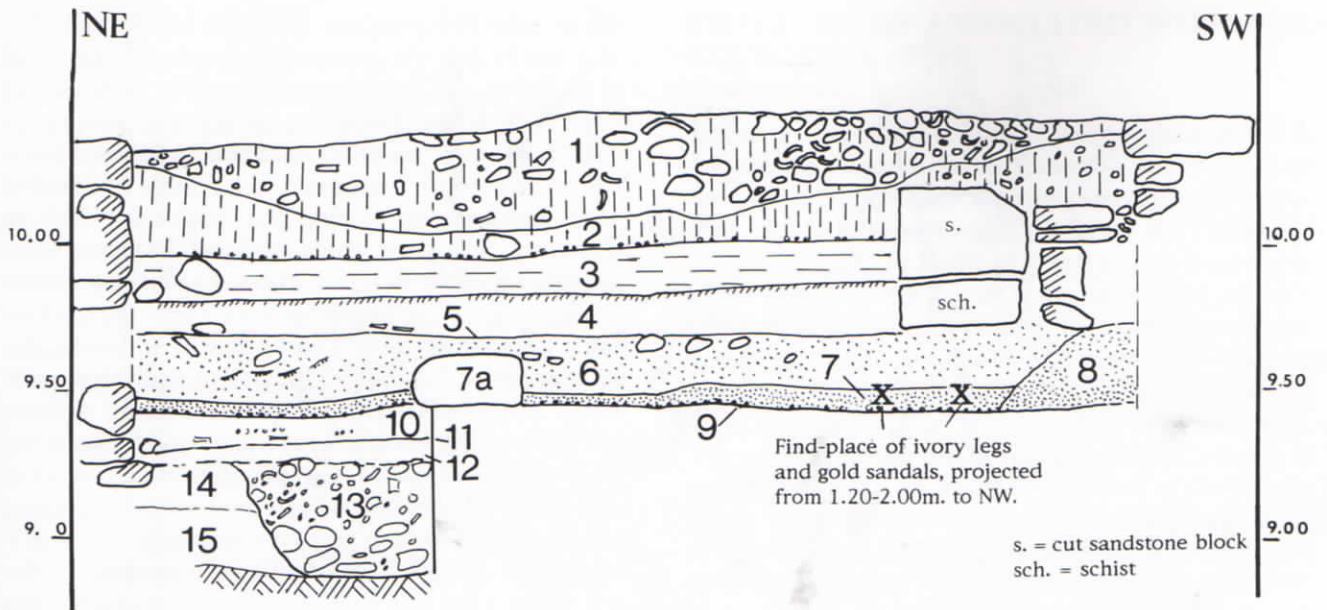


Fig. 1.6. Section C-C' Building 5 Room 2 (SE side). (LHS)

Key to levels:

1. Dark brown fill with many stones, sherds and other debris.
2. Reddish mud-brick earth with few stones or sherds: post-abandonment wash over latest pebble floor (LM III): LM III wash.
3. Lighter brown earth to yellow clay floor (floor relays of centre of room not seen in section): earlier LM III.
4. Reddish earth, decayed mud-brick, plaster frs. and small stones: redeposited destruction debris.
5. Levelling surface with whitish clay: first re-occupation surface.
6. Red mud-brick debris, fallen plaster: LM IB burnt destruction level.
7. Black ash and much fallen plaster on LM IB floor, context of gold and ivory statuette frs. 7a. Green serpentine boulder.
8. Greenish-black layer, includes burnt wood at threshold to Room 13 (LM IB).
9. Pebble floor (LM IB), with green serpentine block (left centre).
10. Red-brown wash with small stones (LM IA) (12 and 14 similar).
11. Trodden earth surface (LM IA).
13. Stone-filled pit (LM IA).
15. Compact red earth (no sherds; carbon flecks; one obsidian fr), close over natural rock.

found standing or fallen (PLATE 4 a) on a firm yellow clay floor in a burnt destruction fill, which consisted of up to a metre of red decayed mud-brick, overlying a black ash layer on the floor. The upper levels differed from those of Rooms 1 and 2 in that this room was not re-occupied as a unit on the same plan. Structural changes, described in Chapter 2, include a small porch over Room 13, which led to a remodelled stepped entrance down into Room 2 from the S. The other sectors of Building 5, to the S and E, were never re-occupied after the LM IB destruction.²¹ In practical terms, the absence of re-occupation in this area affected the progress of excavation in a significant way. Since the delimiting walls of Room 13 at S and W were not rebuilt and were not preserved higher than the top of LM IB debris, they were not discovered, nor was the area of Room 13 identified, until this layer was reached. Thus it was excavated in segments in separate trenches, principally EQ 90 and its adjacent baulks.²²

- 21 Traces of a pebbled surface at 9.98–10.00† ran right over the NW and SW walls of the LM IB Room 13, evidently as part of a wider street entrance at this point.
- 22 For security reasons, at this unprotected site, the different parts of the deposit of storage jars had to be recorded and removed on the same day as they were uncovered. The sequence of excavation was as follows: after removal of the surface levels in 1988, the excavation of these trenches was continued by Seán Hemingway between 16 May and 11 June, 1990. The LM III material was removed as EQ 90 levels 7 (#0500), 20 (#0516), 24 (#0522), 31 (#0530, pebble surface) and 51–2 (#0559–60); EP 90E level 3 (#05777) and B5R13 levels 1–2 (#0614–5); the thick layer of red burnt mud-brick covering the storage jars was removed as EQ 90 levels 32 (#0531), 35 (#0534), 37 (#0536), 46–8 (#0547–9), EP 90E level 4 (#0578) and B5R13 levels 3–5 (#0620–3) and 6 (#0626); finally, the black ash layer on the floor was cleaned as EQ 90E level 5 (#0580) and B5R13 level 5 (#0625).

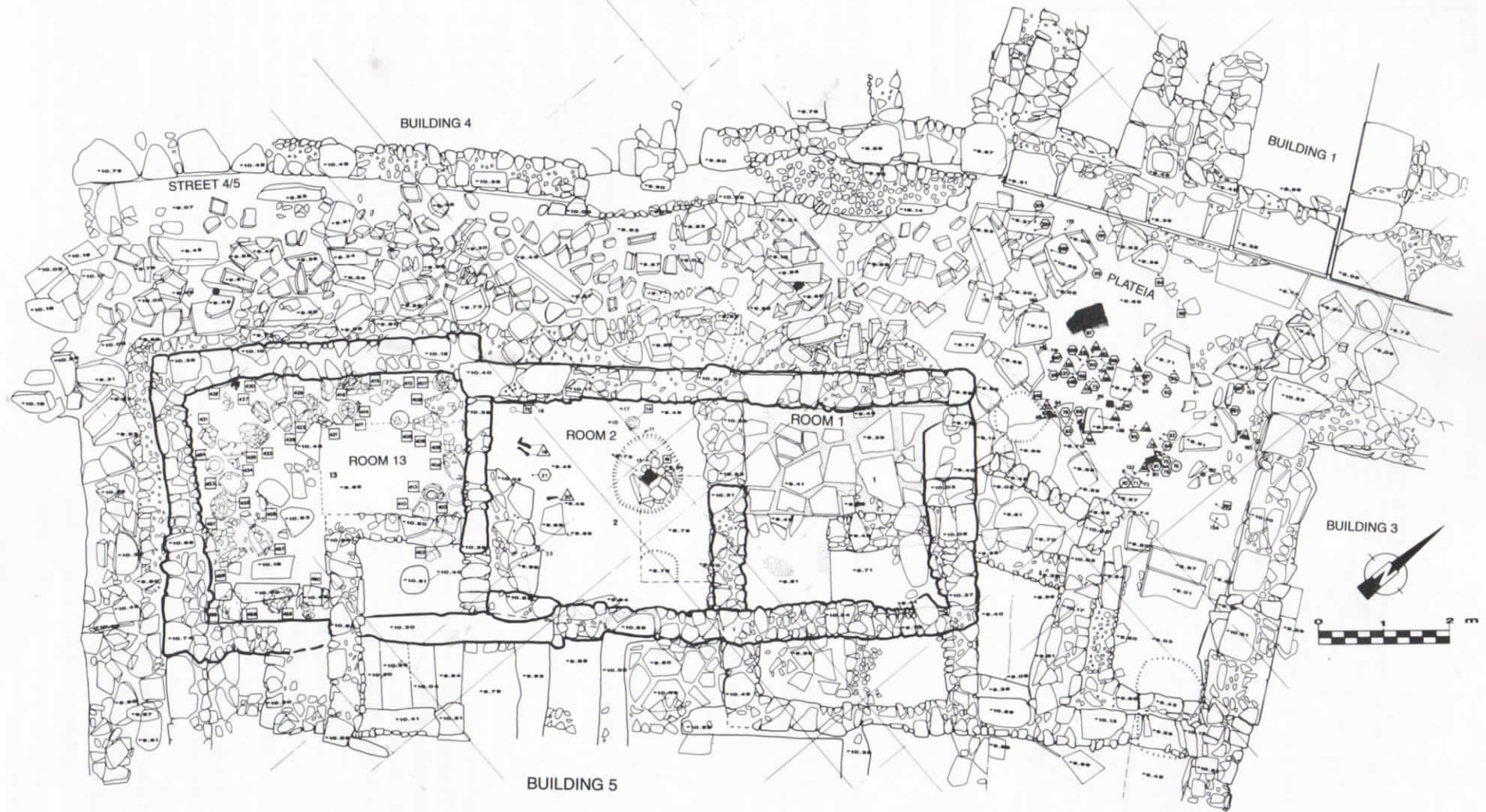


Fig. 1.7. State plan of the LM walls of Building 5 (NW unit) and adjacent area, showing the LM IB destruction level in detail. For the key to the find numbers, see APPENDIX to Part I. Kouros fragments in ivory are indicated by triangles, those in gold or with Egyptian blue by hexagons; ceramic finds are indicated by squares, charcoal by close hatching. (JMD)

Found on the clay floor at 9.50–9.66† were 29 objects, the majority ceramic (FIGS. 1.7, 1.9; PLATE 4 *a–g*), including at least 21 storage jars (403, 407–8, 411–12, 414–15, 422, 425–9, 431, 453–5, 457–8, 467); some stood upright and some still contained carbonised seeds (wheat and lentils), but more were overturned, either on their sides (406, 415, 426) or upside down (411), some perhaps fallen from above, most, it seems, deliberately overturned. Smaller vessels included a tripod cooking pot (452), a trefoil-lipped jug (405), straight-sided bowl (416) and a fine piriform jug (469), fallen from or perhaps deliberately concealed behind a stone stand in the SE corner of the room (PLATE 4 *b*). In the NW corner, also perhaps hidden, was a group of worked bone and ivory strips (432), perhaps originally in an organic container long since disintegrated (PLATE 4 *c*). These, a fragment of ivory (413) and several blades and other fragments of obsidian (50, 51, S51, 91, S52) might suggest an association with bone and ivory working, a hypothesis discussed by Evely below.

CERAMIC FINDS ASSOCIATED WITH THE KOUROS (FIGS. 1.7, 1.9; PLATE 4 *a–b, d–g*)

There are 43 ceramic finds which derive from contexts associated with fragments of the Kouros. Four are fragments from the destruction levels in the Plateia, and four come from Building 5 Room 2, including a broken oval-mouthed amphora (14) and conical cup (16) found in association with the stone-covered cist cut into the floor of this room (FIG. 1.6). The other 35 were found in the undisturbed destruction deposit of Room 13, the storeroom of this sector of Building 5 (PLATE 4 *a–b*). Since it is immediately clear that this assemblage is of the fully documented LM IB type, especially well published with catalogue for the storerooms of the nearby House N (*PK VII* 215–31, 235–9), it was decided to reserve its full publication for a separate volume to be dedicated to Building 5 as a whole. Four of the better preserved examples are selected for illustration at PLATE 4 *d–g*: an open-mouthed jar (404), trefoil and piriform jugs (405, 469), and an amphora (406). All belong to the major and final LM IB destruction.²³

The full study of this group should provide the statistical data needed for assessing its total capacity, and the further analyses which could identify the nature and range of the original contents. A preliminary 'common-sense' view of capacity might suggest that it falls well below the high range necessary for redistribution (such as found in palatial storerooms), but perhaps above the amounts needed for individuals who occupied or used the small architectural unit (Rooms 1, 2 and 13), with which we are concerned here. The function of a limited assemblage such as ours could be the storage of offerings or the serving of food and drink at a ceremonial occasion such as is discussed by Driessen in Chapter 6 below.²⁴ Preliminary analysis of contents has identified wheat and lentils.²⁵

SMALL FINDS ASSOCIATED WITH THE KOUROS (FIG. 1.8)

Doniert Evely

The note that follows is a brief survey of the material—undertaken to search for anything this might reveal on the context(s), in which the ivory statuette was recovered. The items divide equally between the Plateia deposits and those in Building 5 (35:35): all from fairly secure LM IB levels—apart from the 'boss' of copper/bronze and the faience bead in the Plateia, and some domestic clutter (obsidian flake, 3 stone tools and part of a clay loomweight) from Room 2 of the Building. All these last appear to be from LM I or early III levels. The context of the pieces found inside Building 5 is more likely to be meaningful than that of the Plateia pieces, since most of these could be 'rubbish' in a public thoroughfare, however they ended up there. Included in the discussion are both the finds marked on plan (FIG. 1.7), and listed in the APPENDIX to Part I below, and others found in the fill; two unfinished ivory columns from B5 Room 9 are also included, because of their intrinsic interest. A selection is illustrated in FIG. 1.8.

In the Plateia, the most numerous class is represented by the *obsidian* (50 pieces; three shown at FIG. 1.8: 16–18). Most stages of manufacture are illustrated: 6 flakes from cortex removal of the raw nodule; part of a core perhaps and a platform preparation flake; 8 blades of both 1st and 2nd series, one showing damage incurred in the knapping process; chunks and smaller fragments (5). Some of the blades display convincing edge damage—partly incurred in use, partly from post-depositional action. A surprisingly large amount (30 pieces) of residue (the smallest pieces that may come from manufacture, but no doubt including those detached by breakage and crushing later in life) must not be made too much of—their recovery is owed solely to the extensive sieving undertaken in these soils to chase down even the smallest flake from the ivory statuette. Nonetheless, their presence is of interest. The same process of recovery is responsible for the numerous (26) fragments of *quartz* (if identified correctly)—but such are likely to be of natural occurrence in the soil.

Stone tools consist of a couple of limestone pounders, a quern of local conglomerate; a shaped whetstone with a perforation hole and perhaps part of another akin, both of phyllite/schist. All these are absolutely typical of their sort, and all damaged to varying degrees. The

23 Any possible distinction between ceramics of this final destruction and those of an earlier phase and destruction noted stratigraphically within Building 5 (cf. *PK 1990*, 123–7) must await the analysis of the complete assemblage.

24 At Phylakopi an assemblage of around twenty pots was accepted as possibly relating to the handling of liquids for libations (Renfrew 1985, 374).

25 *PK 1990*, 130. Offerings referred to in the Linear B archive include, in addition to grain, olive oil, honey, unguent and wool (Chadwick 1975, 96).

stone vase fragments of serpentine are discards: very likely to be of Neopalatial date. With the objects of ivory/bone (the 2 shells are natural items, unworked), the quality implied for the once complete ones is in distinct and pleasing contrast to the bulk of the finds: the two fragments of inlay are quite delicate, even in their present mangled condition (one at FIG. 1.8: 5); so too the relatively plain lid (FIG. 1.8: 1). A pommel fragment (PLATE J e) is associated with the Kouros by Moak and is discussed by him below in Chapter 5. Of considerable interest is a cylindrical blank for a ?seal (FIG. 1.8: 8), though it may be from an earlier period. A sharp, if broad, point on a flat splinter of bone has been used in a rotary/twisting manner—as the scratches at its tip show (FIG. 1.8: 3). The clay objects are largely mundane: several fragments of the U-profiled channels used to transport water—guttering in effect; and parts of two TC animal figurines—one, if correctly seen as a boar, is unusual to that degree (FIG. 1.8: 7, 11). A valuable sealing²⁶ was found: one of a class seen elsewhere in the island quite plentifully—the clay lump was used to secure a folded (?leather) docket and a securing cord, both held tight against a surface (?wood) of the storage unit. Into it was impressed a sealstone (here a lentoid, with some quadruped-based design).

Lastly came the two, perhaps post-LM IB, oddities: a small disc-bead of *faience* from which the glaze has gone (FIG. 1.8: 4), and a 'boss'-like object of metal (FIG. 1.8: 13). Though the last is much corroded and fragmented, enough survives to detect its form—perhaps part of a pair of cymbals? Several other small beads found in the sieve are discussed by Moak in Chapter 5 below (PLATE J g).

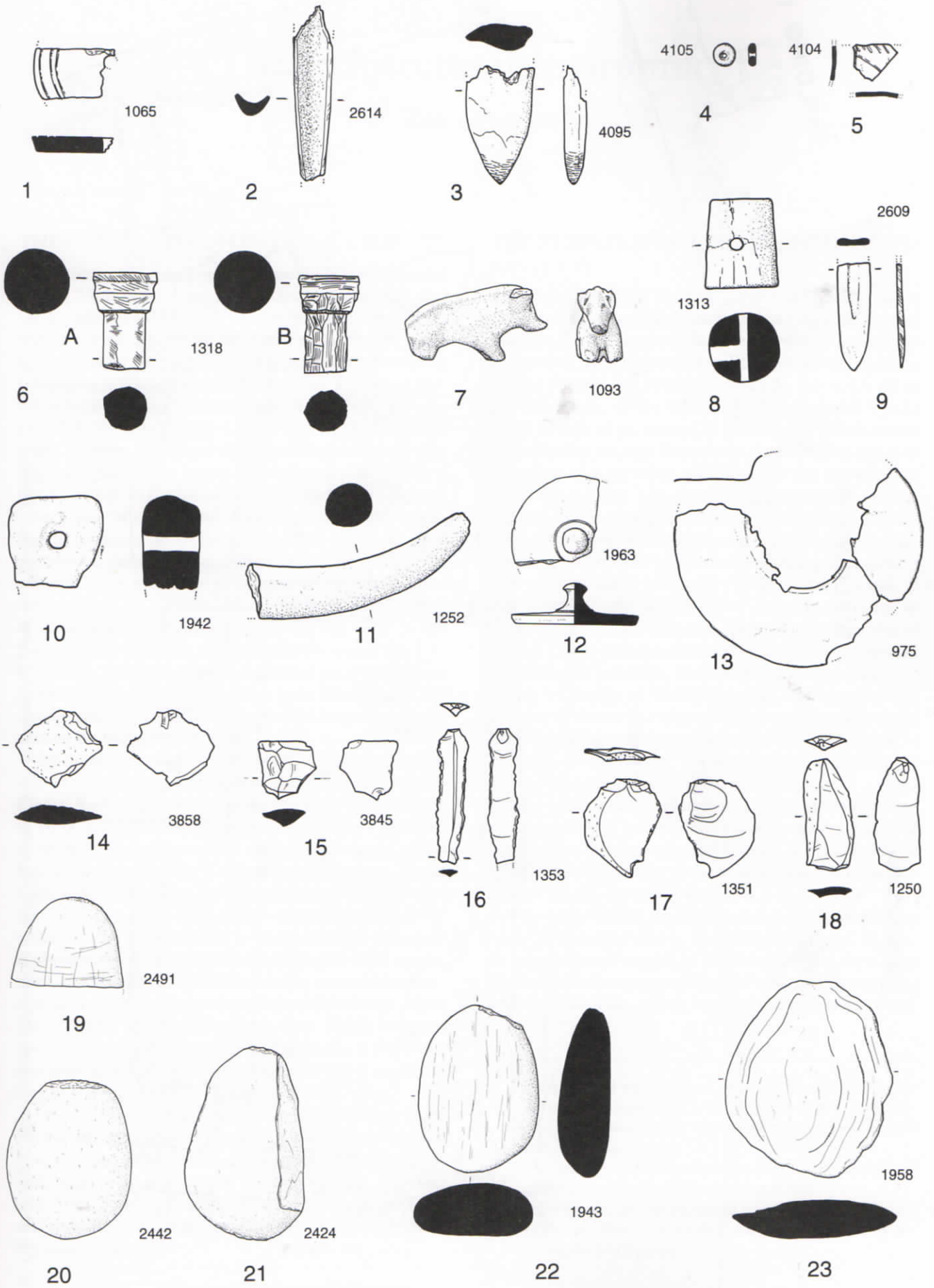
From Building 5, the material is distributed fairly evenly between Rooms 2 and 13 (18:14); nothing was recovered from the nearly cleaned-out Room 1. Very much the same range of objects are encountered here as in the Plateia—though even less are of intrinsic interest now.

The *obsidian*, at 48 pieces, is again the most frequently encountered class—and of the same character as in the Plateia (chunks and smaller fragments 21, flakes 5, blades 6 and residue 13; cf. FIG. 1.8: 14). To the earlier evidence of manufacturing debris can now be added a crested blade (FIG. 1.8: 15). Fragments of *quartz* are much less common, though, at 2. *Stone tools* reflect the same concerns as before: a couple of whetstones and abraders (of less regular form here, FIG. 1.8: 22–23), two pounders (FIG. 1.8: 20–21) and a grinder-pounder (FIG. 1.8: 19) of limestone. Part of a knobbed lid of limestone (FIG. 1.8: 12) and half a small disc-bead complete the items of stone. Of bone are preserved but two parts of simple tools: part of a shank (FIG. 1.8: 2), and another broad, flattish point (FIG. 1.8: 9); this time the scratches visible belong to the manufacturing stage, being covered by the all-over polish. Of greater value though is a collection of some 40 bits and pieces of bone/ivory recovered in Room 13 in circumstances that imply they were once held in a bag or some such perish-

able container (seen *in situ* at PLATE 4 c). Uniformly small in size, burnt and often fragmentary, they include some potential inlay pieces: evidence of saw/abrasives, knife/chisel work and polish suggests that they are derived from finished or nearly finished objects. Worth mentioning here are two unfinished items—a pair of part-worked columns (in the round) (FIG. 1.8: 6A–B). These are of burnt elephant ivory, and of a form not commonly seen in Crete. They do suggest local ivory working, though the fact that they were found in Room 9 (a storage room of Building 5 with other valuables including cup rhyta and a fine sealing [PK 1988, figs. 17–18, pl. 84e]) places them at one remove from the immediate context of the Kouros. Lastly, a pair of fragmentary clay loomweights—of the common disc sort—were recovered (one at FIG. 1.8: 10).

In conclusion, and taking the two zones of discovery together, a couple of related points should be raised. What is the significance of the unfinished and deliberately collected bone/ivory items? And does the *obsidian* have any connection with them? Are we looking at a production centre, and one arguably associated with a locus of implicit religious associations? I believe not—though a full resolution must wait until Building 5 is fully studied. The levels of *obsidian* recovered are quite high—and most stages of blade manufacture and usage too are covered: but similar observations can be made for almost any substantial block of earths from a Minoan settlement, even of the Neopalatial period. The unusual volume of residue recovered is probably merely a reflection of the sieving employed—though this needs testing. The actual blades put to use are few in number. The bone/ivory material, by its incomplete nature and that of the collected group, is certainly evidence for working of these substances at Palaikastro. But not necessarily in Building 5. In terms of tool kit and debris produced in the manufacturing processes, the evidence is totally absent—compare this with the situation at the contemporary artisan house on the Royal Road at Knossos. The presence of small (?worthless) bits of worked ivory/bone in a 'religious' setting does have a parallel—though much later in time and on the Mainland (the Citadel House area at Mycenae—LH IIIB late, under study by O. H. Krzyszkowska): storage or a dedication by a craftsman are other potential interpretations to be considered alongside actual production at/in connection with a shrine. The matter is best left here for the moment.

Fig. 1.8 (right). Finds from associated contexts [except 6A–B from Building 5, Room 9]: (1–6), (8–9) ivory/bone at scale 2:3; (10–11) clay, (12) stone and (13) metal at scale 1:2; (14–18) *obsidian* at scale 2:3; (19–23) stone at scale 1:3. (DGE)



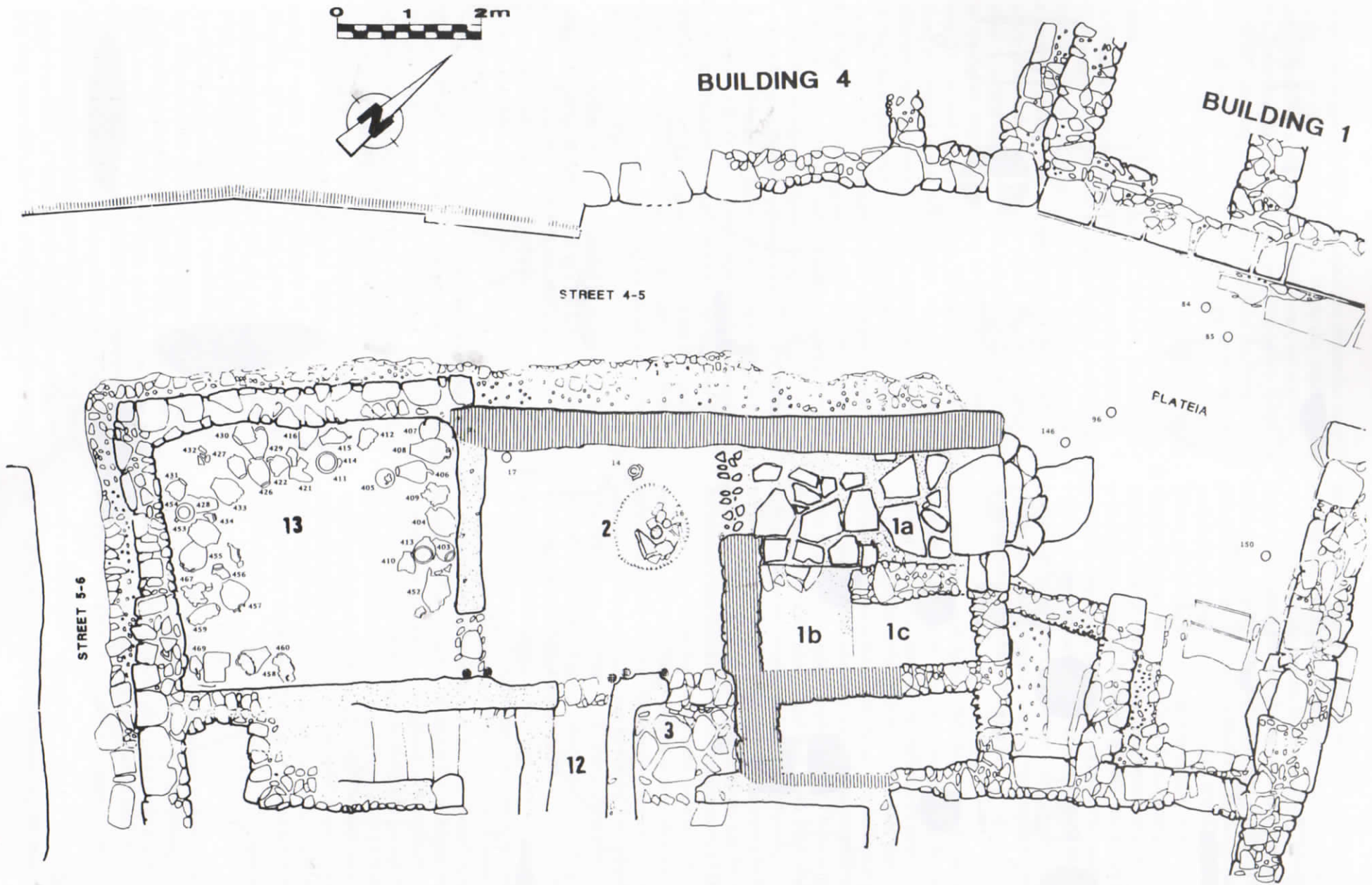


Fig. 1.9. Building 5, plan showing distribution of LM IB pottery finds in Rooms 2, 13 and the Plateia. (JMD)

The architectural environment

Jan Driessen

THE NEOPALATIAL TOWN (FIG. 1.1; PLATE C)

A new town was constructed at Roussolakkos at the end of the Middle Minoan period following floods and earthquakes in MM IIIB.¹ The new layout was set on top of the structures of the Old Palace period, often ignoring older routes and buildings. As at Knossos, this rebuilding activity was accompanied by a series of major innovations in different crafts (see *East Crete*, 99–110; *PK Settlement*, 395–412). From an architectural point of view, it appears that street façades were now aligned, that ashlar became ubiquitous, that many a house owner introduced frescoed spaces, columnar rooms and/or courts and in general paid more attention to conspicuous architectural detail (pier-and-door partitions, gamma-shaped doorjamb bases, coloured column bases *etc.*). The expansion of the town lasted throughout LM IA and LM IB, with a gradual filling in of all available building plots. At the time of the major fire destruction, which marks the end of the LM IB period, the town may have covered an area of about 30 hectares and numbered about 5000 inhabitants (*PK Settlement*, 107), perhaps the second largest agglomeration on the island of Crete.

One major circulation artery of the Neopalatial town was excavated for a length of more than 200 m (from Blocks K–A to Block X) during the early explorations in 1902–5. This Main Street was served by a series of secondary alleys and roads on either side, some of which could also be traced for a considerable distance. These roads separate the town into discrete units, called Blocks, resulting in a town plan which appears intentionally organised but is more likely to be the result of a gradual evolution of habitation guided by topographical conditions and traditional routes with some central intervention as to alignment, street paving and drainage. Main Street forms one topographical, E–W divide between two different levels of terracing against the N slope of a low conical hill, up which the secondary N–S roads, alleys and stepped streets gradually ascend.

One of these is Harbour Road, which comes from the NE and probably continues in a southwesterly direction towards House N, after meeting the junction with Alley 5–6, which runs in from the SE.² Between Buildings 4 and 5, Harbour Road is 2.0–2.30 m wide and stretches for a distance of 13.20 m before widening into the Plateia.

THE PLATEIA AND HARBOUR ROAD (PLATES 1 a–c, 5 a–b)

Street 4–5 leads NE to the Plateia and is bordered on the S by the imposing ashlar façade of Building 5 and, to the N, by the façade of Building 4, which is made up of massive, roughly worked, yellow limestone boulders.

The Plateia was relatively small (*c.* 5.0 × 5.0 m) in the last stages of the LM IB period, reduced by the construction of an annexe to Building 1, which closed off an earlier passage from the N, as well as by the construction of a partition wall between the entrances of Buildings 3 and 5. These modifications took place during LM I (*PK 1988*, 422). Earlier, the open space measured about 10.0 m N–S and 5.0 m E–W. It provided access to a vestibule or porch for Building 3 by means of two well-cut steps (*PK 1988*, 421). In the NE wall of this vestibule, the threshold of an early entrance to Building 3 can be made out. This passage was closed during LM I, perhaps at the same time that the annexe to Building 1 was built, and a new entrance was opened in the NE façade of Building 3 (*PK 1988*, 422). This shifting of access was apparently intended to isolate the Plateia, leaving only the entrance by Harbour Road. The question of whether or not an entrance to Building 5 existed here earlier is considered below.

The surface of the Plateia in LM I was rough, consisting mainly of water-borne silt with many small pebbles, except for a paved stretch along the façade of the SW annexe of Building 1; the bedrock itself was used in several places, especially in Street 4–5.

From the Plateia, an alley 1.40 m wide leads NE, between Buildings 1 and 3, for a length of about 16.0 m. At some point prior to LM IB, this alley may have been covered like the narrow streets of a bazaar.³ It contains a finely built drain, which was covered with ashlar slabs.

1 Evidence for a water-induced event was found in Area 6 during the 1996 excavations: a silt layer 0.10–0.20 m thick covered all the rooms which were abandoned at the end of MM IIIB (*PK 1994/96*, 260).

2 Confirmation of this hypothesis would require removal of later structures and an extension of the excavation.

3 See *PK 1987*, 266 for arguments based on the presence of a yellow clay floor. It is possible that this happened only late during the LM I period.

The drain starts in the Plateia and continues in a straight line along Building 1, passing beneath the regular slabs that form the stepped entrance to Building 1; and from there it emptied out to the N (PK 1987, 265–6). Once Buildings 1 and 3 are left behind, a traveller is in Harbour Road, a causeway about 1.50 m wide, with lateral walls on each side. This road approaches the town from the NE, where we believe the harbour was situated.⁴

THE DESTRUCTION DEPOSIT ADJACENT TO BUILDING 5 (FIG. 1.7)

Masses of debris filled the streets and Plateia near Building 5. The debris consisted of a dense layer of building material, including a large number of finely cut, sandstone ashlar blocks, especially in Street 1–3 (probably deriving from Building 1), in the Plateia (probably fallen from the NE façade of Building 5), in Street 4–5 (probably fallen from the NW façade of Building 5), and in the first metres of Street 5–6 (most likely fallen from the SW façade of Building 5).

The debris from Building 5 that fell into Street 4–5 is worthy of detailed analysis here. It comprised a layer of massive ashlar tumble mixed with burnt mud-brick and charcoal, as shown on the plan at FIG. 1.7. The best of the preserved blocks of ashlar were used in the restoration of the NW façade of the building, taking into account their original position⁵ (PLATE 1 a). This reconstruction protects the fragile mud-brick walls from the weather. Three courses of ashlar have so far been restored, rising about 0.85 m high.⁶ During the excavations in Street 4–5, all ashlar was carefully planned, numbered and recorded⁷ (detailed plan at FIG. 1.7). It became clear that, judging from the way the blocks fell at the time of the destruction, courses of different heights of ashlar blocks existed.⁸ There was sufficient material in the street to justify the assumption that both the ground floor and the first storey of the NW façade of Building 5 were built of stone, but many of the blocks were so badly burnt and shattered that they could not be salvaged. In Street 4–5, at a point approximately opposite the centre of Room 13, a schist slab, 1.10 m long, together with a few thin *ammouda* slabs, was found with carbonised wood and moulded plaster, suggesting a window in the first storey room above Room 13. Evidence for another window further along to the NW, above Rooms 1 or 2, is of a similar nature; Jerome's reconstruction at FIG. 2.5 restores three windows on the SW façade. The presence of fragments of moulded plaster and charred beams suggests that a window also existed in the SE façade, possibly on an upper floor looking out over the Plateia. Such a window is shown on the reconstruction at FIG. 6.1. A group of finely cut mason's marks in the form of the double axe were observed, two on blocks replaced in the restored NW façade, two (or perhaps three) more on blocks which came from higher up the façade and which have been left in Street 4–5.⁹ These blocks probably come from the SW part of

the façade. They are the first mason's marks found in the town. Their association with Building 5, their rarity at Palaikastro and the fact that they are double axe signs, are significant for the inquiry into the building's function.

The layer of LM IB destruction debris in the Plateia also consisted of ashlar tumble, with concentrations in the E, S and W zones of the square but especially in the SW corner, where several *ammouda* slabs were found. There were also a few larger blocks (PK 1987, 266–7), some with special cuttings on one surface. One block is roughly gamma-shaped and could be a doorjamb base (0.48 × 0.48 × 0.15 m). Another piece is L-shaped (0.52 × 0.48 × 0.13 m) and has a plastered band, 0.15 m wide, along the length of its upper surface. Catalogued architectural samples from the destruction level in the Plateia include a variety of fragmentary mud-bricks (max. preserved size 0.26 × 0.17 × 0.12 m) and several examples which preserve round beam impressions with a diameter of about 0.10 m, perhaps from door installations or ceiling beams.¹⁰ Among the mud-brick fragments are also some flat, slab-like pieces, 0.045 m thick, again with

-
- 4 PK 1986, 140. This hypothesis received recent support by the identification during the geophysical survey by Prof. F. McCoy of a possible artificial channel leading from the sandy beach in a SE direction.
 - 5 PK 1990, 127–8 for details.
 - 6 It may be of interest to note that a team of five men spent about 4 hours building a single ashlar course with rubble backing, 5.50 m long. This implies that the entire 15.50 m long façade with two storeys could have been built in approximately 150 hours by such a team. This, of course, does not include the quarrying and transport of the blocks nor the gathering of the fieldstones and mud to construct the backing.
 - 7 As mentioned below, further E (alongside Rooms 1 and 2), the masonry surface left after the LM IB destruction, when the ashlar fell, was re-used in LM III as the socle for a single course, c. 0.25 m high; this was of flat schist boulders, very much as had been the case during Neopalatial times, when the stone base formed an even level for the ashlar wall.
 - 8 One course of average height c. 0.40 m was originally set at a higher level than another course only 0.30–0.35 m high.
 - 9 For a detailed description, we refer to PK 1991, 124–5. For the 'window' mason's mark discovered in the quarry at Ta Skaria, see PK Survey, 149. The mason's marks are so finely cut that they are barely visible which may account for the fact that none were found during the early excavations. Most of the marks are so similar that they seem cut by the same craftsman.
 - 10 Architectural samples at Palaikastro comprise two categories: S(ite)A(rchitectural)S(amples) which are kept at the site (and are given a number e.g. V/1 or 90/2 depending on whether they come from an identified building or are a general find) and those catalogued in the dig-house where finds are indexed according to material: plaster (100.), mud-brick (101.), terracotta (102.), stone (103.) or other (104. usually pumice, charcoal etc.).

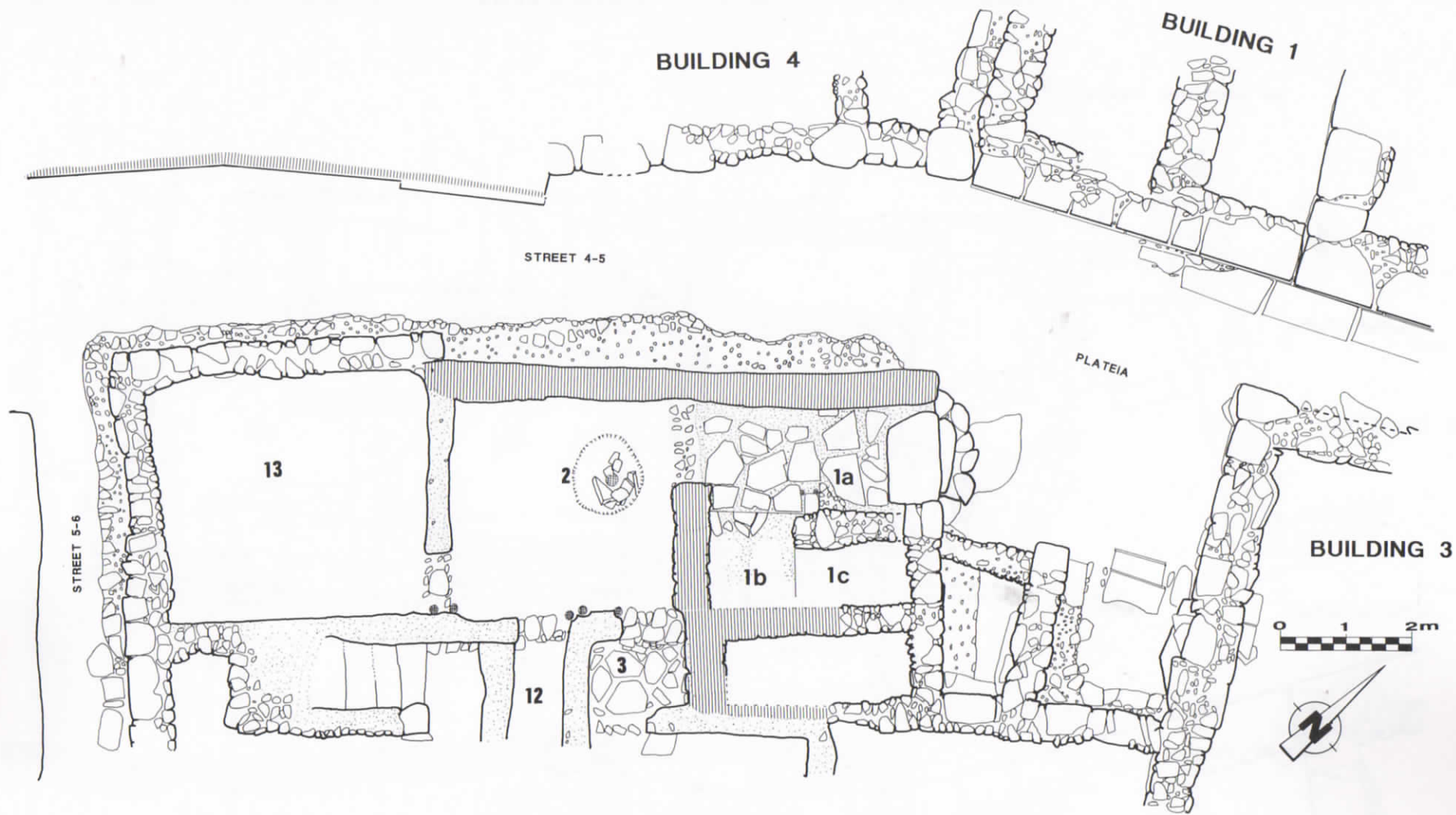


Fig. 2.1. Building 5, architectural plan of N rooms in LM IB (walls obscured by LM III overbuilding shown in shadow). (JMD)



Fig. 2.2. Building 5, architectural plan of N rooms in LM IB (LM III changes and additions shown in shadow). (JMD)

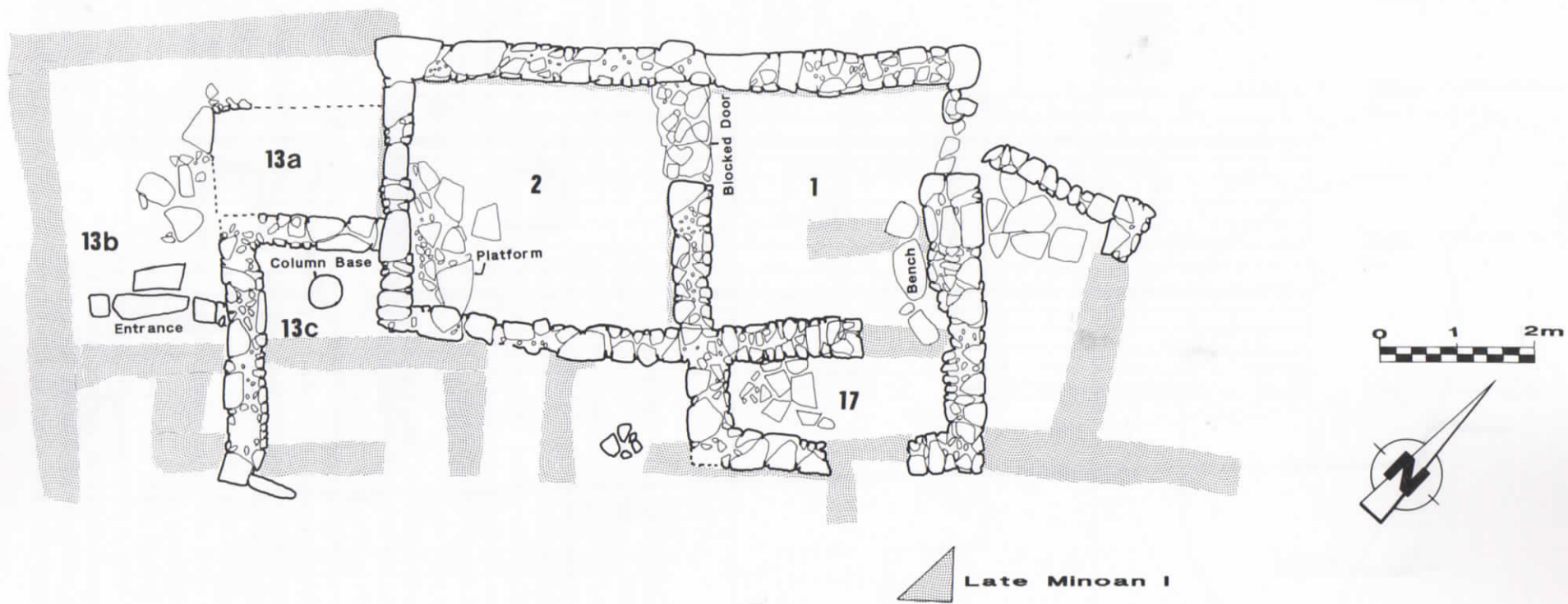


Fig. 2.3. Building 5, architectural plan of N rooms in LM III (underlying LM I shown in shadow). (JMD)

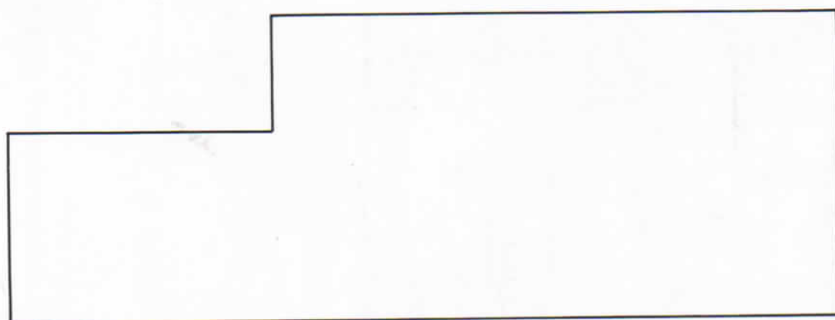
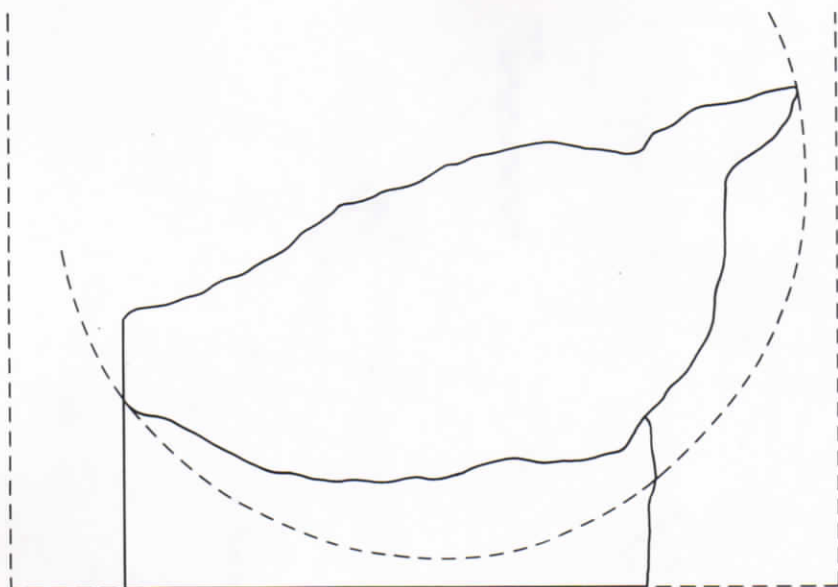


Fig. 2.4. Cut sandstone block; Cat. no. 102.10, PK87, ER92, level 6, #1233): (a) plan, L. 44 cms, D. 40 cms; (b) elevation, W. 44 cms. (PM)

small round beam impressions on the reverse (diameter *c.* 0.05 m). There was much relatively coarse white wall plaster (*c.* 250 pieces), including several corner pieces and one fragment with a painted black band, 0.025 m wide. Some fragments have reed impressions on the back, suggestive of outside plaster. Similar plaster still adheres to the lower, limestone, courses of the NW façade of Building 5, which is the probable source, though the façade of Building 3 may also have been similarly coated. There are also about 80 pieces of Pompeian-red plaster (having a coat 0.005 m thick) and a dozen pieces of fine white plaster, finely polished, one with a red band, 0.01 m wide. Both are interior decorations. There are also many yellowish white ceiling plaster fragments, having beam or reed impressions with a diameter of about 0.02 m. In addition, about 50 pieces of floor plaster were collected, and probably come from the upper floors; these are usually white with largish blue pebbles, but some have tiny yellow pebbles.

Also from the LM IB debris in the Plateia are four fragments of a U-shaped terracotta gutter, about 0.08 m high and perhaps deriving from the roof. Most have traces of burning, and some show flecks of Egyptian blue pigment. There were also about 35 non-joining

fragments of a plastered flat feature with square edge of 0.02 × 0.02 m, perhaps from a window sill, with white, rather coarse pigment, similar to the exterior plaster described above, and most probably fallen from Building 5.

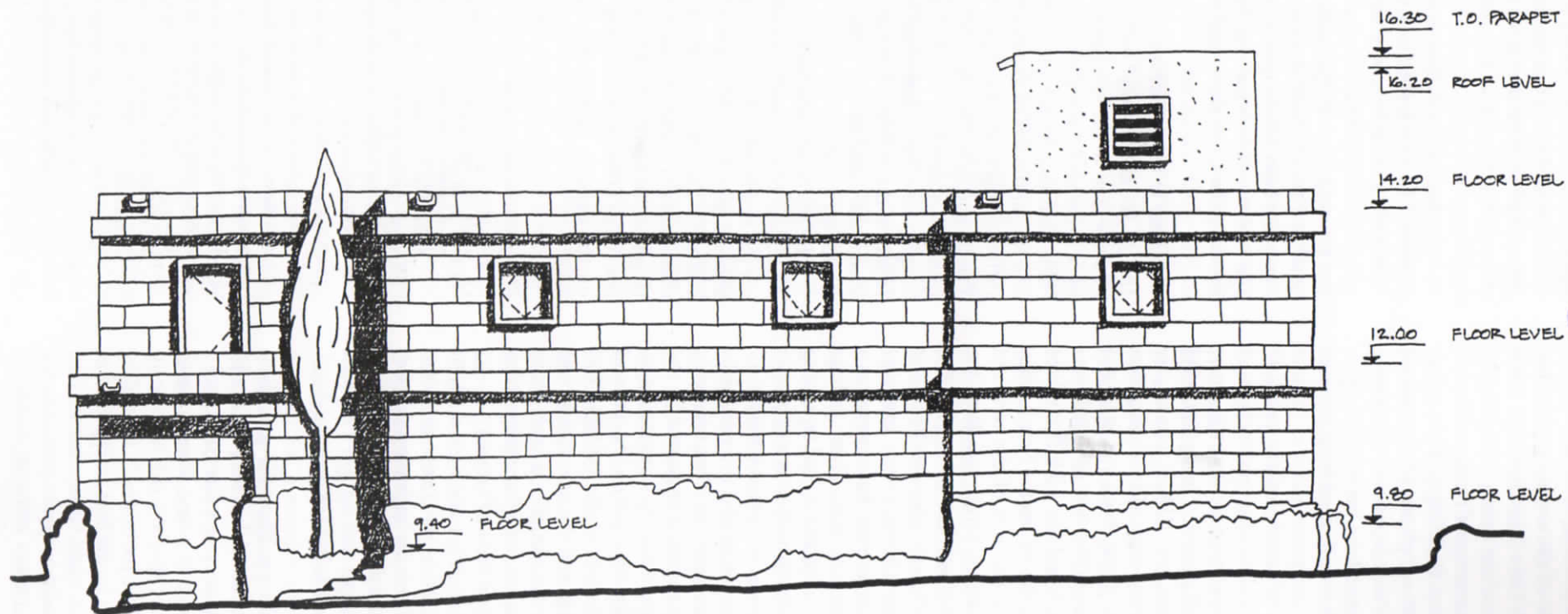
The destruction debris in the Plateia covered the entire zone and had an average depth of 0.55–0.75 m. One worked *ammouda* slab (FIG. 2.4), perhaps a fragmentary column base or pedestal, lay partially over the ivory torso.

BUILDING 5¹¹ (FIG. 1.2; PLATES 1 a, 2 b, 3 a–b, B b)

General Description (FIGS. 1.1–2)

Large sections of the town, including Area 6 and Building 7, are orientated to the NE but the more northerly sectors, Buildings 1, 3 and 4, are orientated more to the

¹¹ Since a full publication of Building 5 is planned after full study, the present report is preliminary. Only information that is considered relevant for the discussion of the Kouros is given.



BLDG 5: RECONSTRUCTION OF NORTH ELEVATION
LATE LM.1B

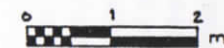


Fig. 2.5. Building 5: Reconstruction of N elevation. Late LM 1B. (P. Jerome)

NW. Lying at the junction of these, Building 5 combines both orientations, one of the arguments for dating its construction slightly later than Buildings 1 and 3. Building 5 was set against the existing Building 3, perhaps early in LM I, since some of its internal walls simply abut the outer walls of Building 3. This, rather than the different constructional phases of the internal walls, helps to explain the irregular plan of the house.

Building 5 in LM I seems to have been conceived as a typical, almost square, domestic structure, measuring about 14.5 × 15.0 m. It comprises about 21 distinct ground floor spaces, some of which are the result of the incorporation and modification of several earlier wall lines. The following commentary describes the situation at the end of the LM IB period. The earlier, MM and LM IA–B, as well as later, LM IIIA–B, phases, are discussed briefly below. By the time of its destruction by fire in the final LM IB phase, both the plan and circulation pattern of the building had changed considerably from its earlier use. It was accessible from three sides: the NE via the Plateia, the SW via the South Alley (Street 5–6), and the SE via the area of the well and corridor 21—also opening out on Street 5–6. Both the NE and SW entrances seem to have been substantial and led into vestibules. The special care given to the paving and walls of the NE vestibule (Room 1) was probably not part of the original construction, but represents a modification related to other activities. These include the isolation of the Plateia, noted above, and two other important changes: the separation of the NW apartments of the building into a disconnected unit no longer accessible from the rest of the house, and the refurbishing of the façades with ashlar masonry. That originally there was no entrance from the NE is indicated by the plan, by the circulation pattern and by some architectural details: the only communication on the ground floor between the different units of the building had been through Rooms 2 and 3, and the new entrance to the NE was by a raised doorway, roughly 0.65 m above the ground and made accessible with three steps, broken through the wall facing on to the Plateia.

The original purposes of Rooms 1 and 2 are difficult to interpret, but Room 13, given its corner position, may have been a storeroom from the beginning. A doorway originally led from Room 2 into the narrow closet 12 (W. 0.92 m), perhaps a simple *sottoscala* or a support for the upper floor landing at the head of the mud-brick staircase at 20.

The central part of Building 5, Rooms 4–9, is characterized by the presence of several mud-brick walls, low bench-like partitions supporting pillar bases, and a multitude of flat pillar bases, in schist, limestone or *ammouda*, some of which were specially cut, making up distinct series of pier-and-door partitions.¹² This addition of mud-brick partitions seems best interpreted as the modification of an earlier, more open, construction with a three-sided *polythyron*, which was later changed into storerooms. One compartment at the SE, Room 18,

had a paved floor, concealing a sunken basin (max. 1.30 × 1.10 m and c. 0.75 m deep) which had been abandoned and covered over after an earlier LM I fire destruction, a feature of interest for the history of the building.

It is not yet possible to say which rooms were unroofed or which precisely carried an upper floor.¹³ The paving in Area 3 may indicate that it was once a small light well, but fuller study is required before upper rooms and roof openings can be hypothesized. A window between Rooms 9 and 10 provided some of the necessary light for the central rooms, since the adjacent storerooms were separated by low walls which supported pillars, but these could be closed off to the SW.

Building 5: Construction

In LM IB, all the outer walls of Building 5 were built of stone, and all the inner partitions were of mud-brick on a stone socle, some incorporating slabs and stones. Well-built façades are preserved on two sides, the NW and SW, and parts of façades to the NE and SE. These differ in character: the N part of the E façade faces the Plateia and as is the case with the entire NW façade, it mostly consisted of squared ashlar masonry set on a rough stone base, described in detail below. The NE façade of the building is preserved to a height of 1.25 m above the floor of the small compartment between Buildings 3 and 5.

The NW façade was built in ashlar on a rougher stone socle, which consisted of a wall c. 0.50 m wide and preserved to a height of c. 1.10 m above the street level, or about 0.40–0.60 m above the LM I floors of Rooms 1, 2 and 13.¹⁴ This stone socle was carefully made of medium-sized, roughly dressed limestone boulders with larger, more regular boulders as corner stones. There is a rough attempt at coursing, with up to four courses on the outside, each about 0.30 m high. This façade

12 Only the *ammouda* bases leading into Room 5 and Room 9 seem to have been specially cut to receive proper door installations. The first suggests the more private character of Room 5, the second perhaps the special contents of the storeroom, one of the few in the building to yield a variety of finds (a 'Strong Room?').

13 Pamela Jerome's reconstruction given at FIG. 2.5 shows a windowed second storey above the NW rooms (1, 2 and 13), and above this the minimal covered space needed to provide access to the roof from the staircase adjacent to Room 13.

14 Low stone socles in one kind of material carrying a wall in another kind of material are quite common in Minoan architecture (e.g. *MAMAT*, 80, 189–90) but it is rare that the socles are so high and exceed the foundation course. A krepidoma, such as the Cape Sidero plinth for Building 1 or the *sideropetra* base course for *ammouda* ashlar, as at the W façade of the Central Court of the palace at Zakro, may well represent a regional architectural feature, as already noted by Shaw (*MAMAT*, 93, 101).

was entirely plastered over with a coarse yellow-white plaster, 0.01 m thick, the colour of which would have matched that of the ashlar set above it, which seems not to have been plastered. The ashlar was limited to the short NE façade, the entire NW façade along Street 4-5, almost 13 m long, and a small stretch, about 2.50 m long, of the SW façade along Alley 5-6. The remaining section of the SW façade, as well as a small part of the SE of the building were constructed differently, using large *sideropetra* blocks which were roughly worked to form an even surface. The difference between these two types of masonry is clearly visible where the wall line jogs at Room 13, suggesting that the entire NW façade was a late modification after the original wall had either been destroyed or dismantled. Only part of the NE wall facing the Plateia appears to be original and is similar in character to the SW façade.

Along the ashlar façades of Building 5, and only there, roughly built kerbs exist. They are accumulations of fieldstones mixed with sherds, earth and plaster, built beside the SW and NW façades, as single lines of wall of irregular height, and running along the length of Rooms 1, 2 and 13. These kerbs were set against the plastered stone wall, which is visible behind them. The height of these kerbs varies between 0.50 and 1.10 m, their width between 0.20 and 0.80 m. Their functions could have been many: as elsewhere in Roussolakkos and still in traditional Cretan villages, they can serve to protect the façades against water flooding down the streets, or, as one of our Knossian technicians, Andreas Klinis, remarked, they provide a sturdy platform for the addition of the ashlar courses. In addition, they are a robust anti-seismic device. We wonder, however, if they were intended to be permanent and maintained, or if they were for aiding construction and only remained in position because of the abruptness and decisiveness of the LM IB destruction.

All interior walls were constructed with mud-brick on a stone socle. These mud-brick walls are surprisingly well preserved in Building 5, underlining both the ferocity of the fire destruction, and the absence of subsequent disturbance in most of the rooms. It is for this reason that a temporary shelter was constructed above the entire building, though it is hoped that a more appropriate solution will be found in the future (Jerome 1995, 35-42, 134-6). Both the S walls of Rooms 2 and 13, as well as the partition wall between them, are well-preserved mud-brick walls, about 0.35-0.40 m wide.¹⁵ These walls have been left largely as they were when first exposed, pending the final sheltering of the building, hence cleaning and examination of individual bricks has not been attempted behind the clay plaster.¹⁶ The extensive use of wood, however, is evident; the impressions of vertical, round wooden beams, usually with a diameter of 0.12 m, plastered with clay, were found in certain walls, for example in that which separates Rooms 2 and 3. Likewise, the impression of upright posts used as doorjambs was preserved in several places, for ex-

ample those set on rectangular stone bases at the doors leading into Room 12 (shown at PLATE B c). Burnt mud-brick samples recovered from the collapse inside the building also preserve the impressions of beams and reeds. Samples from these walls were analysed in anticipation of their future conservation, and this revealed a composition similar to that of the locally produced pottery (Jerome 1993). All floors, except those in Rooms 1 and 3, which are *sideropetra* slabs, are of trodden earth, mostly baked hard during the fiery destruction.

Building 5: Description of the Northwest Unit (FIGS. 2.1-3)

It should be stressed that the Northwest Unit was not accessible from the rest of the building during LM IB, at least not at ground floor level. Communication with the rest of the building could have been possible from a ladder and a trapdoor in Room 13, or through the 'porter's lodge' in Room 1b, but the careful attention given to the different blocking operations makes this rather unlikely.

The Entrance. From the Plateia small, almost semi-circular steps lead to the NE entrance of Building 5, to Room 1 (PK 1990, 129). The three steps are made of irregular *sideropetra* and *ammouda* slabs, with respective rises of 0.16, 0.15 and 0.10 m, and a top rise of 0.23 m up to the massive *sideropetra* threshold, which measures 1.43 × 0.90 m and is 0.15 m thick. The E part of this threshold is partially covered by a LM III wall end, which is formed by an upright *ammouda* block (0.48 × 0.45 × 0.22 m). This is set partly on a slab and partly on earth, and was added to the original façade, reducing the width of the entrance from 1.60 to 1.43 m. Likewise, an even later rubble construction was set on the W part of the threshold so that by LM III, instead of the original 1.60 m, the entrance was barely 1.0 m wide. We have removed the W addition, which was of very poor construction, but left the E addition in place. The width of the original entrance was the same as that of the slab floor of Room 1, and was repeated by the width of the entrance from Room 1 into Room 2. The foundation for the original LM I wall separating Room 1 from Room 2 was revealed in a test alongside its S face, and shown to consist of two courses of small field stones with an irregular face (0.20 m in height and 0.40 m in width). The NW part of this partition wall served as a support for a wooden threshold (L. 1.60 m) against which the floor plaster of Room 1 abutted. After the final LM IB destruction, this passage was narrowed, using, as at the entrance to Room 1, an upright *ammouda* block (0.52 × 0.28 × 0.18 m), which suggests that the

15 PK 1987, 269 for details on the mud-brick construction.

16 There is perhaps one brick visible in the S wall of Room 2 measuring 0.58 × 0.10 m.

modifications to both doorways took place at the same time.

Room 1 measures c. 3.20×2.80 m and consists of three parts (see plan at FIG. 2.1): first an area (1a) c. 1.60 m wide and c. 3 m long with a slab floor; second, an area of 1.50×1.25 m in the SE corner (1b) which has a slightly raised floor of white plaster, incorporating several slabs, and third an area E of this (1c), measuring c. 1.65×0.90 m, with an earth floor and divided from 1a by a stone socle for a mud-brick wall. The paved area (1a) is carefully made and relatively well preserved (PLATE 6 b): it consists mostly of *sideropetra* limestone but also has some schist slabs of irregular sizes, some up to 0.85 m long. In the interstices of the slabs was a hard, red painted plaster (PLATE 6 a; cf. artists' reconstructions at FIG. 6.1 and PLATE N b), contrasting sharply with the dark blue slabs of the paving. The NW wall of this room was covered with brightly coloured plaster (red, blue and yellow), though only the lowest part survived *in situ* (PLATE 6 a). Against this wall, at about 1.45 m from the outside, is set a small rectangular base ($0.25 \times 0.10 \times 0.09$ m) and opposite, against the largely ruined partition wall, the floor plaster forms a ledge on top of the paving, against a projecting stone foundation ($0.44 \times 0.25 \times 0.07$ m), suggestive of an original base block (PLATE 6 b). On the opposite side of the room is a sunken, rectangular plastered feature ($0.30 \times 0.24 \times 0.12$ m) with traces of wooden posts, with maximum diameters of 0.10 m, on its NW and SW sides (PLATE 6 b). These may be part of a wooden door installation in the room, which could explain why no door-jamb bases were found near the threshold at the entrance. If the base and foundation did function as door jamb bases, then the doorway would have been 1.06 m wide.

The plastered platform of Room 1b measures about 1.50×1.25 m and was raised 0.08–0.10 m above the slab floor. Its NW edge is formed by some flat limestone slabs and a plastered edge, at least partly built on top of the pavement in Room 1a. Evidence for any special function is lacking, but it could have provided an intermediary step to compartment 1c.

The small partition wall inside the entrance is 0.43 m wide and is only preserved for 0.12 m above the slab floor. What remains is probably the socle for a mud-brick wall, which perhaps ended in an ashlar block (for a pillar or a wall head), the impression of which was found.¹⁷ Area 1c had no other exit so one possibility is that it formed a porter's lodge, a feature quite common at Roussolakkos. The SE wall dividing Room 1 from Room 17 is partly obscured by a thicker LM III overbuilding. No doorway existed in LM IB, when this wall seems to have bonded into the façade, though a later LM III doorway was built here (contrast plans at FIGS. 2.1 and 2.3).

Room 2. The wall between Room 1 and Room 2 (PK 1990, 129), as revealed in the test alongside its S face, is 0.40 m thick and had an entrance 1.60 wide in line with that of Room 1. The wall now visible and preserved to a height of 0.90 m above the floor of Room 2 dates to LM III. A plastered edge was found as well as the foundation for a threshold, now lost. The room measures c. 3.40×3.20 m and has a floor of trodden earth including some blue pebbles and tiny fragments of white plaster.

In addition to the entrance from Room 1, Room 2 originally had three other entrances: two leading SE, to Rooms 3 and 12, and one leading SW into Room 13. The two SE doorways were blocked before the LM IB destruction, whose burnt debris lies against the blocking; the two others, which in LM IB connected with Rooms 1 and 13, went out of use during LM III, when Room 2 was cleared out and re-used at a higher floor level.

The door leading to Room 13 was about 0.95 m wide and preserves the impression of the door jambs on the mud-bricks on its E side, but they are not preserved sufficiently to estimate the diameter of the two posts. Traces of charcoal in the entrance beneath the blocking suggest a wooden threshold, resting on a stone foundation.

Room 13 is a large, square room, measuring 3.80×4.25 m, accessible only from Room 2 during LM IB. The entrance was blocked, and later use was at a much higher level, leaving the destruction debris intact. In LM IB, the room had a clay floor and clay plaster, which is still in position on the rubble backing of the two façades, as well as on the partition walls. The interior mud-brick wall which runs to the SE corner of the room was placed on a stone socle of wedge-shaped stones (H. 0.50 m); it was higher and sturdier than usual since it had to support staircase 16. However, because of the weight of this staircase, the central part of this wall bulges out considerably. Fragments of white plaster were also found, perhaps from the ceiling. The room was used for storage; its contents are discussed in Chapter 1 above and shown on plan at FIGS. 1.7, 1.9.

ARCHITECTURAL PHASES

Building 5, built rather late in the history of the settlement, seems to have had a rather turbulent history. We distinguish three phases, two of which include the Neopalatial building, and one which succeeds it. Within these main phases, several changes, or sub-phases, can

17 This wall was levelled and went out of use after the LM IB destruction when a single large room was made out of the compartments 1a, 1b and 1c.

be discerned. The area occupied by Building 5 had been part of the town area since the EM III/MM I period, as shown by a sounding in Room 1b.¹⁸ Its subsequent history remains unknown until later MM times.

Phase I: Middle Minoan

Sometime in the Middle Minoan period, a sizeable building with massive boulder façades and well-built inner partitions of medium-sized stones was constructed. This structure was largely destroyed, probably by an earthquake, at the end of MM IIIB or early in LM IA (*PK 1990*, 123; Bernini 1995, 55–82), leaving pockets of debris within the building. Remains of the upstairs pebble and white plaster floors were found in places, under the LM I surfaces. Detailed discussion will be included in a separate publication of Building 5.

Phase II: LM I

Phase IIa: LM IA. At the beginning of the LM IA period, surviving walls of the Middle Minoan structure were incorporated into a new mansion, measuring about 15 × 15 m, the size of an average wealthy town house at Roussolakkos. Use was now made of new architectural concepts such as spacious halls, opened by pier-and-door partitions, perhaps with an adjacent lustral basin, if this is the right interpretation of Room 18. Floors of this phase were found in several areas, for example in Room 2 (see e.g. *PK 1990*, 129–30) where a pit filled with rubble and mature LM IA sherds was found cut down from a trodden level close beneath the LM IB floor (no. 13 at Section C–C', FIG. 1.6). This belongs to the period of use of the lower floor and provides us with a *terminus post quem* for the laying of the destruction floor.

In terms of architectural typology, Building 5, as first constructed in Phase II, is an excellent example of a Type 2 building, as classified by McEnroe.¹⁹ After the modification, it is only the Northwest Unit that assumed Type 1 features.

Phase IIb: Late LM IA–IB. A great number of significant architectural modifications are evident in association with floor levels higher than those of the preceding phase (plans at FIGS. 2.1 and 2.2).

- i. The lane leading from the N to the Plateia passing between Buildings 1 and 4 was closed off and two spaces were added to Building 1, becoming its SW annexe. On the Plateia side, this annexe received a fine ashlar façade, which formed an organic continuation of the ashlar façade of Building 1, flanking Harbour Road. Since both Theran ash and LM IA sherds were found stratified beneath this addition, it is likely that this modification took place, at the earliest, late in LM IA.

Since the masonry of both *sideropetra* slabs and *ammouda* ashlar used for the SW annexe is basically identical to that elsewhere in Building 1, but entirely different from the blocks in the façade of Block Delta, which were set in place in LM II or later, the original construction of Building 1 may also date to a mature phase of the LM IA period. The additional ashlar façade also served to support the E wall of Building 4, which had partly collapsed, probably during a seismic event at the end of the MM IIIB period, but which was now given double thickness by a supporting wall.

- ii. An earlier entrance to the Plateia from Building 4 was blocked.
- iii. The SW entrance to Building 3 was blocked and a new entrance constructed in the opposite, NE façade, while its original entrance vestibule became a sheltered space with plastered benches.
- iv. The screen wall between Buildings 3 and 5 was built up in ashlar.
- v. The NE façade of Building 5 was opened to establish a wide entrance. Since the ground level of the Plateia and that within the building were more than 0.65 m different, a small, semi-circular staircase was constructed in front of it.
- vi. The entire NW façade and part of the SW façade were refurbished in ashlar. At least five of the blocks employed show the double axe mason's mark and the masonry is similar to that used for Building 1 and its SW annexe.
- vii. The doorways leading from Room 2 to the SE, into Rooms 3 and 12, were blocked.
- viii. Room 1 received a fine limestone paved floor as well as coloured plaster decoration on its walls. It may be conjectured that the plastered dais in Room 1c was now installed.
- ix. It is possible that the doorway leading into Room 2 was widened. In its final state it is about 1.60 m wide, which is excessive in comparison with most of the internal doorways elsewhere in the structure. This width agrees, however, with that of the modified main entrance to Room 1, and both doorways are axially placed.
- x. A pit or cist may now have been dug in Room 2, covered with slabs and supported by a central wooden post, or by crossbeams.
- xi. The rest of the house was subdivided by a series of mud-brick walls, which closed off the original open scheme of pier-and-door partitions and *polythyra*.

18 *PK 1988*, 419, fig. 2. EM IIB Vasiliki ware was found also in a sounding in Building 3 to the N.

19 McEnroe 1992, 3–19, especially because of the central hall and the entrance vestibule.

- xii. The sunken SE part of Room 18 was now sealed and the entire room paved over. Underneath, a small burned LM IB destruction deposit was left *in situ*.
- xiii. It is possible that the *ammouda* base in the vestibule (15) was now added and/or hollowed out to receive a wooden post. Alternatively, it is possible that the base was already in position and that the partition wall in Room 15 was constructed to support the pillar.
- xiv. Finally, it is possible that the access from Street 5-6 into the alley leading via Area 21 to the well of Building 5 was blocked at this time.

There is evidence for a fire in the building during this period, prior to the final conflagration.²⁰ The deposit beneath the paved surface in Room 18, though containing pottery of the LM IB period, was certainly in position before the final destruction at the end of the period (*PK 1990*, 127, fig. 5). The changes made to Buildings 1 and 3 seem to have taken place slightly earlier, perhaps following earthquake damage and Santorini-related events at the end of LM IA (*PK 1988*, 422-4, fig. 5; *Troubled Island*, 117-18). Since the final destruction of Building 5 by fire also falls within the same period, the modified building may only have enjoyed a relatively short life.

It seems probable that most of these structural changes were part of a single plan to embellish the building and the Plateia area with a specific purpose in mind (whether taking advantage of earlier earthquake damage or not)—to provide a proper background for the situation of the chryselephantine statue. Indeed, the overall result of the modifications is impressive: the Plateia, now reduced in size, could not be reached from the NW any longer, but only from the SW and N, and it only provided access to the wide entrance and three rooms of Building 5. All around, ashlar screens were erected. Coming from the NE, from the harbour, visitors would confront first the impressive façades of Buildings 1 and 3, the former entirely in ashlar. Through a dark and covered alley, they would perhaps emerge into the bright and imposing architecture of the Plateia.

The NW part of Building 5 was the only internal space directly accessible from the Plateia. It is evident, then, that the most important modification is represented by the cutting-off of the three NW rooms from the rest of the house. These were no longer accessible from the ground floor. Whether or not some connection via a staircase existed cannot be proven. That this suite of rooms actually formed a separate unit is shown not only by the blocking of doorways, but also by the fact that these rooms were the only ones to be fitted with ashlar façades, and the only ones to be cleared and re-used after the final LM IB fire destruction; two important and related clues.

Phase III: LM II-III A/B (FIG. 2.3)

During the LM IB destruction, the ashlar façades tumbled down into the streets surrounding Building 5 and were covered with debris, which eventually served as a trodden surface with the circulation pattern remaining more or less intact. The NW part of Building 5, Rooms 1 and 2, were the only ones re-used, perhaps almost immediately.²¹ The rest of the building was left choked with debris although occasionally some pits were dug into this (*PK 1988*, 434).

When the ashlar façades tumbled down during the LM IB destruction, the stone socle on which they were constructed survived. Very much as had been the case during Neopalatial times, when this stone base formed an even level for the ashlar wall, it was again adapted in LM III, this time as the bedding for a single course of large, flat, schist boulders of a distinctive green schist (H. c. 0.35 m). This construction was traced along the NW of Rooms 1 and 2 and along the SW and SE of Room 13, and was in each case founded on the earlier wall lines. Except at the SE line, this late course has been left in position.²² Since the base of this new wall is considerably higher than the floors of this phase, we cannot pinpoint the time of its construction. The fact that the ashlar façades collapsed in LM IB, and that the NW unit was reoccupied shortly afterwards, may mean that the construction took place early in the reoccupation history of the building.²³ Again, the fact that the same type of stone can be observed in the masonry which blocks the LM IB entrance to Building 5 from Alley 5-6 at the S, also implies a rapid reoccupation.

In Room 1, the destruction debris seems to have been entirely cleared out.²⁴ The fine slab floor was swept clean and was re-used for a long period. New construction narrowed the entrance (FIGS. 2.2-3) and added a new schist facing to the inside face of the exterior walls. Compartment 1c was now incorporated into an undivided area, thus giving the room a lower paved floor to

20 It would be interesting to examine the magnetic data of this earlier LM IB destruction and to compare the results with the so-called earlier LM IB destruction versus later LM IB destruction that has been claimed for respectively central and E Crete.

21 A Palace Style sherd was found in the Plateia (ER92N, *PK 1988*, 429, fig. 11) but no LM II-III A1 pottery came from within.

22 A stretch of the Reoccupation course along the NW façade which had been robbed (L. 1.50 m), was restored with a block originating from the blocked doorway between Rooms 1 and 2.

23 But see n. 27 below.

24 Some of it may be preserved beneath the SE wall where it ends on top of the main entrance threshold, since this side of the entrance although contracted after LM IB, still remains in its LM III state on the site.

the W, and a slightly higher earth floor to the E. At a later stage, however, the entire room was given an earth floor with slabs, laid out at *c.* 0.30 m above the original slab floor. Later still more pebble floors were laid down at an even higher level, and two slabs, perhaps for benches, were placed against the NE wall. Associated with these changes was the construction of two doorways leading out to the area of Room 17, though one was later blocked.²⁵

Most of the debris from the destruction at the end of LM IB was cleared out of Room 2, leaving only a layer *c.* 0.20 m thick above the final LM IB floor at 9.45↑, the find spot of the lower limbs of the Kouros. The partition wall with its wide entrance to Room 1 had been destroyed but was rebuilt, with a narrower door 1.30 m wide. The wall end here uses an upright *ammouda* block, reminiscent of the block used by re-occupiers to narrow the main entrance to Building 1, and this implies related and contemporary operations. The doorway to Room 2 was given a large schist block as a threshold, but was later blocked on two different occasions and, in each case the blocking can be associated with earth floors in Room 2, at *c.* 9.74↑ and 9.84↑. The final result was a blocking wall of the same height as the surrounding walls. After this the room was accessible only from the S where a new main entrance to the building was situated, formed by a massive threshold with door bases. This led to what may have been a small vestibule with a central column base leading from the SE into the structure.²⁶ The floor associated with these architectural features was largely eroded because of the close proximity of the modern ground level. The top of the column base was about 0.50 m above the highest LM III floor in Room 2. To an earlier reoccupation phase belongs a platform in the S corner of Room 2,

incorporating a fine *ammouda* block (0.72 × 0.46 × 0.26 m).²⁷

The plan and construction of this LM III building which was set over the N section of Building 5 is quite regular, forming small and medium-sized rooms. Rooms 1 and 2 have similar sizes to those of their Neopalatial predecessors, whereas the new construction above Room 13 is incompletely preserved. All late walls are 0.45–0.50 m wide, and are built of a single course and line of large schist boulders, thus suggesting that at some point both those which were set on top of earlier walls and those constructed on the earth fill were used simultaneously.

No walls belonging to this phase were found further to the S, SW or SE, although some pottery and terracotta figurines have been found (*PK 1990*, 133, fig. 9).

25 In Room 17, the remains of several hard surfaces were found, perhaps floors, as well as some schist paving slabs, again at different levels. Although these were associated with LM III pottery, it is possible that they represent the remains of an earlier staircase, which existed here before the LM IB destruction—a hypothesis which needs confirmation by further stratigraphic testing. The complicated architectural history of this area will receive more attention in the excavation report of Building 5.

26 *PK 1987*, 278: the limestone base has a diameter of 0.45 m and stuck out 0.10 m above the top of the surrounding walls. It is possible that the foundations for another column existed above Room 3.

27 This platform was constructed before the last floor in Room 2 was laid out. The later walls here seem to run partly over this installation, however, which may be an argument against dating these to an early reoccupation.


Appendix to Part I: list of finds
 (see FIG. 1.7)

The following catalogued finds are entered on the plan at FIG. 1.7, where the original excavation numbers are used. Here we add the catalogue numbers of the Agios Nikolaos Mu-

seum (ANM), the Siteia Museum (SM) or the Palaikastro inventory (PK/-) as applicable. In small parentheses, as (8.83), are spot heights above sea level.

PK 1987 (ER 92)

- 62 — gold wire (8.89) [SM7677/XXIV/500]
- 63 — shell (8.85)
- 64 — obsidian flake (8.83)
- 65 — four gold wire frs. (8.76) [SM7677/XXIV/504]
- 66 — stone vase fr. (8.76) [SM7677/XX/548]
- 67 — ivory fr. (8.76) [SM7678/675]
- 68 — ivory torso with arm (8.72) [SM7678/669]
- 69 — obsidian flake (8.74) [SM7615/XXII/573]
- 70 — Egyptian blue with gold flecks (8.72) [SM7677/654]
- 71 — seven frs. of gold foil (8.70) [SM7677/652]
- 72 — plaster frs. (8.70)
- 73 — gold foil (8.75) [SM7677/XXIII/763]
- 74 — ivory arm (8.65) [SM7678/799]
- 75 — gold foil with 74 (8.65) [SM7677/XXIII/796]
- 76 — Egyptian blue with gold flecks (8.65) (kept with 70)
- 77 — ivory fr.? (8.70) [SM7678/799]
- 78 — six gold foil frs. (8.65), some attached to 74, others close [SM7677/XXIII/798]
- 79 — gold strip of 9.5 cms (8.77) [SM7677/XXIII/796]
- 80 — obsidian flake (8.64) [SM8155/V/790]

- 81 — flecks of gold associated with charcoal and 78 (8.65) [SM7677/XXIII/707]
- 82 — ivory frs. (8.64) [SM7678/707]
- 83 — Egyptian blue with gold flecks (8.65) (kept with 70)
- 84 — base of conical cup (8.66)
- 85 — amphora fr. (8.66) [PK801]
- 86 — ivory fr. (8.59) [SM7678/800]
- 87 — shell (8.69) [SM7678/V/743]
- 88 — thymiaterion (8.69) [SM7678/VI/732]
- 89 — two frs. of gold foil (8.67) [SM7677/XXIII/797]
- 90 — two frs. of gold foil (8.75) [SM7677/XXIII/789]
- 91 — bone shaft (8.63) [SM7677/XXIII/793]
- 93 — gold foil (8.66) [SM7677/XXIII/772]
- 94 — two frs. of gold foil (8.63) [SM7677/XXIII/791]
- 95 — two frs. of gold foil (8.57) [SM7677/XXIII/792]
- 96 — ogival cup fr. (8.70)
- 97 — two frs. of gold foil (8.76) [SM7677/XXIII/794]
- 98 — shell (8.76) [SM7677/V/721]
- 99 — two frs. of gold wire (8.68) [SM7677/XXIII/780]

PK 1988 (ER 92 AND BAULKES)

- 131 — gold leaf (9.12) (ANM7998/1073)
- 132 — obsidian flake (9.10) (SM8155/V/1353)
- 133 — obsidian flake (8.92) [SM8155/V/1352]
- 134 — ivory pommel, broken (8.83) [ANM8001/1064]
- 135 — ivory pommel fr. (part of 134) (8.79) [ANM8001/1064]
- 136 — pierced fr. of incised ivory disc (9.02) [ANM8001/1065]
- 137 — six ivory frs. found close together (8.70) [ANM8001/1066]
- 138 — gold foil (8.70) [ANM7998/1067]
- 139 — ivory lozenge (8.72) [ANM8001/1068]
- 140 — gold foil (8.75) [ANM7998/1069]
- 141 — gold strip and wire (8.73) [ANM7998/1069]
- 142 — coherent charcoal fr. (8.74)
- 143 — gold strip (8.74) [ANM7998/1069]
- 144 — ivory fr. (part of disc 136) (8.72) [ANM8001/1070]
- 145 — clay sealing (8.75) [ANM8001/1071]
- 146 — ogival cup (8.84)
- 147 — gold strip (8.67) [ANM7998/1072]
- 148 — worked stone fr. (8.70)

- 149 — obsidian blade (8.84) [SM8155/V/1250]
- 150 — jug (8.89) [SM8369/1771]
- 151 — gold foil, 4 frs. (8.43) [ANM7998/1074]
- 152 — half of stone head (8.65) [ANM8000/1086]
- 153 — terracotta horn (8.84) [SM7919/IV/1252/]
- 154 — stone tool (8.68) [APK/3477]
- 155 — neck and back of ivory statue (8.75) [ANM8001/1087]
- 156 — bone fr. (8.56)
- 157 — bone fr. (8.53)
- 158 — pig's jaw fr. (8.83)
- 159 — sheep/goat's jaw fr. (8.53)
- 160 — part of stone head 152 (8.65) [ANM8000/1088]
- 161 — two pieces of gold foil (8.62) [ANM7998/1090]
- 162 — gold strip (8.71) [ANM7998/1089]
- 163 — terracotta boar (8.69) [SM7877/I/1093]
- [165 — grinding stone (9.12)]
- 167 — plaster frs. with external corner
- 168 — muzzle of terracotta bull's head (8.75) [SM7997/X/994]
- 171 — two frs. of gold foil (8.70) [ANM7998/1233]
- 172 — sheep/goat's jaw, almost complete (8.72)

PK 1988 (ER 92 AND BAULKS) (*cont.*)

- 173 — gold foil (8.70)[ANM7998/1234]
 175 — two pieces of polished plaster (8.72)
 176 — worked piece of burned bone (8.70)
 180 — worked rock crystal (eye)—from sieved earth [ANM7999/1246]
 181 — gold strip fr.—from sieved earth [ANM/7998/1295]
 184 — worked rock crystal (eye)—from sieved earth [ANM7999/1297]
 185 — worked ivory fr.—from sieved earth [ANM8001/1298]
 186 — small serpentine fr. (from head 152&160)—from sieved earth [ANM8000/1241]
- 197 — ivory foot—from sieved earth [ANM8001/1240]
 198 — ivory fr. (wedge-shaped and with dowel-hole)—from sieved earth [ANM8001/1305]
 [199 — stone tool (9.20)[SM8162/V/1350]
 200 — cylindrical worked ivory (8.90)[SM8011/I/1313]
 201 — two pieces of gold foil (8.78)[ANM7998/1306]
 202 — ivory fr. — from sieved earth [ANM8001/1307]
 203 — gold wire — from sieved earth [ANM7998/1308]
 204 — gold foil [ANM7998/1309]
 270 — ivory fr. — from sieved earth [ANM/-]
 271 — two pieces of gold foil — from sieved earth [ANM/-]
 347 — two pieces of gold foil (9.04) [ANM/-]

PK 1990 (B5R2)

- 10 — stone tool fr. (9.60)
 11 — obsidian fr. (9.60)
 12 — obsidian blade fr. (9.47)
 13 — stone lid fr. (9.55) [PK/90/963]
 14 — amphora frs. (9.49–9.56) [PK/90/2056]
 15 — polished bone point (9.32) [PK/90/2609]
 16 — ogival cup (9.21–9.29) [PK/90/1983]
 17 — conical cup (9.61) [PK/90/2017]
- 18 — loomweight fr. (9.61) [PK/90/2006]
 19 — ivory leg frs. (9.49) [PK/90/1987]
 20 — ivory buttock and thigh (9.46) [PK/90/1987]
 21 — gold foil frs. (9.47)
 22 — obsidian blade fr. (9.47)
 23 — obsidian blade fr. (9.49)
 24 — base of conical cup (9.47)

PK 1990 (B5R13–EQ90)

- (25) — stone vase fr. (10.21) [PK/90/2040] [not indicated on plan]
 403 (33) — open mouth amphora (9.78–9.97) [PK/90/2126]
 404 (34) — large two-handled open vessel (9.89–9.97) [PK/90/2158]
 405 (35) — trefoil-lipped jug (9.92) [PK/90/2125]
 406 (36) — amphora (9.84) [PK/90/2138]
 407 (37) — open mouth amphora (9.93) [PK/90/2128]
 408 (38) — large vase frs. (9.93) [PK/90/2153]
 409 (39) — large decorated pitcher (9.93) [PK/90/2429]
 410 (40) — jar (9.68–9.98) [PK/90/2127]
 411 (41) — large two-handled open vessel, upside down (9.68–9.98) [PK/90/2154]
 412 (42) — two-handled large open vessel (9.72) [PK/90/2157]
 413 (43) — worked ivory fr. (9.65)
 414 (44) — large two-handled open vessel beneath 41 (9.67) [PK/90/2155]
 415 (45) — large two-handled open vessel frs. (9.75) [PK/90/2156]
 416 (46) — small straight-sided bowl (9.72–9.84) [PK/90/2183]
 (50) — obsidian blade (9.86) [not indicated on plan]
 (51) — obsidian blade (9.68) [not indicated on plan]
 422 (52) — two handled jar frs. (9.68–9.83) [PK/90/2436]
- 425 (55) — two handled storage jar (9.68–9.83)
 426 (56) — storage jar with flanged base (9.68–9.83)
 427 (57) — storage vessel (9.68–9.83) [PK/90/2410]
 428 (58) — flat-based storage vessel (9.68–9.83)
 429 (59) — large two-handled storage jar (9.68–9.83)
 430 (60) — base and body frs. of a basin (9.68–9.83) [PK/90/2427]
 431 (61) — flat-based storage jar (9.68–9.83)
 432 (62) — several pieces of worked bone (9.68–9.83)
 433 (63) — vase frs. (9.68–9.83)
 434 (64) — base and body fragments of vase (9.68–9.83)
 (81) — stone tool (9.68) [not indicated on plan]
 452 (82) — tripod cooking pot (9.65)
 453 (83) — storage vessel (9.76–9.96)
 454 (84) — storage vessel (9.66–9.88)
 455 (85) — two-handled storage jar (9.71–9.92)
 456 (86) — vase with flared base (9.68–9.82)
 457 (87) — storage vessel (9.62–9.82)
 458 (88) — two handled storage jar (9.69–9.81)
 459 (89) — pot frs. (9.68)
 460 (90) — pot fragments (9.69–9.82)
 (91) — obsidian blade (9.67) [not indicated on plan]
 (96) — large amphora on stone base (9.68–9.83)
 467 (97) — smashed oval mouthed amphora (9.68–9.83)
 (99) — small piriform jug (9.68–9.83)[PK/90/2540]

The conservation of the finds from the Plateia

Anita Moraitou and Alekos Nikakis

DISCOVERY AND PRELIMINARY ON-SITE CONSERVATION

In the destruction level the upper part of the statuette was found fragmented and with the marks of severe burning and other physical damage, and it was wet due to the heavy rainfall of the spring of 1987.

The lifting of the torso from the earth was carried out by the excavation's technician Nikos Daskalakis, who coated the surface of the find with a strong solution of synthetic resin in acetone. Since the object was moist and this solution was not miscible with the water, the resin formed a surface coating which held the fragments together in position. Then the torso along with a substantial portion of the earth it lay in was wrapped in moist tissue paper (to maintain the level of humidity) and aluminium foil (for added structural support) and was transferred to the excavation house where it was stored in a refrigerator.¹

The immediate objective in conserving this very significant find was to ensure its speedy and safe move to a properly equipped conservation laboratory with the following considerations in mind:

- i. that the ivory not dry out quickly, and that new cracks be avoided;
- ii. that it be provided with proper structural support and be packaged in a manner which ensured that no fragments be dislodged from their position.

The surface coating was carefully removed along with much adhering earth, to facilitate an examination of the object as far as was possible with due regard for its condition (PLATE 7 *a*). Next a cast in plaster of Paris was fashioned for the torso while the fragments and the upper limbs were placed in cut-out compartments inside a Styrofoam sheet (PLATE 7 *b*). The whole package was placed in a strong carton wrapped in polyethylene sheeting in order to maintain the humidity, and the find was transferred to the conservation laboratory at the Agios Nikolaos Museum.

THE STATE OF PRESERVATION OF THE IVORY

With the exception of the face and the right hand, the upper part of the statuette is in relatively good condition. This may be linked to the fact that it is made from

hippopotamus ivory, which seems less susceptible to the effects of deposition than is elephant ivory.²

Hippopotamus ivory is generally recognized as being denser than elephant ivory, with individual dentinal tubules smaller and more finely spaced.³ It has also been suggested that hippopotamus ivory has less organic material than elephant ivory (Penniman 1952, 23), but there appear to be no laboratory data to substantiate this claim.⁴

The Palaikastro statuette displays the whole range of colours which ivory takes on when subjected to extreme heat of different temperatures (PLATES A, D, H). Experimental data are known for colour and structural changes of elephant ivory, and are summarised in TABLE 3.1.⁵ These figures relate to weighed examples of *c.* 1 gram of fresh African ivory heated in laboratory conditions, for one hour. Further experimental data exist for samples heated in the presence or absence of carbonaceous material and for the effects of long-term

1 Such was its condition when this writer first took responsibility for it, after she was invited to undertake first aid treatment by the excavators.

2 The rationale for identification of the ivory as deriving from hippopotamus rather than elephant tusk is discussed by Moak in Chapter 5 below. Cf. Krzyszkowska 1990, 38, 47; Penniman 1952, 23.

3 Krzyszkowska 1990, 38. Dentinal tubules are microscopic tubes which contain special cells (odontoblasts) which generate and renew dentine during the life of the organism. The dentinal tubules permeate the entire body of the dentine with parallel intersections, radiating from the pulp cavity to the surface of the tooth or tusk. See Stasinopoulou 1982.

4 Elephant ivory consists of *c.* 55% inorganic material: calcium phosphate 82%, magnesium phosphate 15%, calcium carbonate 2%, fluoride 0.25%. The remaining 45% consists of organic materials, chiefly proteinaceous collagen. Fresh ivory contains 13% water. Harrison, citing Lafontaine and Wood 1982, 109-17, Chapter 4a below, states that the inorganic constituents of elephant ivory account for *c.* 65%. Our figures are taken from Baer *et al.* 1971a, 3; and cf. Taylor 1955, 248. While it is reasonable to assume that the constituents of hippopotamus ivory are similar, it is possible that the proportions might differ. Laboratory tests would be welcome.

5 Baer *et al.* 1971a, 1-8, especially table 1 (which we here adapt). There are no experimental data for the burning of hippopotamus ivory.

TABLE 3.1. Colour and structural changes in elephant ivory exhibited during controlled heating.

Temperature (Centigrade)	Colour	Notes
Natural elephant ivory	white	
149	white	
204	light yellow	
260	brown	loss of water 13%
316	brown-black	
593	black	disintegration of collagen
649	dark grey-blue	break down of CaCO ₃ the blue colour is due to finely dispersed carbon
760	light grey-blue	
816	white	
871	white	

heating (Baer *et al.*, 1971a, 5, table III; also Baer *et al.* 1971b, 55–9). Unfortunately no experimental data exist for hippopotamus ivory.

Hydroxyapatite [Ca₅(PO₄)₃OH], the principal inorganic component of dentine, disintegrates at 1200° C.⁶

Extreme heat brings structural changes, as well as the changes in colour and composition. An increase in temperature to the black range of burning can cause tiny fractures on the surface due to the sudden loss of organic components and the contraction of the rest of the material. However the greater proportion of the blackened surface is very well preserved and has a brilliant lustre. This state of preservation and the black colour are due to the incomplete burning of the proteinaceous constituents of the dentine, which leaves a residue rich in carbon. The presence of uncombined carbon protects the remaining collagen from hydrolysis and biological damage (Baer *et al.* 1974).

At the high temperatures—where the burnt surface reaches to the range of an ash colour, blue or white—the ivory contracts and becomes more porous (Taylor 1955, 250), while the carbon disappears with a resulting loss of cohesion in the tissue and the development of cracks at the surface. This range of burning can be observed in the area of the slot at the waist of the sculpture.

On the back of the statuette there is a dark-coloured criss-cross pattern, resembling a subcutaneous veining, which cannot be associated with any known characteristic of hippopotamus ivory, and is a feature requiring further investigation⁷ (PLATE 7 b).

In certain places, within the light yellow and brown areas of the object, very fine surface grooves can be seen which must be attributed to the dissolvent action of micro-organisms.

In addition to its dismemberment, to the fractures due to physical damage and the crazed surface due to burning, the material also displays characteristic cone within cone breaking up which is linked to the formation of dentine in hippopotamus tusks (PLATE 11 d).

THE OTHER MATERIALS

Along with the main body of the sculpture other materials were also preserved which were directly associated with decoration and with the technique of the figure's assembly. These are:

- i. Gold leaf on the left lower arm, as well as other shaped foil and leaf fragments found near the sculpture, and giving it its chryselephantine identity.
- ii. Egyptian blue, the well-known synthetic pigment of antiquity (CaOCuO₄SiO₂), found on the under-

6 Engström 1972. For hydroxyapatite cf. also Harrison at Chapter 4a, p. 58 and n. 3 below.

7 The same feature has been observed on the inlay panels from Gournia (Agios Nikolaos no. 5256) which have been identified by Krzyszkowska as hippopotamus ivory (Krzyszkowska 1988, 217).

side of the gold leaf fragment which was on the left lower arm, as also on the earth nearby.⁸

- iii. Carbonised wood inside the circular dowel holes at the joints of the upper limbs, and on the torso at the nipples.
- iv. Rock crystal, which was used to fashion the inlaid eyes.
- v. Serpentine from which the head was carved.

RESTORATION AND ASSEMBLY⁹

Due to its size the statuette could not be constructed from a single hippopotamus tusk, so it was carved in sections which were joined by mechanical means. The upper section is composed of four parts: the two upper limbs, the right section of the torso and the left and central section of the torso which includes both the face and the waist tang. At least two separate tusks were used (see Moak's drawings at FIG. 5.4: c-d below).

The upper limbs were joined to the torso with one dowel pin of triangular section and one of round section, whereas the two sections of the torso were joined with two dowel pins of round section. The head has a rectangular cutting into which the peg of the face was fitted, but three deeper slots were cut to provide additional support.¹⁰

The drying process

The torso, the upper limbs and the associated fragments were allowed to dry slowly in a sealed and controlled environment, with continuous monitoring over a period of fifteen days, in an atmosphere of formaldehyde to inhibit the development of micro-organisms.

Cleaning

The main sections and the fragments of the sculpture were cleaned of earth under a stereo microscope, using a solution of distilled water and ethyl-alcohol, as well as by mechanical means where this was necessary. For the removal of insoluble salt encrustation in no circumstances was acid used, as done in the past (Plenderleith and Werner 1976), since this would risk damaging the inorganic tissue of the ivory.

The application of hydrochloric acid in a solution of only 1%, followed by its immediate removal with distilled water, was shown in a recent study to cause drastic change to the surface composition and the morphology of elephant ivory (Matienzo and Snow 1986, 133).

Consolidation

For the consolidation of the material a solution of 5–15% acetate polyvinyl (MOWILITH) in acetone was used.

The restoration of main sections and of fragments

Due to the physical damage which the sculpture had suffered, there were signs of displacement both in frag-

ments and in the major sections. The two sections of the torso showed a deviation from one another of 8.5–11 mm. In order to bring them together it was necessary to remove, after careful separation, the mineral deposits, which were responsible for this. This procedure of removal and re-assembly was followed with the right arm, from shoulder to elbow, with the inside face of the right section of the torso, with part of the back and the neck and with the right part of the chest below the nipple.

The process of adhesion

The fragments were stuck together with nitrate cellulose adhesive (Duco Cement), an agent of proven strength with a high glass transition temperature (T_g), which enables it to withstand the high temperatures of the environment.

Approximately a hundred fragments were joined, some of which measured only 1.5 × 1.5 mm.

The process of re-assembly

For the re-assembly of the parts of the torso and of the arms a different adhesive was used so that, in case it should be necessary in the future to disassemble the sculpture, the fragments would not also become unstuck. The compound of beeswax, paraffin and calcium carbonate which was used is easily reversible and has been tested over many decades, with no negative effects, on elephant ivory at the Museum of Herakleion and other Greek Museums. For added security the adhering of the upper limbs was strengthened by the placement of new wooden dowel pins of triangular section which were placed in the ancient dowel holes. The wood, which was used, had previously been hardened, preventively sterilised and impregnated with wax. The adherence of the two sections of the torso was strengthened by the insertion of waxed cord into the ancient cuttings, where it was supported with polyvinyl acetate resin (FIG. 3.1). Of course where ancient slots were used there were no remnants of ancient wood.

Restoration undertaken for aesthetic considerations

Surface fissures were filled with an amalgam of beeswax, paraffin wax and pigment to a surface plane slightly lower than that of the surface itself.

8 The identification was made Dr. K. Kouzeli in the Stone Centre of the Greek Ministry of Culture, using X-ray diffraction.

9 The work of conservation and restoration and also the choice of the substances used in restoration were undertaken by the conservator A. Nikakis

10 A preliminary study of the technique of construction by M. Moak of the British School at Athens appeared in *PK* 1991, 141, figs. 18–19, and is fully discussed by him below.

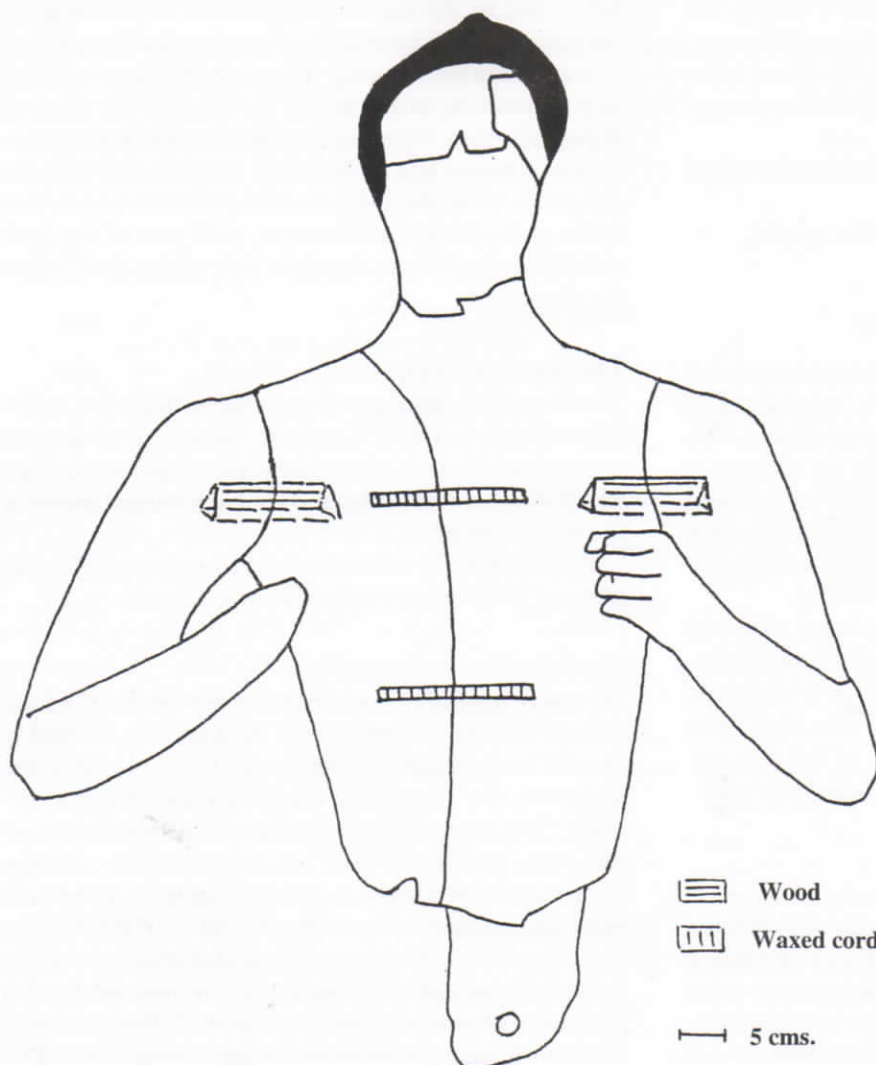


Fig. 3.1. The placement of structural supports (wood and waxed cord) in the joints of the main sectors of the ivory torso. (AN)

Display

Because of its importance the upper part of the statuette was placed in the Museum of Siteia, in an individual display case, soon after the completion of the restoration work. For greater stability a special base was prepared with a raised ring of Plexiglas to hold the statuette in position¹¹ (PLATE 7 c, d).

It is well known that ivory, as a material, is sensitive to humidity (hygroscopic) and unstable (anisotropy). This means that it absorbs and expels humidity, in proportion to the relative humidity of the environment, at a different rate for its three dimensions.¹² Since the Palaikastro statuette has not suffered exposure to extreme heat everywhere and, consequently, a proportion of its organic composition is preserved, it is rendered even more susceptible to sudden changes of relative humidity, with the danger of contraction and splitting or expansion and distortion. Thus the application of climatic control to the object's display case is desirable, not only for the preservation of this special material but also for that of the substances which were used in its restoration. A low level of lighting is recommended,

free from infrared and ultraviolet radiation, a stable level of relative humidity ($55\% \pm 5$) and a stable temperature ($20^{\circ} \text{C} \pm 2$) (Stanfield 1977).

ACKNOWLEDGEMENTS

This account of the conservation first appeared in *Cretological* 7. It was translated from the Greek by L. H. Sackett, who is grateful to Olga Krzyszkowska for taking the time to check the English version and for making suggestions for updating references and technical details.

¹¹ The base was designed and constructed by A. Nikakis. After the discovery of the lower limbs, a new method of support had to be devised for the stable display of the sculpture.

¹² The rate of loss of relative humidity for raw ivory is greater on the radial axis (4.2%); on the tangential and longitudinal axes it is 1.5 and 0.5% respectively. For a discussion of the rates of change of relative humidity in elephant ivory see LaFontaine and Wood 1982, 109–17.

The conservation of the finds from Building 5

Paul Harrison

INTRODUCTION

The legs were found and conserved during nine weeks of the summer of 1990 by the writer with the assistance of Mark Moak. The conservation work on the legs was carried out in the Siteia Museum, where the torso was already conserved and on display.

On May 23, 1990 about two hundred ivory and a large number of gold pieces were found in Room 2 of Building 5, near the Plateia where the torso had been found in 1987. They were so fragmentary that preliminary opinion was divided even about whether they were the missing parts of the statuette or were from another figure.

The foreman of the British School, Nikos Daskalakis, excavated the pieces carefully. They were immediately packaged up and taken indoors, where they were given an initial clean, and packed even more carefully for the journey to the Siteia Museum. Here they would be stored while the conservation work and initial study was carried out, and would eventually join the rest of the statue on display.

THE CONDITION OF THE FRAGMENTS

The legs were found in many pieces, which ranged in size from tiny fragments measuring just a few millimetres to the large relatively intact thigh pieces (PLATE 3 *d-e*). Most of the pieces were either a complete section through the leg, or a small fragment from a fracture zone.

The earth from all the relevant contexts of the Plateia and from Building 5 Room 2 was wet-sieved with a fine, 1 mm, meshed sieve, in a search for every missing piece of the statuette. In this way we found many small fragments from the fracture zones as well as pieces of gold, and of course it was hoped that the missing pieces of the face or even the genitals would be found. Although it is better not to wet ivory, it was necessary to wet-sieve the caked mud to break it up and remove it, leaving behind the debris which consisted mainly of stones and sherds but also contained many pieces of the statuette. The debris was then examined and the fragments sorted, particularly by their colour. The ivory pieces were so small, and were wet for such a short time, that there was little likelihood of them splitting when they dried out.

The leg pieces were also encrusted in salt. Conservators have two basic categories of salt: those that dissolve easily in water, soluble salts, and those that do not dissolve readily, the insoluble salts.

After being buried in the relatively dry soil of Crete for some 3,500 years, the ivory will have absorbed some salt from the soil carried to it by the ground water. On excavation it is exposed to a new environment, with which it will now tend to reach equilibrium. Since the artefact is damper than the air it will dry out, and in this process the absorbed soluble salts will be carried towards the surface of the object. Here the water evaporates, depositing the salt as crystals. It does this either on the surface or in the pores and cracks of the ivory, and there, if the salt crystals are larger than the pores, they will not only disfigure but will also damage the object.

The usual way to remove soluble salts is a prolonged soaking in water, but ivory should not be soaked in water. Snow and Weisser (1984, 141-5) treated a salt-affected ivory object by briefly dipping it in water; this was a smaller object that had the salts already on the surface. But the salts in the Kouros would be evenly distributed throughout the core of the ivory. The drying out after immersion could cause even more damage to the statuette than the salts would have done. Another reason for not soaking the ivory is that objects from Palaikastro do not usually suffer from soluble salts.

The pieces of the ivory statuette, however, were suffering very badly from insoluble salts. These salts were primarily calcium carbonate, which is the same material chemically as the wall plaster used on the inside of Building 5. The earth deposit was full of plaster fragments, and we believe that these may have been a major source for the insoluble salts afflicting the fragments of the statuette.

Limestone, marble, seashells and coral are also basically calcium carbonate. To make wall plaster the calcium carbonate source is heated above 700°C, when it becomes quicklime or calcium oxide. This is highly deliquescent and will absorb water. To become slaked lime (calcium hydroxide), it would have been left for an extended period (months or even years) during the original process, to improve its working properties. The slaked lime is then mixed with a temper such as sharp sand—sea sand is too worn—and this stops the plaster cracking when it dries later. On application to the wall

it will dry out and carbon dioxide from the atmosphere will react with it, so that it becomes solid calcium carbonate, wall plaster, again.

When the building was burnt, the surface of the wall plaster would have reached a temperature that is comparable to that required to reduce wall plaster to quicklime. The colour of burnt ivory gives an indication of the temperatures reached,¹ and this will be discussed later. But the majority of the deposited calcium carbonate comes from the slow dissolution of the buried wall plaster pieces in the groundwater. This was in solution in the ground, until it met a buried material where it was deposited. The solubility of calcium carbonate in water is very low, since the calcium carbonate builds up slowly in the same way as a stalagmite or stalactite does in a cave, for these are also calcium carbonate. Thus a very dilute solution deposits a small amount of the salt over a long period of time.

The larger thigh pieces had more of a salt crust than the smaller pieces; the hypothesis was considered that perhaps the Kouros had a plaster kilt and that some of the salt was part of the artefact itself. But the salt had inclusions bigger than what could be expected as a temper and the Minoans did not temper their plaster greatly. Also on cleaning it was found that the area of the ivory below the salt encrustation was amongst the most heavily burnt areas of the statuette, whereas it would have been more shielded from the heat if such a kilt had been worn.

THE BURNING OF THE IVORY

As described previously, the fragments of the statuette were burnt to varying degrees. The torso was outside in the Plateia, so that it was only slightly damaged by the heat, whereas the legs were inside a burning building and so reached a much higher temperature and for a longer period of time. They therefore suffered more heat damage.

Ivory is made of a mixture of both inorganic and organic materials. The inorganic component is made of phosphorus, calcium and magnesium salts. The majority of the inorganic component is often called hydroxyapatite $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ but research has shown that the mineral dahllite is a more accurate description; dahllite is $\text{Ca}_{10}(\text{PO}_4)_6(\text{CO}_3)\text{H}_2\text{O}$.³

The ratio of inorganic to organic matter varies depending on the species of the animal and where the sample is taken from. For instance, fresh African elephant ivory is 65% inorganic, while walrus ivory is 70% in the primary dentine but only 60% in the secondary dentine (Lafontaine and Wood 1982, 109–17). For the hippopotamus ivory of which the statuette was made, whether from Egypt or Syria,⁴ the figure for the ratio could not be found. The organic component, which will be about a third, is composed of collagen, which is also a primary component of skin, lipids, which are fats, and

elastin, which is a structural protein of elastic fibres and micro-polysaccharides.

The organic component means that it will burn. The work done previously on burnt ivory by Baer *et al.*, and based largely on their study of the burnt elephant ivory objects from Nimrud, has been discussed by Moraïtou and Nikakis above.⁵ Their TABLE 3.1 shows the changes in the colour and texture of elephant ivory at various temperatures from white to yellow (204°C), through brown, black (at which point no more protein could be detected), blue and finally to a white powder (816°C) when all the carbon was burnt away. I will have to assume that hippopotamus ivory reacts in the same way as elephant ivory, although hippopotamus ivory is a little harder and slightly different chemically, so these cannot be used as precise figures for the statuette.

The ivory legs were also heavily crazed with a fine intricate mesh of cracks. These did not penetrate very deeply but made the surface of the object very fragile.

The surviving burn patterns give us much forensic evidence about what happened to the statuette. The torso was lying down when it was exposed to the heat, and it was only burnt by a small fire in one location. A possible sequence of events is that a thin piece of wood fell across it while it was lying outside: this may also have broken the fingers of the right hand which are both burnt and broken, while the chest has a burnt black stripe which suggests localized intense burning.

The legs fell, or were thrown, into the burning Building 5. The whole surface of the legs, except for one small area, was burnt or baked to at least the black stage, and most, if not all, the burning probably happened while the object was horizontal. This is suggested by the fact that the legs are burnt much more on one side than on the other. The protected side which was next to the floor, is black or, in one area, brown whereas the other side is a light grey-blue and a few patches even reached the white stage of extreme burning. The burning is very localized: the white areas were just a centimetre from the black areas. Some of the cracks on the surface are due to the high temperature differential between these close areas.

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- 1 Baer *et al.* 1971a, 1–8. See relevant discussion by Moraïtou and Nikakis in Chapter 3 above and their ns. 7–8; further discussion of the problems involved in the interpretation of these tests is made by Krzyszkowska (1996, 83, n. 15).
 - 2 Cf. Moraïtou and Nikakis, p. 54 and n. 6 above.
 - 3 McDonnell 1990, 10. Cf. also now Espinoze and Mann 1991, 5, where the formula is given as $\text{Ca}_{10}(\text{PO}_4)_6(\text{CO}_3)\text{H}_2\text{O}$. We owe this reference to O. H. Krzyszkowska.
 - 4 Although it is possible that this ivory originated from Syria, e.g. via Ugarit, Krzyszkowska has argued that hippopotamus ivory probably reached Crete from the Delta (Krzyszkowska 1988, 229; 1990, 23). There are no scientific tests for the origin of hippopotamus or elephant ivory.
 - 5 Chapter 3: see p. 53–4 above.

The fracturing of the legs happened in several stages, as is most obviously demonstrated in the right leg. The right shin had its outside surface shielded from the fire, whereas the right thigh had its inside surface shielded. But the left leg was shielded all along the inside and the outside surface was burnt. So, the right shin was severed from its thigh before burning, whereas the left leg was still in one piece while it burnt and it only broke after the fire, either when it was cooling down, or during or after burial.

After the burning, the lower right leg too broke into five major pieces and dozens of tiny pieces. This is known because the break surface was not burnt directly but has a two-tone surface colour which reveals the deep burning that the object suffered, in a cross section like that from a wooden branch with two tree rings (PLATES 13-14, esp. L 2-3).

In some places the limits of a burning zone are defined by cracks in the ivory, which indicates that the object was cracked before it was burnt. One cannot be certain whether these cracks appeared in the initial stage of the burning, or at some earlier time—even while it was actually in use and on display. Since ivory can crack easily in a hostile environment, even museums find it a difficult material to display safely, as will be discussed later.

The legs are a beautiful rich ebony black colour. The Minoan artistic convention was to paint male figures dark and female figures pale. So one might ask whether the ivory was subjected to controlled burning during manufacture. This would have turned it black prior to the sack of the town. But since the torso was white, this idea can be dismissed. However, ivory can also be dyed. Japanese *netsuke* figures are an example of this. Kuhn (1986) states that ivory can be dyed black using oak gall with verdigris or logwood, and that Africans dye ivory dark or red-brown with oil and dye extracts; also that it darkens with handling, as it picks up oil from the skin. No evidence of this exists on this statue, but since such dyes are organic no visual evidence of them would have survived some 3,500 years in the soil. 'Black box' scientific techniques might be able to detect residues but this would require the destruction of a small piece of ivory, which would have to be taken from the body since this has undergone less heat damage and conservation intervention.

The burning patterns also indicate that the base and the stomach were probably made of wood. On the bottom of the feet, the ivory pegs which were made as continuations of the legs are very burnt, as is the peg inside the chest, which was also made as a continuation, in this case of the chest: these reached the blue and grey stage and have disintegrated. Disintegration occurred because they have a small volume but a large surface area and so are highly susceptible to damage. The high degree of their burning is probably due to their close proximity to a large amount of wood. Wood is the most logical choice for the material of the base,

since it could be carved easily to accept the pegs from the legs; it could also be aesthetically improved in a variety of ways such as painting, carving and gilding. The same holds true for the waist, and here we note the additional advantage of size: one piece of ivory would not have been big enough for this role, for it would be required to accept both the torso and the two leg pegs; wood would also be easier to carve for this, the most complicated piece.

Heat can also cause ivory to distort in shape, as seen in the inward bend of the lower right leg of the statuette. This distortion is not due to the fragments being put back together wrongly, as all the joins were checked and can be trusted. However this is a likely place for distortion to occur since it has a large surface area in proportion to its small volume, so that the core here would be heated more than the core elsewhere. This might lead to the distortion.

The wooden dowels which joined the leg pieces together were carbonised by the heat, inside their dowel holes. They could not burn, as they were isolated from an air source, so they were turned into charcoal, which is pure carbon and cannot rot. The dowels were extracted carefully and examined by Dr. Paul Wilthew and Alan O'Berg of the National Museum of Scotland, Edinburgh, who took electron microscope photographs of them. Mark Moak used a very fine dental casting silicon rubber to obtain casts of the dowel holes (see PLATE 22); these are discussed by him in Chapter 5 below.

Dr. Ann Crone of the Archaeological operations and Conservation unit of Historic Scotland identified the material of the dowels as a soft, coniferous wood.

THE CONSERVATION PROCESS

The legs were conserved and examined by Paul Harrison and Mark Moak in the Siteia Museum.

The statuette had accumulated some mud which was easy to remove with tightly twisted cotton wool swabs lightly dampened with water. The swabs were tightly twisted to stop fibres penetrating the highly crazed surface and the swabbing motions were carried out going along the leg rather than across so as to minimize the chance of pulling out a piece of the crazed surface.

This successfully removed the mud, but not the insoluble salt, which had to be removed since it was very obscuring of the figure's surface detail. The reaction of this salt to heat and humidity would differ from that of the ivory, and this could produce internal stresses which would later lead to a loss of large pieces of the surface, since the salt crust would be firmly attached to the ivory crust. Some of the salt crust was also on break surfaces and so would stop the reconstruction of a join there. So the salt had to be removed. Aesthetic considerations also dictated that it should be removed.

Conservators have two basic methods of removing encrustations of any type from an artefact. The usual

method is mechanical, that is using hand tools; this has the advantage of being very precise since the conservator can use his or her skill to remove exactly what needs to be removed. I felt that I could not use mechanical tools to pick away at the salt, as any attempt to gently pare down the crust of insoluble salts, would also remove the surface of the ivory—the statue's skin was probably attached to the crust far more strongly than it was to the interior core of the ivory.

A basic chemical reaction is that any carbonate reacts with acid to become another salt, water and carbon dioxide. Any attempt to use acid on the statuette's salt would create another salt, which however would not reproduce the same problem, as this salt would not be attached to either the crust or the object. This salt could then be removed with another tightly twisted cottonwool swab or with a sharpened scalpel blade.

There are many acids available, but not all were obtainable and we needed the one which would best remove the salt without damaging the ivory. Plenderleith and Werner (1976), Holiday (1971, 513) and Kuhn (1986) all suggested using hydrochloric acid, which was readily available, but Matienzo and Snow published an article showing how much hydrochloric acid affected ivory (1986, 133–9). In their experiment they swabbed a piece of fresh elephant ivory with a 1% by volume solution of the acid. Then they studied the considerable changes, with electron microscope pictures and three other 'black box' analytical techniques (IR, XPS and GC).⁶ The result was that ivory after a minimum exposure to the acid had a considerably altered surface. The acid removed all the phosphorus, magnesium and calcium and even after being swabbed clean, it had almost a 1% surface residue of chlorine left behind. Since our ivory is not fresh but burned these figures were even more worrying: first because acid attacks the inorganic constituent of the ivory and secondly because the legs of the Kouros have a bigger percentage of inorganic salts than fresh ivory, especially after burning and burial had considerably reduced the organic component. Furthermore the residue of the reaction between acid and ivory is hygroscopic, which would make the artefact more likely to be damaged by humidity in the future.

An alternative recommended by Koob (1984, 98) is the use of monochloroethanoic acid in the removal of insoluble salts from bone. Since ivory and bone are chemically similar, and this acid does not react with calcium hydroxyapatite, it would presumably be safe for Dahllite too. But I did not have any of this acid in Crete. What I did have was methanoic (formic) acid (HCOOH, which is the same acid as an ant's sting). Dowman (1970) and Pye (1984)⁷ recommend this. Palaeontological conservators who extract fossilised bones from calcareous rocks also use Formic and Ethanoic acids. Ethanoic acid (CH₃COOH) is also known as acetic acid and it is the main acid in vinegar. Ethanoic acid is their usual choice; they prefer these to mineral acids,

as the latter do not discriminate between calcium phosphate in bone and the carbonate matrix of the rock (Lindsay 1995). But Cronyn (1990) states that ethanoic acid softens ivory. So I would have to be careful and expose the ivory to a minimum of the acid.

My procedure was to apply a dilute solution of methanoic acid with a fine brush under a microscope; the strength of the solution varied depending on where it was required. If it was being used at the top of the crust, relatively a long way from the ivory, a 5% solution might be used, but closer to the ivory a more dilute solution was used. Another measure was taken to reduce the acid's penetration in these areas, namely a preliminary dampening with water so that the acid would not be absorbed. Methanoic acid has the advantage that it is quite volatile, and the hot Cretan summer as well as placement under the warm microscope light helped to evaporate the formic acid quickly thus reducing the chances of it reacting with the ivory. The liquid was regularly swabbed off with tight cotton wool swabs. The weakened salt debris could then be removed with a scalpel blade; this was also carried out under a binocular microscope. Lindsay (1995) also states that the solubility of calcium phosphate is reduced as the dissolution of calcium carbonate increases the pH and releases calcium ions into the solution.

The surface of the cleaned legs was extremely delicate. The two blue grey sides of both legs were totally covered with a very thin patchwork of minuscule pieces of burnt ivory that were only weakly held in their original position. They would not survive in position for too long unless they were stuck down to the core of the statue. This could be done by one of two methods.

A surface coating of Paraloid B72 (Acryloid B72 in America) which is the brand name of an ethyl methacrylate copolymer (a plastic) in solution could be painted on to the surface, and capillary action would then draw this into the body of the object.⁸ This has the advantage that the ivory is exposed to very little solvent and only for a short time before it evaporates away. In 1986 Matienzo and Snow (1986) discussed the effect of solvent as well as acid on ivory, and they found that organic components were not easily extracted from the ivory by acetone and ethanol; but they were by toluene, the difference being that toluene is a much less polar solvent.

This treatment would mean that only the surface was consolidated but not the core. Therefore the different parts of the object would react to any change in condi-

6 IR = infrared reflectance spectroscopy; XPS = x-ray photoelectron spectroscopy; GC = gas chromatography.

7 Pye, personal communication (University lecture notes), 1984.

8 Paraloid B72 is recommended (for dry ivory) by C. Sease (Sease 1991, 79–81).

tions slightly differently. The difference between the unburned unconsolidated core and the burnt consolidated surface would be exaggerated and it would be possible that over time and in an aggressive climate large pieces of the consolidated surface would fall away.

The other method is by immersion, which would mean that the ivory was exposed to more solvent than would derive from the application of a surface coating. But the amount of surviving organic materials in the surface of the ivory would have been fairly minimal. This treatment would be necessary though, since to cause the surface either to react as a separate entity or to remain untreated and very weak, would risk far worse potential problems. Snow and Weisser (1984) said that the older an ivory object is, the more likely it is to need consolidation. They consolidated an Egyptian ivory figure with Paraloid B72 and used another Paraloid, B48N, as the adhesive to adhere it.

A good consolidation requires that the consolidant is pulled right into the core of the object, so that there is no boundary between the core and the surface. Now, since air was in the core of the artefact and would provide a barrier to the ingress of the solvent, this had to be removed, in order to facilitate the solvent's access. This can be done by pulling a vacuum on the object, while it is in the solution of the consolidant.

One method would be to burn magnesium foil in a vacuum chamber, with the result that the 20% of air that is oxygen would be taken out and chemically locked into the solid magnesium oxide, thus reducing the pressure in the enclosed chamber by 20%. The air that is in the ivory would be forced to leave the ivory, bubble through the solvent and go to the airspace of the vessel to alleviate the pressure difference. The bubbling air would show that the procedure was proceeding successfully, but the flow of air should be carefully controlled, since air bubbles may cause damage. However, the main problem with this treatment is that we have solvent and solvent vapours in close vicinity with the white hot magnesium flame. This procedure was rejected for health and safety reasons.

The method finally used was as follows. Having obtained a vacuum vessel, we achieved a fairly good vacuum with a plastic petrol siphon, though great care had to be taken to hold this correctly so that the gravity operated valve could return when the pump was on its returning stroke. In lieu of a vacuum gauge (which was not available) we drew a vacuum, as a test, with a partially blown rubber balloon in the chamber, and as a result the balloon expanded considerably.

It was therefore felt that the ivory pieces could be successfully consolidated using this apparatus. The objects were placed in the consolidant, 10% Paraloid B72 in Shellsol (xylene); this was put in the vacuum chamber and the maximum possible vacuum was pulled slowly, with the hand pump. The pieces were left overnight in the solution under vacuum, to be consolidated. This did not dislodge any pieces of the surface.

The pieces were removed from the consolidant solution and lightly swabbed with tightly rolled cotton wool swabs dampened with Shellsol, to remove any excess consolidant so that the object did not look shiny and like plastic.

The pieces were then left to dry in an atmosphere of Shellsol; this is a conservator's trick, whereby the object is put in a sealed plastic bag with beakers containing cotton wool soaked with the solvent. The cotton wool is present so that in no circumstances could the solvent escape and flood the artefact, since this could reverse the process of consolidation and also give the artefact the shiny surface coating which we were aiming to avoid. Our procedure eliminated the chance of this happening.

The object was left to dry, untouched for a day; it could be handled after this time, since the temperature was very warm even inside the building.

Paraloid B72 was used as the consolidant and, as I will describe later, as the adhesive too. It is an ethyl methacrylate copolymer made by Rohm and Haas.⁹ It has many properties that make it a very popular polymer for conservators, including the following:

- i. It ages very well. Over time many plastics change: they shrink, become brittle, lose their colour or turn yellow and become more insoluble. This happens as light or heat provides the necessary energy for molecules to form or break chemical bonds. Paraloid though, is a very stable polymer; this means that if anyone in the future for some reason wanted to undo the work, it would be possible to remove most of the Paraloid with solvents. This emphasis on reversibility is the most important rule in conservation.
- ii. It should not change the appearance of the object either, so that aesthetically it looks the same now as it did before the consolidation, and although the artefact contains some plastic it does not look at all like plastic.
- iii. Crete is very dry in summer and for us the soil was hard and dry, so that the ivory legs were not wet. If they had been, the solvent carrying the consolidant into the statue would have reacted badly with the ground water within the ivory itself, since none of the possible solvents for Paraloid are at all miscible with water. There are consolidants that are obtainable as emulsions and dispersions. These are water based and conservators can use them on wet objects but they are much more complex chemically, because they contain many more ingredients than a simple solvent-borne consolidant—additional chemicals which are necessary to do what amounts to dissolving a plastic in water. But having all these additional substances makes it much

9 See n. 8 above.

less stable, over a period of time, than the solvent-based consolidant.

- iv. It is strong and hard without being brittle. It has a higher glass transition temperature (the temperature above which it gets rubbery) than many other plastics used in conservation—at 40°C. It will also tolerate stress and a strain on a joint better than harder, more rigid and inflexible adhesives (Koob 1986, 7–15).

Paraloid B72 can also be used as an adhesive, and it was used for the same reasons which guided its choice as the consolidant. The adhesive was made by making a saturated solution in Shellsol and letting the sun evaporate the solvent out, making the solution even more concentrated, turning a liquid into a paste. To make the adhesive better in several ways, some aerogel silica, (amorphous silicon dioxide) was mixed with the adhesive. This distributes any stress or strains gained while the solvent evaporates (Koob 1986, 7–15). It also facilitates handling, imparts strength, makes for narrower joint lines and can repel water (Byrne 1984).

The legs were in 193 pieces of which most could be described as being either a major piece, that is a complete section through the leg, or a tiny fragment, usually from a break area. This dictated the sticking strategy. The tiny pieces would be stuck to the portion of the leg to which they belonged. These major pieces could then be stuck together.

To find the joins for so many pieces was very time consuming; it was after all a complicated three dimensional jigsaw puzzle. We did have some clues to help us though: the ivory cracked into different patterns in different areas, including long thin rectangles, smaller rectangles and curves, and the varying degrees of burning provided the statuette with distinctive colour patterns. Some pieces were also clearly interior pieces, and these were the hardest to locate as we had fewer clues about their source.

Paraloid in xylene takes time to cure fully. Adhesive masking tape is regularly used to hold sherds together while the adhesive cures, but if this were used on the statuette, some of the surface would almost certainly be removed; also some of the adhesive gum might be left behind on the surface. So the pieces were held in place by gravity alone. They were held gripped in location, in a tray of lentils.¹⁰

The major pieces of the leg were adhered in this manner. The 1990 season of practical work ended with the fragments being returned to their original form as separate right and left legs, after having been separated and broken for about 3500 years. The final stages of conservation and the assembly of the major pieces was undertaken and is described by A. Nikakis below.

DISPLAY

The role of a museum's display case is the protection of the artefacts not only from human touch and acci-

dents but from the environment of the museum as well. The major causes of environmental damage are from humidity and light.

Humidity will damage an ivory statue by causing it to swell or contract. Ivory is structurally similar to wood, in that it is made of many parallel cylinders, which comprise one large cylinder. An increase of humidity will make the small cylinder's diameter increase much more than its height, so the statue will expand much more in width than in height. It may not be visually noticed on a statue but the amount is so significant that when ivory billiard balls are exposed to a violent change in humidity, they cannot be used in play. Water may also be drawn out if the ivory is damper than a dry environment. Stresses are thus set up, particularly as the response time is not immediate: ivory has even been known to explode in a fluctuating environment.

What is needed is a buffer material which has a more rapid response time and which can absorb water in a humid atmosphere and give out water in dry weather. Such a material is silica gel. This will be put in the display case below the perforated floor of the case. The silica gel will be climatized so that it keeps the ivory around a constant humidity. Ten kilograms are required for each cubic metre of a sealed display case. The sugar-packet sizes of silica gel that are packed with electrical equipment are more for show than use.

Silica gel is also useful to prevent mould if the humidity gets too high, undoubtedly a consideration for the winter climate in Crete.

An overexposure to light would bleach ivory, like a snow-white bone in a desert. Visible light is just one component of the electromagnetic spectrum. Many conventional lights also emit ultra-violet and infra-red radiations, although both are unnecessary, since humans cannot see either of them. Ultra-violet (UV) is very damaging and infra-red is heat: thus, by using lights that are already low in UV and by using a filter to remove the rest of it, the damage to the object will be minimised. The infra-red can be reduced again by the choice of light and not having it too close to the artefact. The sun is another abundant source of UV, but the museum is well designed to keep the objects in the shade. The light source should not expose the ivory to more than 150 lux, the light level for ivory chosen by Thomson (1986).

10 A tray of lentils proved to be a better method than the standard sand-tray which is used for holding potsherds upright, while they wait for their adhesive to cure. Lentils do not have the abrasive character of sand which could cause difficulty in case of accident.

The final conservation and display in the Siteia Museum

Alekos Nikakis¹

THE FINAL CONSERVATION²

In July 1991 the lower part of the statuette, which had been found at Roussolakkos and had been conserved at Siteia in 1990, was removed to the Agios Nikolaos Museum for corrective and final conservation.³

After taking a new series of colour slides and photographs we began the new conservation of the lower part of the Kouros with mechanical cleaning. The white crystalline salts that had appeared in the interval on the surfaces and in the cracks were removed by means of dry mechanical cleaning with the aid of a microscope. In addition the lime deposit that had remained from the first effort at conservation was removed from the skin surfaces, from mended joins and from sections that had come unglued.

After mechanical cleaning, the next task was to remove the salts that had been dissolved by the acid but which had remained in the clefts and cracks and in general within the material of the find. For the first attempt at removing the salts a mixture (1:1) of distilled water and alcohol was used. One part—the right leg—was wrapped in pharmaceutical cotton to which the solution was then applied. It was then placed in a styrofoam container in order to slow down the drying process. The next day the cotton was replaced. I was perturbed by the continued peeling of the surface, the dampness of the leg and by the ungluing of small fragments which had been mended during the first phase of conservation at Siteia. I therefore had to stop covering the object with cotton and find another way of removing the salts.

From the reaction of this section it was clear that the lower part of the statuette had not been thoroughly consolidated. The consolidation chemical which had been used—Paraloid B72—is insoluble in a mixture of water and alcohol. Consolidation without eliminating the salts was impossible because the salts which had been diluted by the acid would continue to be active and would fracture the consolidated material. In the best of circumstances the salts would work outward pulling the surface off. The worst of circumstances would mean pulverisation of the surface.

I spread out all the fragments in a styrofoam box. The solution was sprayed on the visible upper sides only, without applying cotton, in order to avoid all con-

1 This section was translated from the Greek at the British School at Athens and edited by L. H. Sackett.

2 All those connected with this amazing find, both excavators and conservators, must consider themselves fortunate to have worked with this unique masterpiece of Minoan art; it has surpassed all expectations of Minoan scholars and may be interpreted not only as a herald of monumental sculpture but as the beginning of full scale classical sculpture. Here we see a naturalistic and fluid rendition of the human figure displace the usual abstract or schematic style. It is the only known example of Neopalatial art to display such naturalistic detail and to suggest free movement in space through its strong modelling.

A. Moraïtou and the undersigned carried out the conservation of the upper part of the statuette, and following differences of opinion (discussed below) regarding methods of conservation of the lower part, I took responsibility for the final conservation and display of the statuette in the Siteia Museum.

3 It was clear from the condition of the ivory that my criticisms of the restoration techniques used in 1990 and described by Harrison above were justified; and since the differences of technique are so significant, it is worth while summarising here the evolution of the dispute.

In May 1990 I requested, through the authority of Dr. Davaras, that there be no further use of chemical cleaning, but only time-consuming mechanical cleaning with the appropriate fine tools, and that the object be adjusted very slowly to its new climatological environment, in a proper laboratory (as opposed to the unsatisfactory workroom at the Siteia Museum) (telegram 28/5/90). The excavators requested that the Palaikastro conservators be permitted to complete their work, and made some criticisms of the already completed conservation of the torso (letter 11/6/90). As a result of these serious differences an advisory committee was set up, comprising A. Fountoulakis (Heraklion Museum), A. Moraïtou (Acropolis Museum), A. Nikakis, P. Harrison and M. Moak (as conservators). The committee met at Siteia on 5/7/90, with the excavators and the representative of the Ephoreia, and after lengthy discussion agreed to accept the recommendations of the Chairman (Fountoulakis): these included continuing the use of Paraloid B72 as a consolidant (not a gluing agent), careful mechanical cleaning under a powerful microscope, use of a specific glue and of a specific restoration material; this to be done with the co-operation of Harrison and myself (Ephoreia minutes of the meeting 1631/23-7-90). In the event Harrison completed his work; the statuette was photographed (upper and lower parts together) in my presence, and the lower part was packed by Harrison and Moak for storage in the Siteia

tact with the material. The box was closed with cellophane in order to delay drying. This procedure was repeated every two days for a period of two months.

After this the object was allowed to dry naturally. Its condition was checked daily. When it was completely dry it was impregnated with Paraloid B72, as a 1% solution so that the consolidating chemical would penetrate as deeply as possible. The process was repeated on alternate days using a thicker solution up to 10%. This was followed by ungluing the insecure joins and those which had come apart during the spraying process (right leg: PLATE 8 *a*; left leg: PLATE 8 *b*; smaller fragments: PLATE 7 *c-d*). The surfaces of the unglued joins were cleaned and consolidated by repeated applications of the consolidating chemical. The small fragments that had come unglued during removal of the salts were cleaned, consolidated and re-glued. Finally, the pieces were impregnated with a layer of the consolidating chemical as an 8% solution and they were ready to be joined.

For the joining of all the fragments in the second course of conservation Uhu Hart No. 23 was used. The choice of this glue was made after testing.

Tested on ceramic was: i. Uhu Hart 23; ii. UHU yellow 13; and iii. HMG Paraloid B72. The action of Uhu Hart 23 on the material used appeared to be the most satisfactory, and it was therefore chosen.

The pieces were then packed in a styrofoam box where they remained for final joining with the torso, and exhibition in the Siteia Museum. The work outlined above covered the period from the autumn of 1991 to the summer of 1992.

EXHIBITION AT THE SITEIA MUSEUM

In February 1995, following a request from the excavators,⁴ and after most of the preparations for exhibition had been made, the torso was transferred from its display case in the Siteia Museum to the workrooms of the Agios Nikolaos Museum for final technical inspection prior to uniting the two parts.

A supporting base was constructed of plexiglass. This works in the same way as the ancient one, that is using the dowelled pegs which extend below the soles of the feet,⁵ and it has the further advantage of being of transparent material. The upper part is supported on an oval ring, likewise of plexiglass, which is joined to the base by means of three shafts of stainless steel, 4 mm in diameter. These do not seriously affect the aesthetic appearance of this work of art, while at the same time they guarantee its safety. The same summer the Kouros was placed on exhibition in the Siteia Museum, standing on his golden sandals. For the time being he is wearing part of his golden garment: a small band glued with Egyptian blue on his left arm and some of the elliptical pieces of gold sheet which have been attached at the waist area (PLATES G *b-c*, H *c-d* and N *a*).

Of the approximately one hundred pieces of gold (PLATE G) found with the statuette—the pieces which make up the rest of his golden garment—only a few could be joined and attributed to a specific position. For the time being they have not been added to the figure.

Museum (Ephoreia report 4539/26-11-90). On 8/10/90 I examined its condition and observed some unsticking and peeling on both limbs and a faint trace of a white substance, which I attributed to the use of formic acid (Ephoreia report 2354/25-10-90). Harrison then submitted a written report of his work to the Ephoreia (BSA 2668/14-2-91). After a further inspection of the find with a microscope (Ephoreia report 22/4/91), and the observation of increased cover with a white crystalline substance, Fountoulakis' assistance was again requested (Ministry of Culture A2/18691/13-6-91), and he recommended removal to the Agios Nikolaos Museum. He requested the removal of the salts, drying, regluing of insecure joins, stabilisation, mending and restoration where necessary (Ephoreia report 2652/10-7-91).

4 Letter to Ephoreia 1132/2-6-94

5 New dowel pins of wood were inserted into the ancient dowel holes

The Palaikastro Kouros

Mark Moak¹

The Palaikastro Kouros, a lithochryselephantine statuette, is the most remarkable Minoan sculpture yet discovered. There are several features that warrant such a statement. The variety and value of its materials, its relatively large size, the quality of craftsmanship, and the high level of naturalism are those I will explore here.

MATERIALS AND MEASUREMENTS

The Kouros is a composite statuette made of ivory, gold, serpentine, rock crystal, wood and Egyptian blue (PLATE A). It stands approximately 0.5 m tall and is 0.185 m at the elbows, its maximum width. The span of the feet is about 0.12 m from the left big toe to the right heel (FIG. 5.1). The bulk of the statuette consists of eight pieces of ivory (FIG. 5.2). Forty-seven drilled and chiselled holes allowed for wooden dowels to join together these and other components (FIG. 5.3).

Torso

The upper torso is made from two pieces. The larger, left side includes the neck and face (max. dimensions: H. 0.2024 m; W. 0.0628 m; D. 0.0382 m). The smaller piece comprises approximately the right third of the torso. The seam between the two is predominantly vertical, but curves curiously toward the right shoulder. These parts were joined together by two wooden dowels.² Since the dowel holes are not drilled completely through either torso section, the artist faced the difficult challenge of aligning left and right holes by hole placement *and* axis, while drilling each side separately. Trial and error ensued: the dowel holes in the left side were both double-drilled, which implies that the artist had trouble finding the correct placement and/or axis.³ This is understandable and shows that the holes on the right side were drilled first, which is sensible since this piece is smaller and has less room for error (PLATE 9 a–d).

From the time of its discovery, the curiously curving seam provoked questions. Wouldn't a large elephant tusk have allowed for a one-piece, seamless torso? In which case, is this an ancient break with an ancient repair? If not, was it made with separate ivory pieces? If so, why the curve? As it turned out, along with an investigation of the surfaces of the torso, the curve is an important clue toward identifying the type of ivory used, which in turn helps to answer all the questions above.

All ivory (Krzyszowska 1990, 12, 33)—including elephant, hippopotamus, mammoth, walrus or sperm

¹ At the end of an Art History Survey exam, appropriately enough on the Aegean Bronze Age, one of my students, Karen Austen, who had finished early, left, then returned with an exclamation, 'Have you seen today's paper?' On page two, seemingly staring at me with one eyeless socket, was a broken and burned image that would alter my life.

That was October 18th, 1988, and my introduction to what we called 'the statuette' and, eventually, 'the Kouros'. At that time, the statuette consisted of most of the top half of a male figure, some gold fragments, the mysterious 'blue earth' and partial feet. During the summer of 1989, I studied, measured, drew, photographed and took partial impressions of it in the Siteia and Agios Nikolaos Museums. The beauty and craftsmanship I'd only glimpsed through the grainy newspaper photograph was spellbinding in the 'flesh'.

I returned in 1990 to Palaikastro to work in conservation and to continue helping sort through the four and a half tons of earth saved from around the statuette, hoping to find anything relating to it...hoping to find the face. Little did I know what we'd find the morning of May 23, when a large portion of a chryselephantine statuette was found in Seán Hemingway's trench—legs with hips and maybe more—and a substantial amount of gold. Some fragments which had been lifted separately appeared ivory-like. We then checked out the large piece in the earth—burned black with bluish surface—much like parts of the 1987/88 statuette. And, indeed it was part; but we didn't know for certain until the next day when I aligned the dowel holes from a cast of the left foot with those of the newly discovered left leg.

The next two months were very busy as Paul Harrison and I worked in the Siteia Museum cleaning, studying, drawing, photographing, measuring, consolidating, loving, hating and ultimately adhering the 194 ivory fragments as well as conserving 64+ gold fragments. Finally, on July 26 the upper torso and feet were removed from their display case in the museum, brought around to one of the mending rooms in the back and were reunited with the legs. I suppose I expected a thunderbolt to crash in our midst, but instead, there was only the barely audible collective sigh of those standing in awe. I still do.

² Carbonized residue sampled from a dowel hole in the right thigh revealed, via SEM analysis, soft coniferous wood; wood residue was also found in a nipple hole. The presumption is that all dowels were wooden.

³ Similar situations are evident in the joining of the legs and feet. The difficulty of maintaining the correct axis can be illustrated from *Od. XXI* 'The Contest with the Great Bow'. Locating the opening of the first axe is relatively easy; it's shooting through the remaining eleven that's the rub.

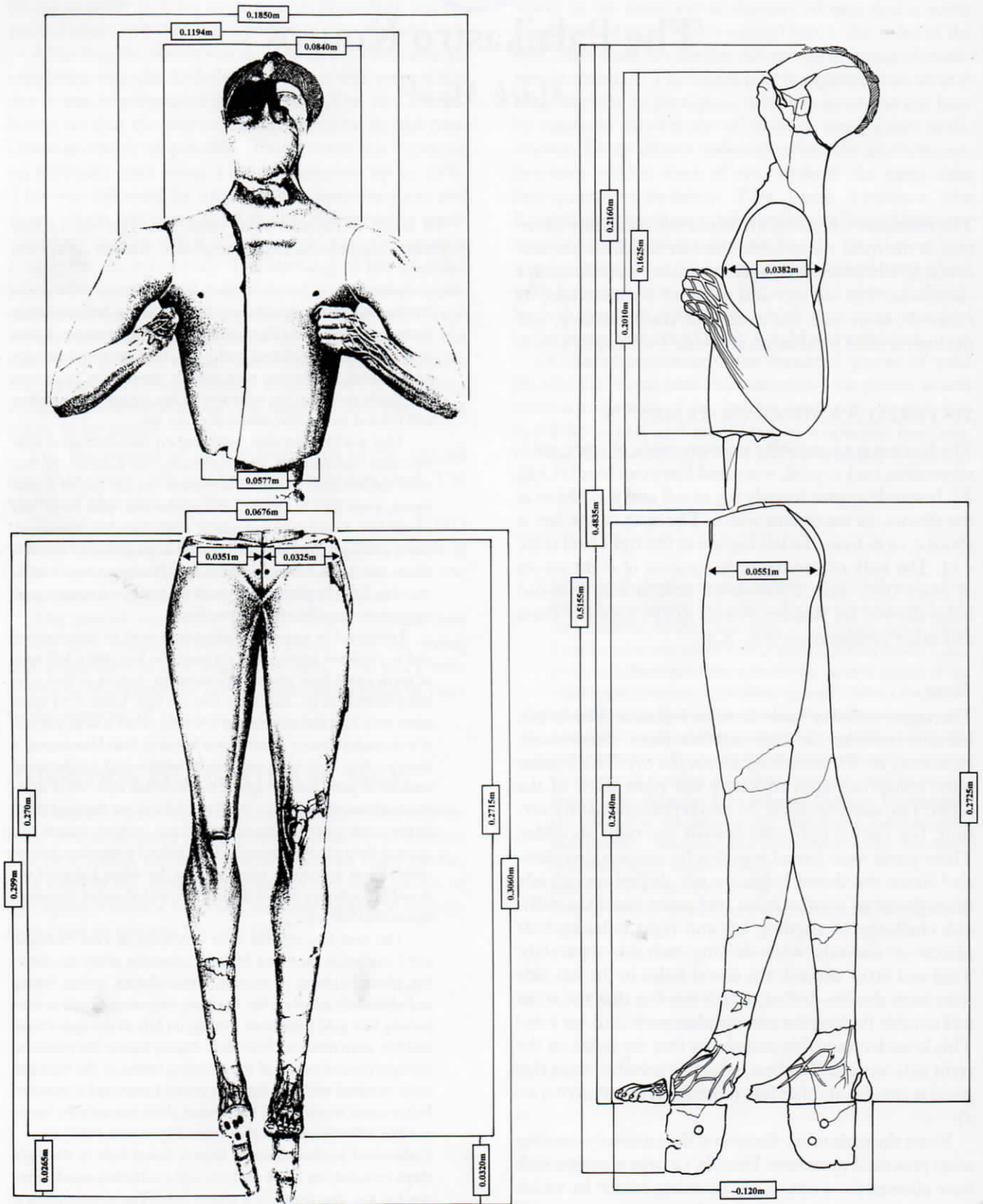
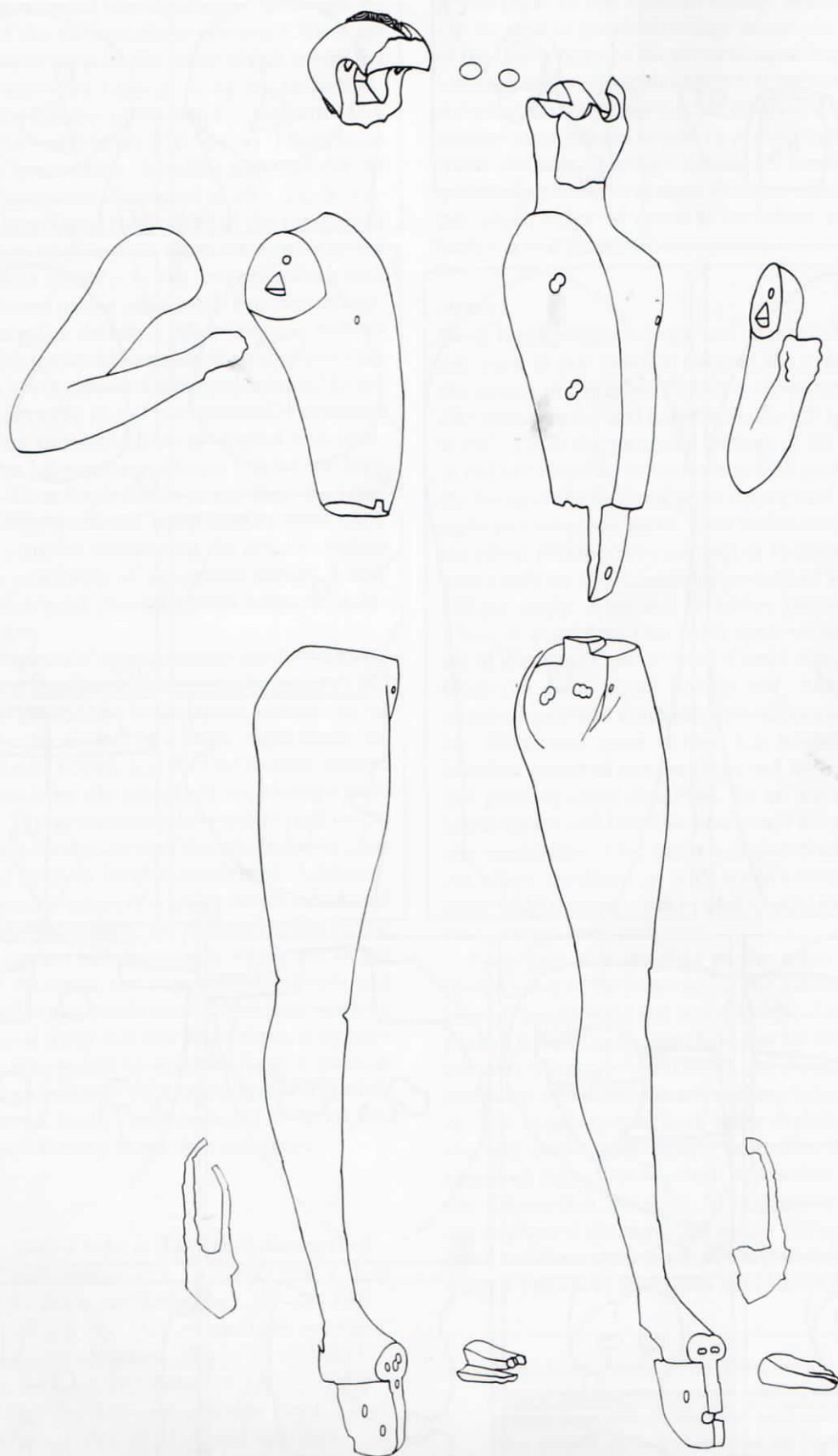
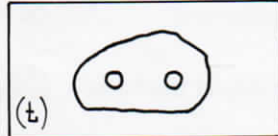
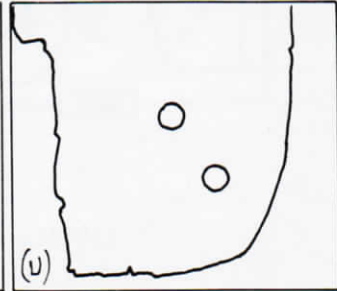
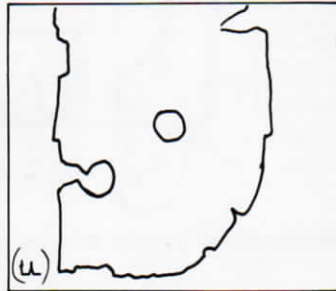
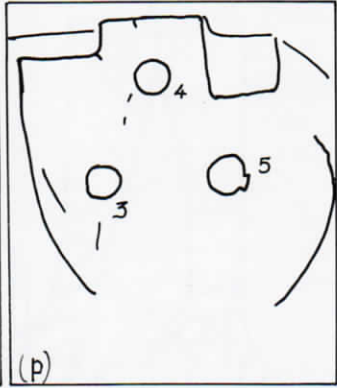
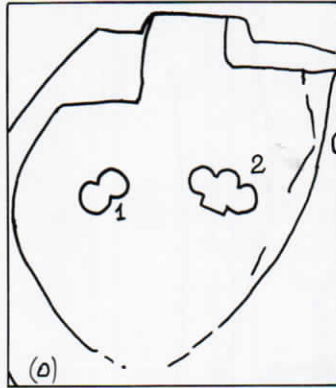
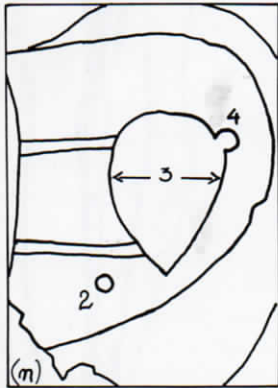
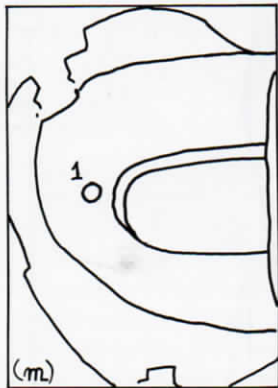
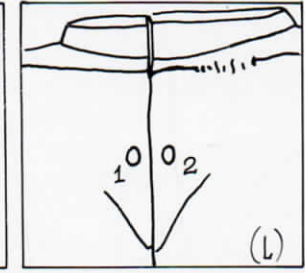
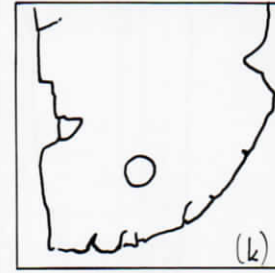
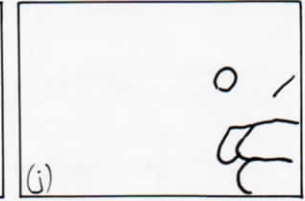
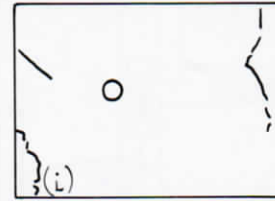
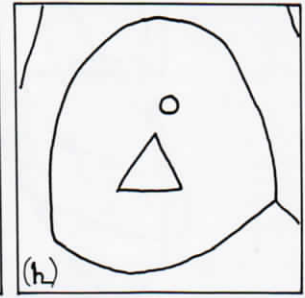
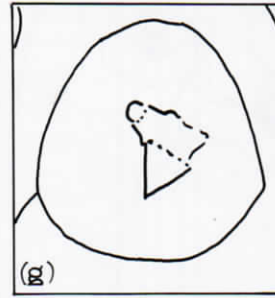
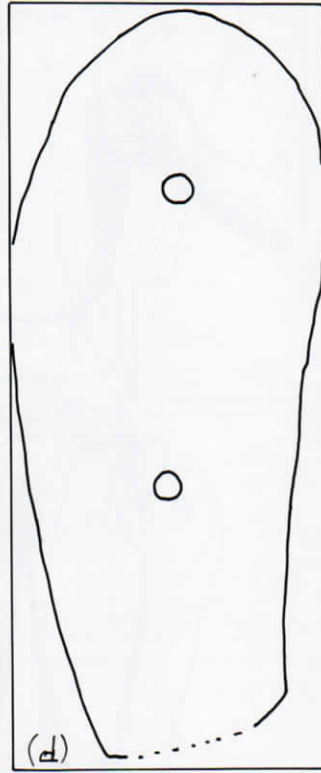
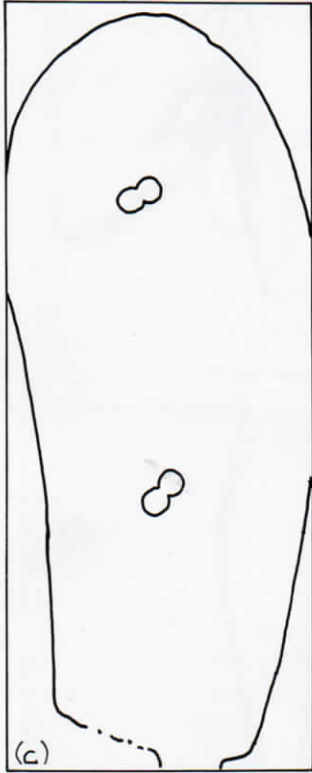
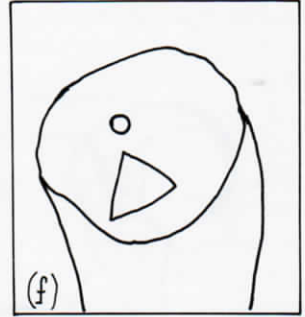
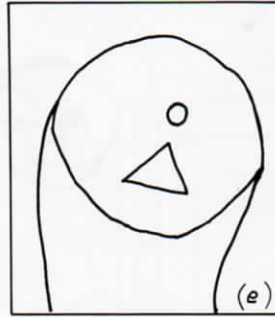
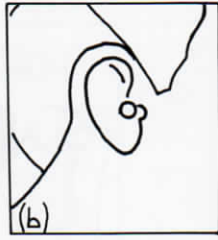
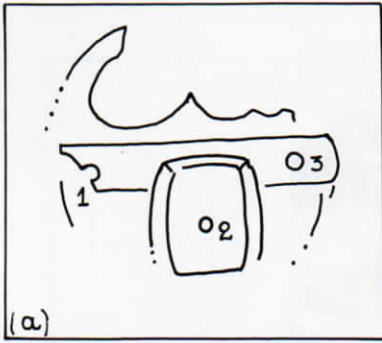


Fig. 5.1 (above). The Kouros, frontal and profile views with selected measurements. (MSM)

Fig. 5.2 (right). The components exploded, three quarters view. (MSM)





whale—has certain distinctive surface and morphological (form and structure) characteristics. Although no traces remain of the surface of the raw ivory, there are worked and broken areas of the torso which reveal the lamellae (Krzyszowska 1990, 5, 6, 44–7), or laminations—where the interior of the ivory is patterned in a manner similar to wood-grain (FIG. 5.4: a). Though not distinguishable everywhere, lamellae patterns can be seen easily in those areas illustrated in FIG. 5.4: b. Visible transverse lamellae at the bottom of the torso show a distinct change in direction from one piece to the other; the lamella pattern is not continuous, which shows that different pieces were used. Further investigation of the lamellae reveals a sub-triangular pattern inconsistent with the ovoid lamellae of an elephant tusk but typical of a lower canine of a hippopotamus.⁴ Other areas of visible lamellae and of commissure, a weakness usually displayed transversely as an arched line, indicate the use of a hippopotamus lower canine for both torso sections. Thus far, it is safe to say that two separate pieces of hippopotamus lower canine were used; but a question remains concerning the artist's original design and the possibility of an ancient repair. A look at other morphological characteristics helps to elucidate this question.

The largest tusks of a hippopotamus are its two lower canines. By using lamellae and commissure patterns and overall form as guides, the larger torso section can be oriented within the outline of a large, right lower canine,⁵ as illustrated at FIG. 5.4: d. The smaller section could have come from the same tusk, or, perhaps from its left partner. If one examines the torso to tusk orientation, the reason for the curve of the join becomes clear and the type of ivory is further confirmed. Additionally, the extreme curvature of a lower canine prevented any more substantial length. By comparing the cross-section of the canine with maximum width and depth dimensions of the torso, the impossibility of only one piece being used is also confirmed. Therefore, working within the natural form and size limitations, it appears that the artist was trying to make as large a torso as possible with two pieces of hippopotamus ivory, while avoiding a seamed face. The intricacies of facial features seem best left to no more than one piece.

Fig. 5.3 (left). Drilled holes in ivory with diameters of holes (in mm), scale approx. 1/1. (a) Head join, 1. 3.0; 2. 1.8; 3. 3.0. (b) Right ear (unknown). (c)–(d) Left and right torso, all 4.9. (e)–(f) Left and right arms and (g)–(h) left and right shoulders, all 4.5. (i)–(j) Right and left nipples, both 3.5. (k) Torso tab 3.8. (l) Groin 1. 2.2; 2. 2.3. (m)–(n) Left and right hips (top) 1. 2.5; 2. 2.9; 3. 16.4; 4. 2.5. (o)–(p) Left and right hips (side) 1. 4.3; 2. 4.5; 3. 5.2; 4. 5.3; 5. 5.5. (q)–(r) Right and left arches 1. 2.3; 2. 2.6; 3. 2.1; 4. 2.2; 5–6. (unknown). (s)–(t) Right and left feet all 2.4. (u)–(v) Left and right foot tabs, all 3.9. (MSM)

The high polish that must have covered all the exposed parts of the torso is mostly missing, though it can be seen to good advantage in certain burned areas of the upper front of the torso. Fragmentation, extreme burning and varying deposition conditions (including dehydration) have marred the finish and have thwarted conservation efforts to make a perfect match of the two torso sections. Though damaged, some (secondary) anatomical features remain evident: clavicles, nipples, pectorals, ridge of cervical vertebrae and the lower back's spinal (lumbar) depression.

Arms

Once hippopotamus ivory was identified as the material used in the torso, it became the prime suspect as the source of the arms. PLATE 9 *e* illustrates highly visible commissure⁶ and lamellae in the left arm. As shown at FIG. 5.4: b, the parabolic pattern of the lamellae seen in the left shoulder is consistent with patterns found in the break of the face and at the upper back of the smaller right section of the torso. This bullet-shaped pattern is the effect produced by cutting, or breaking, a lower canine (with its sub-triangular pattern of lamellae) at an oblique angle. Arm size is within canine parameters. Thus, it is evident that both torso sections and arms are of the same type of ivory. Could they all have come from the same tusk? Surely not. Assuming that a matched pair was available, several scenarios are possible. Illustrated again at FIG. 5.4: b, strikingly similar lamellae patterns can be observed in both arms, and can provide some direction. In an attempt to match commissure and lamellae position, FIG. 5.4: c suggests one orientation. Alternatively, the arms could have been cut elbow-to-elbow or both torso sections could have come from the same tusk or each could have shared separate canines with each arm.

Each arm was attached to the torso at the armpit (below) and at the juncture of the clavicle and scapula (above) at a forward and inward angle. Each surface was planed flat and each joint held fast by two dowels (presumably wooden)—one round, one (larger) triangular—and these fitted into corresponding holes (PLATE 10 *a–b*). The resultant pose is of arms slightly upraised and slightly back, with tightly bent elbows and loosely clenched fists. Due to their deposition in the violent fire destruction, the arms, like the torso, suffered varying degrees of damage; this nearly obliterated the right hand and destroyed much of the polished finish. It also caused sufficient distortion to hinder a perfect fit with

4 Krzyszowska 1990, 38, 39: There are five principal pairs of tusks of a hippopotamus: upper canines, upper incisors, lower canines, large lower incisors and small lower incisors.

5 I am grateful to A. Rodriguez of the Natural History Museum, New York, for giving me the measurements of a good specimen.

6 Commissure is a feature unique to hippopotamus lower canine.

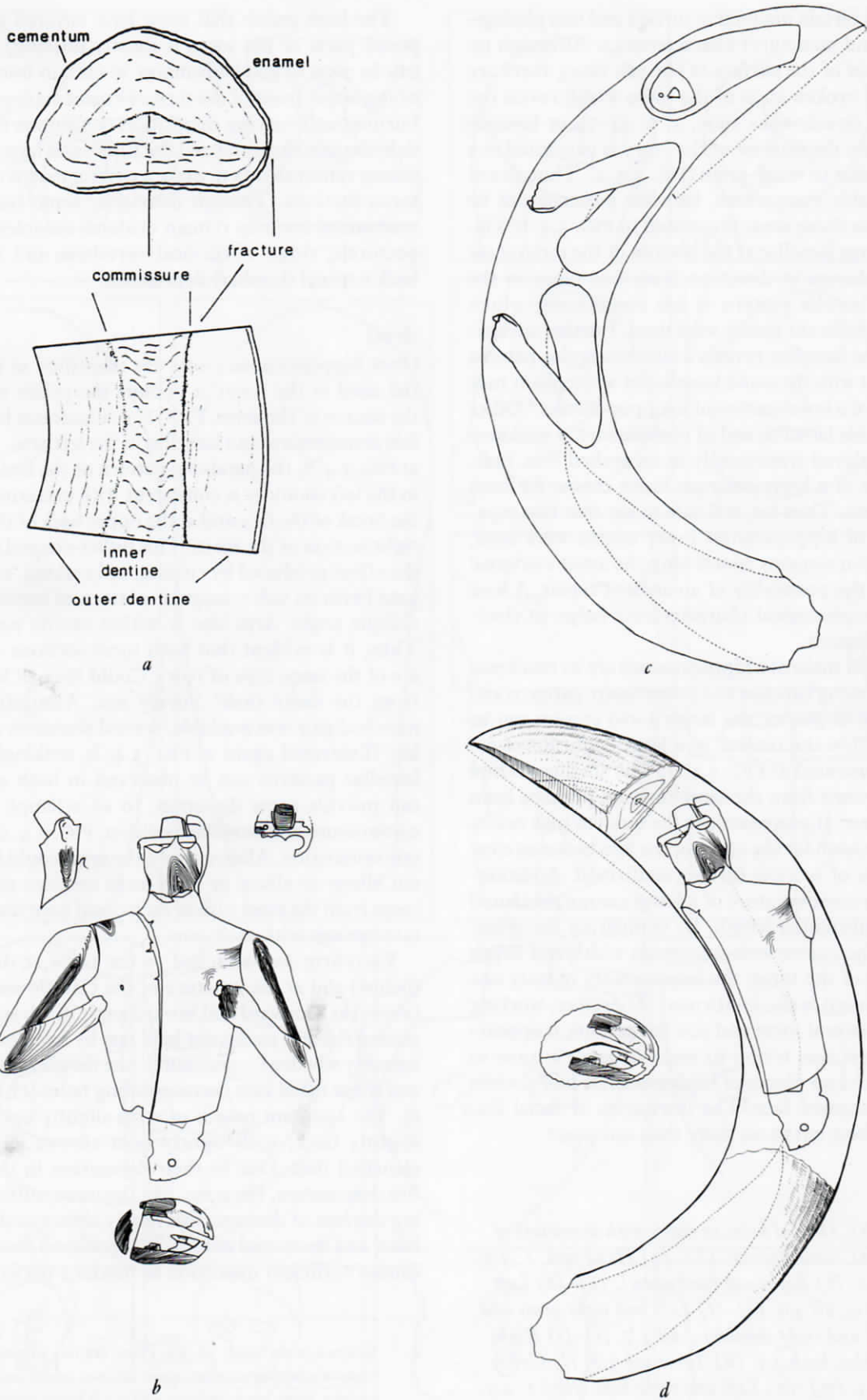


Fig. 5.4. (a) Hippopotamus lower canine (left tusk), showing lamellae pattern, and other features. Transverse section above, longitudinal below. Drawing by OHK; reproduced with permission; (b) Torso and arms with visible lamellae; (c) Possible orientation of the arms in a tusk; (d) Possible orientation of the torso in a tusk. (MSM; OHK)

the torso. However, the attention which the artist paid to the deltoid region of the shoulder, the forearms, wrists and hands is still startlingly evident—particularly in the nearly perfectly preserved left arm (PLATE D).

Waist

It has not been possible to identify the waist,⁷ but a separately made waist of some material must have existed. This is deduced from the facts that the torso ends just above the navel, and that the legs terminate at the iliac crest or the top of the hips, and also from the presence of gold which originally covered and bordered the waist. Its upper and lower width and depth dimensions can be determined simply by measuring the corresponding areas of torso and hips; and because of an interesting feature protruding from the bottom of the torso, its minimum possible height can also be worked out.

That feature, a flat peg, or tab (PLATE 11 *a, b*), was not carved separately but from the same canine as the left torso section from which it extends 0.0341 m.⁸ It obviously served as part of the connecting device for torso-to-waist-to-legs. PLATE 11 *c* shows that it was drilled, presumably for cross-pinning. PLATE 11 *d* reveals that a slot was carved immediately behind and parallel to the tab penetrating about 0.0057 m into the torso's interior; this slot was carefully carved as its top is in the shape of an upwardly pointing chevron. It appears that another tab paralleling the existing one and descending just behind the slot, broke off during the destruction and is now lost. Inspection of the broken bottom of the torso's right section suggests that missing smaller pegs would have lined up with those of the left section. Recessed approximately 0.006 m all the way round, these tabs, with a corresponding slot through the middle, would have fitted into the missing waist (see reconstruction at PLATE 11 *e*). The waist could also have been constructed roughly in the shape of the Greek letter *theta*, with the cross-piece fitting into the slot, but this seems unlikely.

Since the waist serves to connect substantial objects above and below, and since the torso can be secured mortise and tenon fashion with a cross-pin, it follows that the slot would be filled from below. However, as PLATE 12 *a* illustrates, the join area at the top of the hips is not carved in such a way as to mesh satisfactorily with the tabs of the torso—at least not alone. Therefore, another piece would have been needed to fit between the tabs and up into the slot and also to jibe with the joining features of the hips. These features include the fashioning of the pulp cavity of the right leg as receptor with cross-pin hole, two of the three dowel holes and two short, aligned pegs. Several considerations suggest that wood was probably the material of choice for this piece. Its form was necessarily complicated, and it was designed to remain unexposed. Wood is known to have been used for dowels, and the perishable nature of wood would well explain its absence from

the record. Wood is easier to carve and has more forgiving flexibility than ivory, stone or metal, yet has adequate strength. A reconstruction of such a piece in wood is shown at PLATE 12 *c*.

So, after this connecting piece was cross-pinned and dowelled into the hips, it was ready for joining with the torso at its bottom surface (reconstruction at PLATE 12 *b*). But what was the material used to cover the interior mechanism and to give the waist its form? The question is worth asking, since we know that the artist was not timid with the use of differing materials. Several substances could be proposed: ivory, wood, stone, metal or, perhaps more plastic materials such as Egyptian blue, faience, even clay. Ivory and wood seem the most likely candidates. Ivory, as a choice, is appealing because of its already prominent use and since the proximal ends of two lower canines with their naturally hollowed pulp cavities were probably available and certainly almost perfect in size and shape—inside and out. Considerations of economy here must have cried out to the artist. The problem for us, though, is the lack of physical evidence in conditions where, perhaps, there should have been some. Such a substantial piece, even if broken, should have yielded some fragments large enough to be detected and identified in a very carefully scrutinized area of the excavation; and as already seen, other ivory has survived quite well. But it should be kept in mind that there was a significant separation in time and distance between the discoveries of the torso and of the legs.

On the other hand, wood is again a reasonable choice for the waist, for several reasons:

- i. it could have burnt up, which would explain the negative evidence;
- ii. some carbonized wood fragments were found, though from unidentifiable objects;
- iii. wood is easier to use than ivory for the difficult carving of this complex piece;
- iv. wood is more economical than ivory and
- v. the waist was covered in gold.

The reconstruction in wood at PLATE 11 *e* shows where a wooden waist piece would have fitted.

Legs

The legs (PLATE E *a-h*) were made from two pieces of ivory⁹ and were dowelled together at the hips. When

7 Carbonized wood fragments and thin layers of Egyptian blue were found among the statuette's identifiable fragments and, though associated with the Kouros, are not distinguishable as belonging to any particular object.

8 Due to the absence of the waist, it is impossible to know the precise distance between the torso and hips; after making numerous drawings and a sculpted replica, I feel that this distance was the minimum the tab would have allowed.

9 The front half of both feet were made separately; see Chapter 7.

first discovered, the legs seemed almost disproportionately large for a match with the torso. The height of the exposed right and left legs measure 0.270 m and 0.2715 m respectively; but if we include the joining pegs above and below, the maximum height is 0.299 m and 0.306 m. As mentioned above, the top of the hips (PLATE 12 *a*) had several features that helped join the legs to waist and torso, including three drilled holes and a teardrop-shaped, downward tapering hollow with a hole drilled presumably for cross-pinning. This hollow in the top of the right leg is the pulp cavity of the tusk and is natural except for two drill-bit nicks near its bottom. A vinyl polysiloxane impression was made of the cavity and the drill nicks, and this helped to show that the shape of the pulp cavity, as well as the overall shape and size of each leg and the lamellae patterns (PLATE 12 *a*), point away from hippopotamus lower canine; but what do they point to?

Those lamellae patterns are ovoid in the left and teardrop-shaped¹⁰ in the right leg. Because the legs were each broken transversely into five major sections, sectional analysis of lamellae was abundant and revealing. PLATES 13–14 illustrate the various transverse lamellae patterns at those breaks. By graphically orienting each section accurately within the completed legs and by connecting the centre of each section, it was possible to locate the central axis of each tusk, and consequently acquire an understanding of the raw shape of the ivory (sketches at PLATES 13 *g–h* and 14 *f*). Each is consistent with elephant tusk or with a hippopotamus large lower incisor.¹¹ Other diagnostic evidence is deposition-related; cone-in-cone splitting¹² (PLATE 12 *a*) is characteristic of elephant ivory, but not exclusively so, since hippopotamus incisors can exhibit similar effects. One further test is problematic—hippopotamus lamellae have been described as ‘wavy and discontinuous’ as compared to a more ‘regular’ display from elephant ivory; but these terms are relative and measurements were difficult to take, particularly considering the burnt state of the legs. Other tests rely on negative evidence. A ‘heartline’ (Krzyszowska 1990, 41, 42), characteristic of hippopotamus incisor, shows up as a black dot in the centre of a transverse section; but if any of our numerous sections ever revealed such a feature, the thorough burning has hidden it. Elephant ivory when ‘cut tangentially’ can exhibit a diamond-shaped pattern that gives a machine-turned appearance called the lines of Retzius (Krzyszowska 1990, 34–6). The variety of planes on the legs should have given ample opportunity to observe these ‘lines’; none appeared, but again, the extreme burning may have concealed them. Furthermore, no ‘raw’ surface remains to help in identification.

So, after thorough morphological, structural and surface examinations, neither elephant tusk(s)—two small or one larger—nor two hippopotamus large lower incisors could be excluded. Other evidence must be considered: the only type of ivory used in other parts of

the Kouros that can be positively identified is hippopotamus. The method of construction and size of the torso suggests the artist maximized available materials—namely, lower canine. If this principle is consistently applied, a comparison of the size of the legs to various possible construction materials suggests the use of a hippopotamus large lower incisor. This appears consistent with overall scale as well as suitability for individual components.

We cannot reconstruct with certainty the inventory of raw materials in the artist’s workshop. Were both ivory types in stock? If so, in what sizes? Were individual tusks¹³ acquired or matched pairs or perhaps a complete hippopotamus lower jaw? Whatever the case may have been, it does now seem probable that two large lower hippopotamus incisors were used to construct the legs.¹⁴

As mentioned above, the legs were connected together at the hips by means of two dowels. By a method similar to that used for the two pieces of the torso, both joining planes were carved to slight concavities, drilled and dowelled. Inevitably, problems similar to those encountered with the torso arose in the alignment of these dowel holes: the left side has a double and triple hole FIG. 5.3: 0.

Two smaller holes were drilled in the groin, one on either side of the seam, FIG. 5.3: 1. Though missing, surely what attached here were male genitalia; but there is no physical evidence remaining that allows speculation as to material or physical characteristics.¹⁵

The full buttocks and thighs taper into well-defined knees, which swell into well-developed calves. From the very slender shins emerge ankles covered with a net-

- 10 This shape is anomalous in the ivory known to this writer; but if a parallel can be located, this might be the morphological ‘smoking gun’. Normally, elephant tusk is ovoid in the pattern of transverse lamellae, while the hippopotamus lower incisor is described as ‘sub-circular’ (Krzyszowska 1990, 4, 34).
- 11 Large lower incisors can reach a diameter of 0.05–0.06 m (Krzyszowska 1990, 40); the maximum depth of the right leg is 0.0588 m (width is less).
- 12 Krzyszowska 1990, 5, 34, 36, 68, 79, 90—extreme heat and/or humidity changes are the usual factors that cause this concentric separation along the lines of Owen (growth rings in elephant) or in lamellae (elephant or hippopotamus incisor).
- 13 A lower canine and large lower incisor were found in the Ulü Bürün shipwreck (Bass 1987, 726).
- 14 At the 14th Annual Colloquium on Ivory at the British Museum in December 1990, all those who saw and heard the evidence (slides, photographs, drawings, rubbings, vinyl impressions, verbal descriptions) and who chose to comment, concurred with the suggestion that two hippopotamus large lower incisors were used.
- 15 Great effort was expended in searching for this item when the legs were discovered in 1990, but without success. It could have been displaced from the statuette during its initial destruction. Another conjecture is that this attachment may have been ‘souvenired’ in antiquity.

work of blood vessels that continue until the feet abruptly end at mid-arch, the point at which the metatarsals join the tarsals (PLATE E). Though the left foot ends in a break at this point, two side-by-side, double-drilled holes remain.¹⁶ On the other hand, the terminus of the right arch is intact here, showing an intentionally cut and smoothly finished surface with three drilled holes. Apparently, the tusks were not large enough to allow for entire feet.¹⁷

Feet¹⁸

Though burned to a rich brown-black, the front half of the left foot is intact and in an excellent condition (PLATE 15 *a-b*). The right was less fortunate (PLATE 15 *c*): found in different stages of sieving, two unburned fragments exist with signs of extreme trauma to the big toe. Cut lengthwise for strength, both ivory feet were drilled: the left with two holes side-by-side that perfectly match those of the legs. The right fragments reveal one complete and one partial hole; presumably there was a third in a missing fragment to complete the match to the holes in the legs. Wood residue, surely from dowels, was discovered in some of the holes. The poor condition of the right foot hinders conclusive diagnosis of ivory type, but the state of the left reveals clear, bullet-shaped lamellae patterns—already seen in the arms and torso—characteristic of hippopotamus lower canine. But, given its relatively small size (L. 0.0260 m, W. 0.0194 m, H. 0.0048 m) we cannot preclude any ivory type.

Below the feet are long, narrow pegs (PLATE F) which extended as a continuation of the legs proper, and secured the statue to some kind of support, presumably a base. The left peg (H. 0.0315 m, W. 0.0093 m, D. in-complete 0.0263 m) is rounded at the rear and has two transverse holes drilled for cross-pinning; the forward hole is set diagonally lower than the rear (PLATE F *d-f*). The right peg (H. 0.0291 m, W. 0.0094 m, D. 0.0303 m) is rounded in the front with two holes drilled in positions similar to those of the left (PLATE F *c*). Additionally, at right angles to these holes is a third just below the sole of the right foot (PLATE F *a*). Was this dowelled for added support? Was there an extension to the base? Was the Kouros stepping or standing on a separate object, like Donatello's David on the head of Goliath?

Head (cranium and hair)

Above the ivory face and neck was set a stone head (PLATE 16 *a-d*). Made from a single piece of serpentine,¹⁹ its outside surface represents the youth's hair: a fairly recently shaved head except for a modified 'Mohawk' or central growth of hair combed back like a crest over the crown of the head. Great pains were taken to show the stubble of hair, either not-so-closely shaved or growing in, carved in a very regular, cross-hatched pattern following the form of the skull. The 'Mohawk'

consists of very fine, mainly parallel lines incised over a raised and rounded crest. The hair represented has been styled into two running wave patterns of five waves each²⁰ (PLATE 16 *b*). Running in opposite directions, these patterns interlock 'yin-yang' fashion into five pairs. It appears that the hair has been combed in sections from the edges of the 'Mohawk'—each 'wave' spiralling inward to mesh with its mate. How the hair would have been held in this position is not clear; however, how the stone head is secured to the ivory is.

PLATE 17 shows how the visible ivory part of the head was cut away at the hairline all the way round and that its unseen interior has been carved to attach securely to the stone head. The prominent connecting feature of the ivory is a slightly tapered rectangular peg, angled back with a drilled hole in its top (PLATE 17 *a-b*). Two other holes were drilled, one in each side of a barrel vault-shaped feature which runs between the ears (PLATE 17 *b*). Very delicate carving can be seen at the nape of the neck and in what little remains in front, namely the left forehead and the temples. Because the stone head complements the ivory closely, each part echoes the contours of the other. The ivory in the right profile, for example, shows that the sideburn was meant to be squared-off, and not pointed, as the slightly broken stone on both sides of the cranium might indicate (PLATE 17 *a, d*).

The tight fit of the exterior, a marvel of craftsmanship, is continued throughout the interior (PLATE 17 *c*). Abundant tool marks on the stone indicate carving, scraping and drilling; all of the drilled holes have been enlarged, those above the ears by relatively crude goug-

-
- 16 Once again, the presence of a multiple hole suggests alignment problems. But, it was the match of these holes with those of a plaster cast of the front half of the left foot that initially confirmed that the legs were part of the statuette finds of 1987 and 88; many bets were decided at that moment.
 - 17 Another vote for the hippopotamus incisor. However, if tusks wide enough at this point were used, the artist could have chosen to avoid the weakness of a cross-grain extension.
 - 18 Since each foot is cut and joined approximately across the middle, a reference to 'foot' or 'feet' can become confusing or, if fully described every time, unwieldy. In this section, unless otherwise specified, 'foot/feet' refers to the forward half, with the rear being referred to as 'leg(s)'.
 - 19 'An altered basic rock,' sometimes erroneously referred to as steatite, serpentine occurs naturally in Crete. One of several varieties, our example is one of 'the commonest, consisting mainly of serpentine with other minerals in smaller proportions, chiefly steatite, chlorite, and calcium carbonate. The rock is blue/grey/black with green, brown and pale buff patches' (MSV 138); more recently the possibility has been raised that much of what we call serpentine, should be labelled serpentinite.
 - 20 The fifth pair, originating at the 'widow's peak', has almost been obliterated. The 'Mohawk' does not run the full length of the scalp, but stops short of the hairline at the back of the head.

ing. Once again, this suggests difficulty in aligning the paired holes for dowelling. Though the stone was probably harder to modify, there was less room for error in the ivory, suggesting that it was drilled first. Adding to the snug fit of ivory in stone, these three dowels left no room for play.

Eyes

The use of separate materials for the hair and face, described above, provided the opportunity to insert the eyes from behind (PLATE 18 *a-c*). Each eye was ground from a piece of rock crystal, or clear quartz, into a domed oval form representing the cornea and sclera. From the flattened back, it was hollowed—presumably by drilling and abrading—to create a space for the inlaid irises which have not been found.²¹

Enough remains of the face to illustrate the setting for the eyes. The left eye socket can be seen at PLATE 17 *a*, while PLATE 18 *b* shows how the eyes would have been inserted from behind the face into the forward tapering sockets, with the eyelids stopping their advance. The addition of the stone head then secures the eyes from behind.

Gold

Over a hundred gold fragments were found scattered in the 'plateia', and on the steps and in Room 2 of Building 5. After much effort, these fragments were joined where possible, and reduced to about eighty-five in number²² (PLATE G *a-c*). Some edges were cleanly cut, some rather crudely cut and some torn. Most of the gold is foil with a thickness of 0.025 mm—thinner than a human hair (PLATE G *a*)—but thicknesses range from 0.01 mm for the thinnest foil, to 0.135 mm for the thickest V-shaped wire (PLATE G *b*; PLATE 19 *a-b*). Differing colours and malleability suggest at least three alloys.²³ Textures vary; the occasional embossed pattern is suggested.²⁴ No evidence of soldering or pinning was found; however, we noted the presence of a black material on the left forearm (where a gold fragment had become attached, along with traces of Egyptian blue),²⁵ which may have served as an adhesive.

In an attempt to find the original location of the gold fragments on the ivory, we grouped the gold into categories based on the following characteristics:²⁶ dimension, form/shape, colour, malleability, texture/design and proximity. We then tried logical placement. Gold soles of footwear, with openings for the base pegs, were easy to place (PLATES G *b*; H *a-b*); they were found in association with the leg and ankle fragments in Building 5 Room 2 (FIG. 1.8: 19), and measure 0.5 mm in thickness. The embossed veins of one fragment matched the raised veins on the arch of the right foot (PLATE H *b*), suggesting straps or uppers of gold, to which other fragments may belong.²⁷ The possibility of reconstructing a pair of gold sandals confirmed the hypothesis that the gold was indeed used for the figure's clothing.

Next, we looked for a *zoma*, the wide belt with kilt, frequently represented on Minoan male figures.²⁸ Since the waist was missing, I made one of dental stone. Searching for feasible gold shapes, I cut and wrapped aluminium foil strips horizontally round it. The result was exciting! Three strips—approximately the same width as most of the gold foil shown in PLATE 19—conformed to the speculative waist amazingly well with minimum crinkling or crimping. Thus, it appears that about half of the surface area of the surviving gold fragments comprise a wide gold belt with horizontal registers. This gold was bordered by the thicker, formed 'wire' seen in PLATE G *b*. PLATE H *c-d* shows how well it conforms to the torso and the hips. There are more fragments than would be needed for a single border at the top and bottom of the belt, thus it appears that the upper border was channelled, perhaps for an inlay.

PLATE H *f* illustrates a group that is generally thicker (0.0355–0.05 mm), paler (except cat. 97) with a very crinkled (perhaps burned) texture and hints of embossing. One of these fragments (cat. 92) retains enough of its cut edges to indicate much of its distinctive shape, and it also shows a curved crease that matches the curving top of the left hip. The implication is that this crease is where some of the gold was folded to secure it between the hip and waist with the rest hanging down to

- 21 A similar approach can be seen in the bull's head rhyton from the Little Palace. *PM* II, 527 ff.
- 22 Finding gold always produces excitement. The gold found with the Palaikastro Kouros was no exception; but with that excitement came a mixture of headaches in conservation and confusion in understanding its original placement on the statue. Some of these eighty-odd pieces are single fragments, others are the product of numerous joins. Some are relatively large, others quite small. Still others, even smaller and not shown, approach the size of glitter. The conservation and study of the gold found with the torso in 1987/88 and with the legs in 1990 was conducted by A. Nikakis and M. Moak respectively. Working together in 1989 and 1991, many joins were found and agreed on; others remained possible. Only after complete agreement were matching fragments adhered.
- 23 Though differing depositions can cause these changes, too, we feel strongly that different alloys are present. Chemical analysis is necessary to test this hypothesis.
- 24 Looking for subtle human designs in metal so thin, that has been torn from its home, has been burned over and buried under tons of earth for three and a half millennia, is comparable to looking for designs in clouds or in badly worn sealings.
- 25 Its presence here led Nikakis to suggest that these were traces of an original adhesive.
- 26 These categories were used also in finding joins. The gold illustrated at PLATE G is arranged roughly into those same groups.
- 27 A Late Minoan parallel from Knossos, with the sandal straps represented in ivory, is illustrated at FIG. 8.2: f.
- 28 I am indebted to E. Sapouna-Sakellaraki for her thesis, *Minoikon Zoma*, Athens 1971, and for her personal comments at New Orleans in December 1992.

serve as part of the kilt (PLATE H *g*). The characteristics described above also link the remaining members of the group to the kilt.

We may suggest that at least two other fragments (cat. nos. 789 and 798) were used as bracelets. Both have bosses and the edges of no. 789 are at least 80% intact, yielding a nearly complete form with bracelet dimensions (PLATE H *e*).

As for the original placement of the remaining gold fragments, one can only call upon an artist's intuition. A reconstructed drawing is given at PLATE K, and is further discussed below.

Associated Finds

Egyptian Blue. Gold of another form was found in direct association with the ivory and gold fragments in the 'plateia': no less than twenty tiny discs with diameters ranging from 0.137–0.2815 mm. These discs were found embedded in a thin layer of pigment, recognised to be Egyptian Blue, an identification later confirmed by analysis (PLATE J *a–d*).²⁹ Since this was no more than a thin coating on earth, the earth retained directly below it could not be completely 'excavated'; however, it appears that none of the blue extends below the surface. Therefore, being unable to stand alone, the Egyptian blue must have been a covering or veneer for one or more other objects.

But what objects? Direct association with the Kouros is unavoidable; a patch was found within centimetres of the left arm and traces were found on the surface of the arm itself, beneath a strip of gold foil. This gave rise to a theory that it might have covered part of the Kouros—perhaps as part of the clothing? Or were there *accoutrements*,³⁰ now missing, that the blue was a part of? Because of the foot pegs, we know that the statuette was attached to something serving as a base. One flat patch of the Egyptian blue with a relatively large surface area (*c.* 0.08 × 0.04 m), and with at least the appearance of a rectangular edge when first found in the ground, could possibly derive from such an object. Its association with patches of burnt earth and charcoal on the ground makes it likely that the material was wood. Such a base is suggested in the reconstructed drawings (FIG. 11.1, PLATES K and N *b*).

What did a gold-flecked blue surface represent? Was it an imitation of lapis lazuli, complete with random pyrite inclusions? Or, was it more structured and specific? Less macrocosmic, but simply cosmic? Differing patterns, though incomplete, can be seen in the gold discs remaining; PLATE J *a–d* shows one group all bunched up, perhaps the Pleiades, and another spread wide in a cross pattern. Could our Kouros be walking in the starry heavens? See further discussion by MacGillivray in Chapter 10 below.

Ivory. Several other ivory objects were found in the levels associated with the statuette:³¹ i. a miniature pommel

(cat. 1064, PLATE J *e*); ii. a drilled disc fragment (cat. 1065 shown at FIG. 1.9: 1); iii. a lozenge (cat. 1068 not illustrated); iv. two triangular fragments (not illustrated); v. a rosette³² (PLATE J *f*); vi. two miniature columns (cat. 1318A, B, shown at FIG. 1.9: 6); and vii. a drilled cylinder (cat. 1313, shown at FIG. 1.9: 8). In terms of their craftsmanship, only numbers i–iv are consistent with the quality of the Kouros. Of these, only the miniature pommel readily makes sense as part of the young man's regalia. See also Evelyn's discussion of these and other associated finds in Chapter 1.

Beads. During sieving and sorting, several small, drilled beads of white frit were found (PLATE J *g*; cf. also FIG. 1.9: 4). Could these have been part of the statuette's necklace? Or were they simply lost by their human bearers?

MAKING A REPLICA: A STUDY OF THE CONSTRUCTION OF THE IVORY COMPONENTS

Introduction

From the beginning, one of my goals in studying the statuette has been to replicate it. The purpose of such an undertaking is not only to create a plausible image of the Kouros before its destruction, but also to help in understanding how it *could* have been made.³³ It is for this latter reason that I include a discussion of some of

29 Cu Ca Si₄ O₁₀, copper calcium silicate: malachite (copper carbonate), limestone (calcium carbonate), sand (silica), salt heated to and fused at 840° C (Barnett 1975). To keep them intact, the four separate gold disc-bearing patches of this 'blue earth' were excavated with the clumps of dirt of which they had become a part: excavation find nos. 70, 76, 81 and 83. The blue substance is extremely thin and looks like a grainy powder, but some more solid fragments were discovered during the sorting of the sieved earth from the Plateia. Carbonized wood residue was also present as well as impressions that sometimes, but not convincingly suggested recognizable shapes or patterns.

30 We do have the ivory pommel of a dagger.

31 From the Plateia, except nos. 5 and 6 from Building 5, Room 9—a less close context. The full catalogue of finds will appear in a volume dedicated to Building 5. The catalogue nos. of all finds shown on plan at FIG. 1.9 (listed in the Appendix to Part I) appear as PK/- after the original excavation nos. used there.

32 The eight incisions which form the negative spaces between the petals of the rosette resemble flowering papyrus or perhaps Egyptian papyrus capitals.

33 I highlight 'could' because we can never know exactly how it was all made, but surface marks suggest certain tools and processes. Furthermore, the archaeological record of contemporary tools shows at least some of the available equipment.

the replication process here.³⁴ Theories are one thing; practice is another. The replication process has allowed for the testing of construction theories—those of others, as well as my own. Believable scenarios are the result.

It is impossible to know how a particular work of art has been made, whether ancient or finished an hour ago, unless the artist personally describes it,³⁵ because there are so many variables. These include regional differences, influences (from teachers, colleagues, the workshop, foreign artists and art, *etc.*), personal approaches, personal artistic 'ritual', technical experimentation, lack of the ideal equipment and facilities, favourite tools and techniques (sanding and scraping can yield similar results), multiple uses of a tool (a screwdriver can be used for many things in addition to its primary function of 'driving' screws), accidents, unforeseen material flaws, and so on.

However, some evidence exists: primarily, tool marks on the Kouros and on other contemporary works as well as contemporary tools.³⁶ This evidence, combined with the basic knowledge of how such tools can be used and of the intrinsic qualities of ivory, stone and gold, should yield a *plausible* understanding of how our young man was made.

How many artists worked on this 'mixed media' piece? One master artist—a Daedalos, Leonardo or Michelangelo, skilled in a number of media? One workshop employing a variety of craftsmen with an overseeing designer like Phidias? Several workshops contributing components of their respective specialties? There is no way to be certain, but I lean toward one artist because of the unified and consistent quality of the craftsmanship and, of course, my own bias. Consequently, I will refer to one artist as the creator; this should help in the flow of my remaining words and make it possible to avoid the bulkiness of repeatedly writing 'either/or'.

The materials, especially the ivory, must have played a major role in the design. To what extent did the artist have a preconceived design? What constraints of convention existed? Were there drawings with measurements? It appears that the artist attempted to maximize the size of the statue as much as the materials would allow; therefore, an interactive relationship between its scale and the ivory must have occurred. Conventions of proportion, perhaps borrowed from Egypt,³⁷ would have required a careful analysis of *all* the tusks together to determine the potential for maximum size.³⁸ And this statue is large by Minoan standards.³⁹

*The work area*⁴⁰

We can take for granted that the creator of the Kouros was quite serious about his/her work—a professional, in our terms. The artist had to work somewhere, in what we might call a shop or a studio. It would need good light from a doorway and/or windows, perhaps facing N to avoid the drying effects of direct sunlight on ivory—though intense sunlight may occasionally have

been desirable. Artificial light, such as an oil lamp, could have provided sufficient illumination for some of the processes.⁴¹

A working surface would have been necessary, whether a stump, table, bench or even the ground (or all of the above). We can reasonably presuppose that an artist of this stature had a workbench or table to lay out and use tools and materials. FIG. 5.5 gives a speculative view of our Minoan craftsman's working area, complete with bench, tools and materials.⁴²

Tools

The tool marks that remain on the Kouros, which are almost exclusively on areas not intended to be seen, provide evidence of the types of tools that were used.

34 Though I've accrued over 1000 actual working hours on the replica and related tools, I must confess that nearly as many more hours remain before completion. Instead of ivory, I am using boxwood, since I could not locate legal hippopotamus canines and incisors of sufficient size. Though not possessing the exact characteristics of ivory, boxwood is similar in tightness and direction of grain (though less dense) and in colour.

35 In my metal working classes, it is normally easy to reconstruct the making of student pieces, because I know what I have taught them, what specific tools are in the shop and their general skill level. I wish I knew as much about the artist(s) who made the Kouros.

36 I am indebted to Don Evely for his help in this area. He joined me in an examination of the Kouros at the Siteia Museum in 1989, and at the Stratigraphical Museum at Knossos for a study of ivory workshop materials (strips, square and D-plaques, dividers/framers, scraps from the House of the Ivories, N side of the Royal Road, Knossos), making it possible to explore tool marks and compare elephant to hippopotamus ivory. These experiences, and his work on Minoan crafts (Evely 1993) provide much of the basis for my understanding of Minoan tools and techniques.

Where direct evidence is lacking, I draw on twenty-three years experience as craftsman in metal, stone, wood, ivory, bone and related materials to provide, in Evely's words 'reasonable guesswork'.

37 See Judith Weingarten in Chapter 8 below.

38 The artist contemplates: 'If my incisors would allow legs of 11.5 units, then I could make a torso the necessary 4 units wide, if I join two pieces of lower canine, *etc.*' Since the ivory used indicates already very large tusks, I don't believe he/she was only 'making do' by splicing the torso.

39 There are in the Heraklion Museum three components of an ivory statue, or statues, from Knossos which approach those from Palaikastro in dimension: a right arm, inv. no. HM287; a left foot, inv. no. HM292; and a kilt fr. inv. no. HM289.

40 Evely 1993, 245.

41 Many predawn mornings on a remote forest-fire lookout, I used a Coleman lantern to work on the replica.

42 In Evely 1993, fig. 102, a possible work area is illustrated in a drawing; in recent correspondence Evely suggested that the bench be lowered. My FIG. 5.5 is based loosely on this drawing, but with lowered bench.

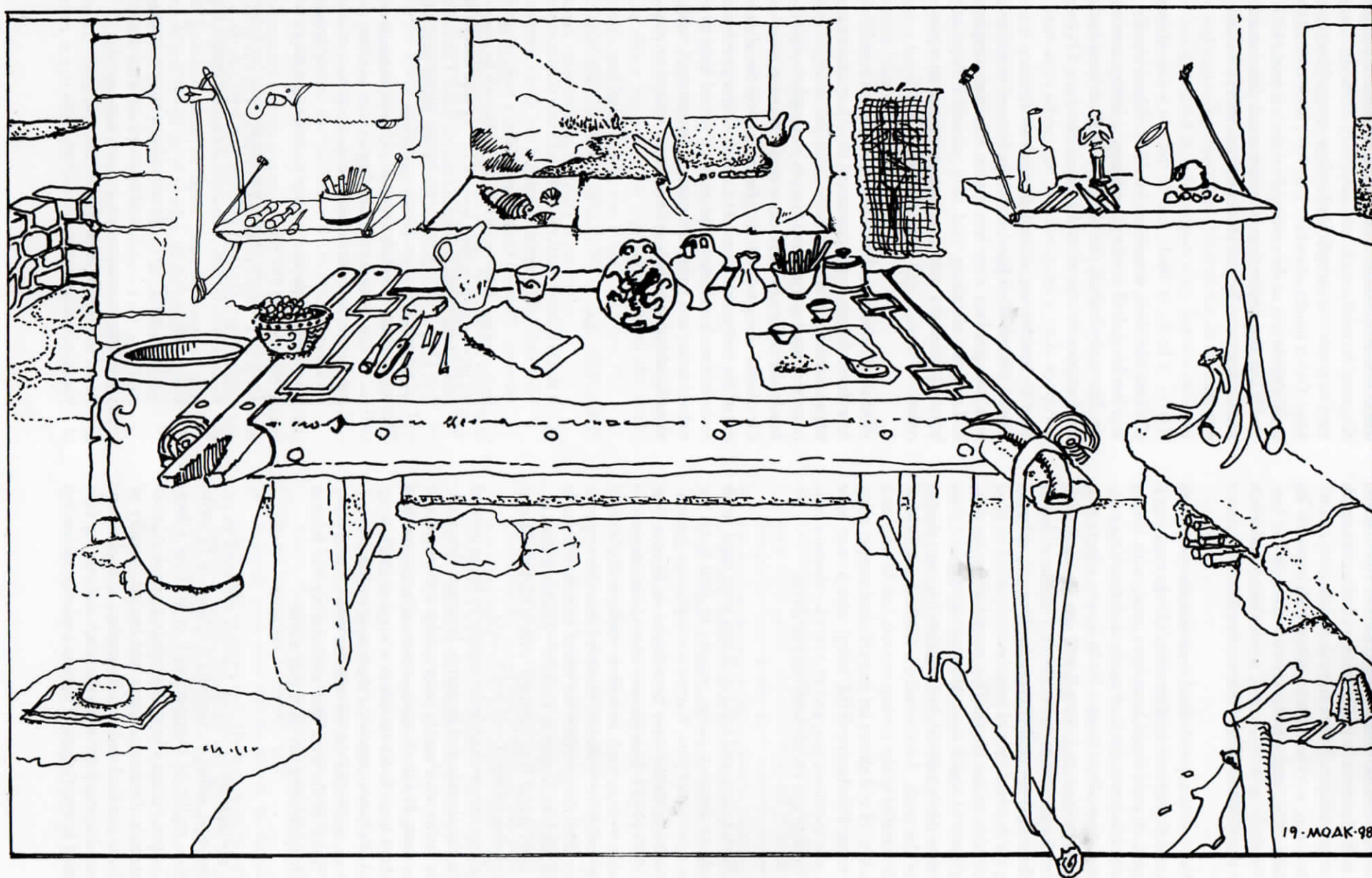


Fig. 5.5. The craftsman's workbench, tools and materials: sketch with hypothetical reconstruction. (MSM)

Saws, drills, chisels and gravers, points and burins, knives and abrasives or polishers are all in evidence. A scribe or marking tool, hammers and mallets, the bow-drill, drill-cap, workbench and vice are all implicit. As is the case today, many tools were not exclusive to one craft. Workers in wood, ivory, stone, metal and even leather share much of the same equipment.

Saws. Saws certainly were used to section the ivory 'into blocks, and thence into smaller units' (Evely 1993, 245). Two types of saws could have been used, with blades either smooth (untoothed) or toothed. A toothless copper⁴³ or copper alloy/bronze blade is very effective in cutting serpentine and ivory,⁴⁴ and can be used with abrasives (sand, emery, pumice) in a water or oil based paste. A toothed saw could have either forward- or back-cutting teeth which would have been chiselled or filed into the edge of the blade. This would allow for dry-cutting material which is initially more convenient than the abrasive paste method, but requires frequent sharpening of the teeth. Additionally, a toothed saw, held at an angle parallel to the sawing motion, can be used as a file. PLATE 18 *a-b* shows an unpublished copper alloy object from Palaikastro (HM 2023) which may have served as a toothless saw, and PLATE 18 *c* shows a replica in bronze and ebony with copper rivets.

Drills. Both hollow and solid drill bits were used, with and without abrasive pastes, mostly to drill holes for wooden dowels and pins. Warren states that 'no demonstrable tubular drills' have been found in Bronze Age Crete (MSV, 158). This paucity of evidence suggests a perishable source, such as hollow reeds, still plentiful in Crete today. Yet it should be noted that this negative evidence does not preclude the use of tubular bits made of metal, such as copper or bronze.⁴⁵ Evidence does exist for solid metal bits, perhaps with a nicked face or diamond-shaped tip (Evely 1993, 245).

Metal bits can produce holes simply by being twisted between the thumb and finger(s); however this technique is rather slow and is reserved for very small and delicate work. For the Kouros, a more effective method would have been to fix the bit in a wooden shaft, wrap the cord of a bow around that shaft, apply pressure with a drill-cap, and rotate the bit with the bow (Scheel 1989, 52-4). Stone drills were also used during the Bronze Age, but apparently not with this statue.

Chisels/gravers/points/burins. Chisels are used to remove material, either by pushing freehand, or by striking with a mallet or hammer, with or without a handle.⁴⁶ Copper, copper alloy and stone (e.g. obsidian) were the materials. Gravers, points and burins, usually of stone,⁴⁷ are handled and usually pushed with the handle secured in the palm with the shaft and cutting face controlled by the fingers. There is evidence of limited

use of relatively small chisels in the construction of the Kouros; certainly a chisel—probably obsidian—was used to create the complicated hollow joint of the stone head. Other marks elsewhere may have been created by small chisels (e.g. at the underside of the left foot, PLATE 15 *b*), but the distinction between small chisel marks and those created by gravers/burins and knives is a tenuous one.

Knives. A knife, or blade, can be used in a vast variety of ways: whittling, scraping, chiselling, engraving, slicing, marking, drill guiding, wedging/splitting, sawing, etc. Normally hafted, the blade would have been made from copper or one of its alloys, or obsidian. Copper, or copper-alloy, is relatively soft, but can be work-hardened by hammering, although much sharpening is required. On the other hand, obsidian, because of its hardness, can produce very fine marks, effective scraping, and delicate detailing. But, alas, obsidian chips and breaks quite easily, requiring frequent repair or replacement.

Abrasives/polishers. Abrasives in granular or powdered form have already been mentioned as important in sawing and drilling processes. Sand, plentiful locally, could have been used as a paste with a piece of leather or cloth, much like a piece of sandpaper might be used today—the coarser the sand, the rougher and faster the abrading of the ivory, stone, metal or wood. Other powdered materials such as emery and pumice would have provided harder and softer abrasives respectively.⁴⁸ Additionally, abrasives, such as sandstone, emery or pum-

43 It should be noted that in the 1998 Rio Grande (Albuquerque, NM) Tools and Equipment Catalog, p. 211, there is listed the following: 'Diamond Copper Saw Blades, 4 inch—\$6.75; 6 inch—\$12.00'. These are circular saw blades ready for mounting on an electric lapidary saw; the cutting edge consists of minute diamond bits impregnated into the copper. Lubricated with water or other fluid, the Bronze Age sawing process is continued thus into the very late 20th century.

44 I experimented with both serpentine and hippopotamus lower canine, using a paste of Naxian emery as well as sand from the beach at Khiona, with the toothless version of the replicated saw shown at PLATE 20 *c*. It worked very well, cutting through enamel and dentine alike. It is time consuming, but not unreasonably so, in my opinion.

45 The use of metal tubular drills is still taught today. See Robert von Neumann, *The Design and Creation of Jewelry*, p. 184.

46 Evidence exists for both. An example of a handled chisel comes from Platanos (HM 1594); though the handle is missing, its former existence can be deduced by its tapered tang which bears no strike marks. On the other hand, a chisel from Ziros (HM 2444) has a mushroomed head with strike marks and a bent handle which indicates the use of a hammer.

47 Burins are normally made of stone (Evely 1993, 248).

48 Naxos provided emery; pumice is from Thera.

ice, can be used in other forms: natural stones, shaped forms like blocks, or splinters. Regardless of form, either the abrasive can be applied to the art object or *vice versa*.⁴⁹

Polishing is simply abrading with an increasingly fine abrasive and, to a certain degree, softer particles. When ground between stones, fairly coarse sand grains can be reduced to finer particles. A burnisher, of stone, metal or wood, is used in conjunction with fine abrasives in polishing.

Tools used in a similar fashion to abrasives are files, for example the copper-alloy tool found recently at Mochlos and identified as a file (*Hesperia* 65, 1996, pl. 56c). This is a wonderful addition to a Minoan tool kit.

Other tools. A hammer or mallet would have been a handy tool for striking chisels, tapping a blade or burin, straightening/adjusting metal tools, roughing out serpentine and forming gold foil.⁵⁰ A copper-alloy and or stone would work as the head with a wooden handle, but a hand held hammer, used like a stone pounder, would have sufficed.

When using a hammer and chisel or a drill, both hands are 'tied up'. If the artist is working alone, and the object being worked on is not large or weighty enough, it will move, thereby preventing control. Therefore it is necessary to secure such objects. A vice would have allowed that security. Today, a typical bench vice has two steel jaws that can be screwed together and apart to hold a variety of objects. Though no such devices have been identified from Minoan Crete, alternatives are conceivable—such as a band of leather, looped over the object supported by a projection from the workbench and held fast by the artist's foot (see FIG. 5.5). Plaster also works well in securing objects, particularly small ones such as the rock crystal eyes.

Materials

As mentioned earlier, one of the remarkable aspects of the Kouros is the variety of materials used: at least four hippopotamus tusks—two lower canines and two of the larger lower incisors—were needed for the body. The ivory carver could have received them already extracted⁵¹ or perhaps in a complete lower jaw (PLATE 21 a) that more than likely came from either Egypt or Syro-Pal-estine.⁵²

For the stone head, a small chunk of serpentine was necessary (~0.05 × 0.05 × 0.05 m). Serpentine occurs naturally in a variety of places in Crete. The source for the head could have been 'the northern foothills of Mt. Ida'.⁵³

Two small pebbles of rock crystal—clear, colourless quartz—were needed for the eyes. Their small size allowed for a local provenance.⁵⁴

Different thicknesses and colours of gold were used to adorn the Kouros. Foil of 0.010 mm, 0.025 mm, 0.035 mm, 0.050 mm and 'wire' measuring 0.075 mm, 0.110

mm, 0.125 mm, and 0.135 mm were discovered on or around the other fragments. Egypt is one obvious source for the gold, and perhaps it even found its way to Crete on the same ship as the ivory.

The Egyptian blue could also have been imported, at least the malachite. The other ingredients—limestone, sand and salt—were locally abundant.⁵⁵

Ivory preparation and initial stages

There is no evidence for initial handling, but 'reasonable guesswork' can be employed. If not already clean, the tusks certainly would have been cleaned of at least gross organic matter. The incisor's natural surface of *cementum* and the surfaces of the lower canines—one face of *cementum* and two of very hard, ridged enamel—must have been removed, or at least the tusk 'debarked', prior to carving. By wedging a chisel between the enamel and the dentine, the hard outer covering could be split off to reveal the softer dentine within.⁵⁶ During that process, the artist most likely 'sized up' the tusks, look-

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- 49 Grinding with solid abrasives is still with us as a standard process in metal-, stone- and wood-shops and in garages, in for example the electric grinder which uses carborundum wheels.
- 50 I have seen stone hammers with grooves for handles at Akrotiri as well as a wonderful stone anvil complete with horn.
- 51 As in the case of tusks found on the Ulü Bürün shipwreck, *Bass* 1987, 726.
- 52 *Hippopotamus amphibius* sp. was found in Egypt as late as this century and in the Orontes River and Amuq Plain into the EIA (Krzyszowska 1990, 20).
- 53 In Crete, deposits of serpentine have been located at Ardhaktos, Gonies Lepria, Katharo, Miamou-Krotos, Spili, Tera and Vorizia. A comparison of our head to Warren's descriptions of various types of the stone and their sources, suggests that the Gonies source is a good match. It lies on 'both sides of a narrow valley called Lepria, at a spot immediately south of the road about 2.3 km west of Gonies...' (*MSV* 138, 139). From this site, MacGillivray obtained a sample similar to the material used for the head of the Kouros.
- 54 Warren also describes Cretan sites for acquiring fine rock crystal (*MSV* 136, 137). On the beach called Khiona, just two stone throws from the statuette's find spot, I discovered a very fine example, sufficiently large for one of the eyes.
- 55 Cu Ca Si₄ O₁₀, copper calcium silicate: malachite (copper carbonate), limestone (calcium carbonate), sand (silica), salt heated to and fused at 840° C (Barnett 1975).
- 56 Relatively much softer than the enamel, the dentine can be carved 'as is' in its raw state. However, it can be softened by soaking in vinegar, phosphoric acid, glycerine, or animal or vegetable oil or it can be boiled in water. This not only renders the ivory's surface easier to work, but also can leave the entire piece flexible enough to bend, cf. Lapatin 1997, 676–82. No tests were conducted to attempt to determine the presence of vinegar, etc., nor has evidence been found to confirm or deny the use of a softening agent here. All the shapes of the various components are consistent within the norms of unbent tusks.

ing for any flaws and anomalies, visualizing the various components within. Measurements of length would have been made at this stage and pieces cut accordingly.⁵⁷ If Weingarten's assertions are correct (Chapter 8 below), a design including proportions within a grid must have been near completion at this time and ready for transfer to the ivory.⁵⁸ Most of this roughing out was probably done with a saw used in the conventional manner of separating material from itself. PLATE 21 *c* shows this stage on the boxwood leg replica. A frontal drawing within a grid (FIG. 5.1 left, and cf. FIG. 7.2) was essential for proper proportion. After one side was complete, presumably another drawing with grid (FIG. 5.1 right, and cf. FIG. 7.3) was made for the profile approach with the saw, resulting in a squared-off effect. More sawing could have rounded off the corners. A toothed saw, if available, could have been used as a rasp to 'take down' the material further as illustrated in PLATE 21 *d*. At this point the artist would have turned to blades, chisels, files, drills and abrasives.

Each ivory component was probably begun as described above.

The ivory torso

The order in which the components were sculpted, as well as the order in which the tools were used to complete each component, is important but not inflexible. Both sections of the upper torso are from hippopotamus lower canine and can easily be from the same tusk. The larger section, by virtue of its greater carving needs, was probably cut and at least roughed out first in order to determine the necessary size of the smaller.

The cross-sections of the torso reveal many tool marks in the join areas—areas which were not intended to be seen.⁵⁹ PLATE 21 *d* shows clear saw and abrasive marks at the lower join of the torso near the connecting tab for the waist. The presence of these saw marks implies that the artist was sufficiently confident of his/her sawing skills to make a precise enough cut to avoid the need for much abrading. Also evident are drilled holes: 10 single round and 2 double round. The triangular holes in the shoulder joins, the modified holes at the eye sockets and the one preserved ear hole also presuppose drilling. FIGS. 5.2–3 show the placement of these holes.

As described earlier, two of the holes in the torso's larger section were redrilled. No doubt the smaller section was drilled first (perhaps because of its smaller size with less room for error), as its two holes are single (see FIG. 5.3). Apparently the first attempt failed to drill matching holes in the larger section; consequently these holes would need to be filled with ivory or wood in order to overlap the miscue with another drilling. The new holes must have worked in and of themselves or perhaps the filler material was removed from the first attempt, thereby providing a sufficiently large target. The material used for the connecting dowels was the relatively soft wood of a coniferous tree which allowed

for a certain amount of compression and flexibility (see n. 2).

Not only was it difficult to match dowel holes, but the entire process of matching the torso sections to create a tight fit was difficult. For the replica, it took 44 hours to plane, drill and make dowels to create a tight seam.⁶⁰ After that process, my admiration for the artist grew even more. The complicated and easily overlooked joins⁶¹ of this statue are equal in craftsmanship to the readily visible virtuosity of its surface.

From the neck down, the exposed features of the upper torso are rather subtle but can nonetheless be identified: clavicles are indicated; pectoralis major muscles and sternum are suggested; thoracic arch and abdominus rectus muscles have been simplified into one curving plane that joins with the latissimus dorsi; the 'valley' where the latissimus dorsi connect to the upper

57 It is possible that the lengths could have been sawed with a toothless saw before debarking.

58 Complete at least for the torso, which I feel must have the most limitations of all the components and, therefore must have been the component first approached. Because of its organic form, the ivory would have presented problems for inscribing grids with frontal, rear and profile drawings. If grids indeed were drawn on the ivory, the surfaces must have been planed, at least roughly. I found it possible to draw the grids on the boxwood replicas of the arms, but wood allows for complete grids where ivory tusks would not. I believe that if grids were used, they would have been complete on design drawings and simply referred to for carving.

59 I have seen only photographs of the joins between torso sections and between torso and arms. However I could see, firsthand, many marks at the join at the waist and at the head. I must add that these marks in the meant-to-be-hidden areas provided the greatest human connection I felt in my study and conservation of the Kourou.

60 Once the two joining faces had been sawn to fit as closely as possible, those surfaces had to be planed with emery and file abrasion and by scraping with a blade. After a reasonable fit was achieved, I drilled the smaller section and, then, intent on avoiding the 'double drilling', I fashioned pointed pegs in the initial holes, applied graphite to the points, aligned them and marked and drilled the larger section only to find I had to do what our Minoan artist had done—namely double drilling one and triple drilling the other. After unsuccessfully trying numerous boxwood dowels, I went into the Arizona forest and collected naturally cured spruce and fir twigs which worked beautifully. Much more scraping ensued using graphite (charcoal also works) as an indicator of high spots—much the same way as a dentist uses carbon paper to test a bite after a filling or crown. This was a tedious process.

61 Though smaller, the head join is more complex. PLATE 17 shows that area quite well. Carving the ivory section for the replica took over 25 hours. Sawing, abrading, chiselling, scraping and drilling were the processes employed.

The connection to the waist was also complex. PLATE 11 shows the existing tab and the section above on the waist further describes it.

lumbar/lower thoracic regions of the spine via tendons is present; this 'valley' continues up until the slight mound of the seventh cervical vertebra is indicated; to either side the scapulae and trapezius are suggested. For detailed discussion, see Musgrave in Chapter 7 below.

The arms

A possible orientation of the arms within the lower canine is shown at FIG. 5.4: c-d.⁶² After being sawn into blocks, they would have been roughed out and formed as described above.

The joints at the shoulders use two types of dowel holes, one round and one triangular (FIG. 5.3: e-f). The former was simply drilled; the latter was drilled and chiselled. There is overkill here, since one triangular dowel or two round (easier) ones would have sufficed to secure each arm effectively to the torso.

We are astounded by the carving of the arms which reveals both anatomical stylization and naturalism. The deltoid muscle retains its triangularity, but with four stylized, vertical ridges (PLATES 9 e, D a). The remaining upper arm is proportional and elegant, but otherwise unremarkable.⁶³ It is the forearms, wrists and hands that take our breath away (PLATE D a-b). Viewed frontally, we see these parts first; and what we see is a polished skin from which emerge exquisitely carved veins, arteries, sinews and bone.⁶⁴ What we were not meant to see are the finely manicured nails and cuticles. Each hand was held less than half a millimetre (~4.75 mm) from the chest with three fingers folded or curled, not clenched,⁶⁵ into a fist; however, both forefingers were tightly curled and mostly obscured by seemingly elongated thumbs⁶⁶ 'wrapped' round them as is clear on the left hand (PLATE D a-b), but presumably occurred on the right also.

To achieve these refinements the arms would have been 'taken down' to within a few millimetres of completion and the carving of details would have begun with the use of blades and coarse abrasives. Like wood, ivory has a 'grain' that runs lengthwise; this grain must be identified and respected when carving. Working with the grain, or lengthwise, is normally easier than against, or crosswise; however, cutting lengthwise too deeply or with dull tools usually results in an uncontrollable 'pulling' of the grain evidenced by an irregular gap beyond the intended cut. Though slower, scraping and abrading offer much more control. Finer abrasives and a burnisher probably were used to apply the polished finish.⁶⁷

The legs and feet

Two large lower incisors, presumably from one hippopotamus, were the raw materials used for the legs. This conclusion is argued and illustrated in the previous section on the legs, at PLATES 13-14. Some stages of leg construction are suggested at PLATE 21 b-c. The feet

are small enough to have been made from either canine or incisor; lamellae patterns in the left foot suggest lower canine.

Tool marks in the join areas—hips to waist, hip to hip, arch to foot, tabs to base—show the use of saw, blade, drill, abrasives and perhaps chisel/burin. However, the other join area—the groin—is nicely polished, revealing little in the way of tool marks, except drilled holes.

In the legs and feet, twenty-five holes were drilled ranging in diameter from 0.2 to 0.5 cm. The left arch reveals two sets of double-drilled holes and the left hip medial join has both a double- and triple-drilled set. Vinyl polysiloxane impressions of these latter groups are seen in PLATE 22 a-d; the use of tubular drills is quite clear. As in the medial torso join, the artist had alignment trouble with the legs.

As with the arms, the anatomy of the legs and feet has elements of both stylization and remarkable naturalism. The buttocks and thighs are rather full and well developed; in the groin area the subtle dip and swell of the gracilis muscles are indicated. The fullness of the rectus femoris is present at the front of the thigh as well as the flattening of its tendon as it blends into the

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- 62 Apparently this kind of alignment was important to the artist because the arms have virtually identically matching lamellae/commissure patterns. Of course the arrangement could have been elbow to elbow instead of shoulder to shoulder; perhaps each arm was cut from the same spot in separate tusks. Furthermore, the medial side (inside) of the arm faced the wider, flatter side of the tusk.
- 63 We are familiar with the convention of exaggerating the upper arm, particularly the biceps, as a device to connote male strength. Compared to the attention given the forearm, wrist, hands and even the deltoid, this part of the arm seems, to my mind, downplayed.
- 64 There are other examples of this sort of anatomically detailed carving: HM 287, HM 292, HM 427, HM 352 and the famous Acrobat. HM 287, an ivory arm from Knossos compares to the Palaikastro example in scale, pose and attention to detail, though it is more muscular and has a join at mid-bicep as opposed to the Palaikastro shoulder join. Yet the Palaikastro arm is more refined, e.g. blood vessels *emerge*; this is more like a network overlaid on top; there is more transition in the vessels and general form, though cuticles and other details are found on the Knossos examples. The carving of the Palaikastro example is done with much more grace and attractiveness.
- 65 Compare to HM 287, which is clenched.
- 66 It has been suggested that a thumb this long is within the realm of anatomical possibility; the first phalanx looks overlong to me.
- 67 For the replica's veins, nails and cuticles, I used obsidian and bronze blades, Buck and X-acto blades (#1), knives, various grits (180, 220, 400, 600) of emery paper and a boxwood burnisher. The blades were used in a cutting fashion to delineate edges (nails, cuticles, between digits) as well as in a scraping manner to slowly and subtly create convex and concave planes (e.g. veins/arteries and their interstices).

well-defined patella. Tendons from other knee-related muscles—sartorius, biceps femoris, semitendinosus as well as the iliotibial tract—are also attempted, but appear less accurately placed. The patella ligament gracefully descends into a rather sharp shin, the front of the tibia. The calf is well developed with the gastrocnemius descending into the Achilles tendon which is well-defined as it approaches the heel.⁶⁸ The upper part of the ankle is very thin; the ankle bones—the medial and lateral malleoli—themselves are accurately articulated. It is with the ankles that, once again, the intricate veining present in the wrists and hands begins in the legs and continues into the feet.

The feet were dowelled to the legs approximately where the metatarsals would join with the tarsals; the left has holes for two dowels⁶⁹ and the right has three. Though the legs and feet would have been close to completion, surely the artist waited to finish this area after the join was made so that a smooth transition could be achieved, i.e. the overall form and alignments of blood vessels and tendons, such as the extensor hallucis longus and the extensor digitorum longus.

The craftsmanship, naturalism and elegance of the surface detail of the feet is equal to that of the hands: arteries, veins, tendons, the toes with their pedicured nails and cuticles. Were these features hidden from view as with the hands? Some were, if not all; PLATE H *b* illustrates a gold fragment embossed with a vein pattern that corresponds with the veined arch of the foot below. This could have been part of a sandal strap or of footwear that enclosed the entire foot and perhaps covered a substantial part of the lower leg.⁷⁰ PLATE H *a* shows the golden soles of footwear complete with slots for the pegs to pass through for joining with the base; this gold is heavier (at thickness 0.50 mm) than the veined fragment which measured 0.25 mm. The bottom of the feet⁷¹ have been levelled to a flat plane and show minimal carving (PLATE 15 *b*); the big and second toes have been defined all around—note the pierced separation of these two.⁷² The remaining three toes have been carved below to include only the pads of the distal phalanges (PLATE 15 *b*).

The tabs below the feet fitted into something and were cross-pinned for stability. What first comes to mind is a base: rectilinear and flat, with room for one statue. That may be, but several questions arise when the legs are investigated. What was the purpose of the extra hole in the front of the tab below the right foot? Why are the two feet not level?⁷³ Was the surface of the base irregular? Other questions remain open, as to the material of the base, and why no identifiable fragment of it has been found? Was it looted, lost or simply made of a perishable material such as wood? Could the gold-spangled Egyptian blue have covered the base? Could the sky have been represented—or water? Were there other statues on it? A firm identity of the Kouros would help.

FURTHER COMMENTS

On comparing this figure with the later kouros

I know of no other Aegean Bronze Age sculpture which rivals this one in craftsmanship; indeed the skill used to carve details in both ivory and stone rivals that of any age. Technical skill in mastering any material is impressive alone, but when combined with so keen an observation of nature and such a sense of aesthetic beauty it leads one to make comparisons with masterpieces of other periods. If we compare this Kouros to any Archaic kouros, even though the scale is different both show rigid hair, both are affected by Egyptian convention in proportion and advancing left leg, and one may ask whether any Archaic kouros is more naturalistic than the Palaikastro example?

If our young man is so natural on the surface and relatively so in his proportions, does he demonstrate other naturalistic characteristics that we could associate with late Archaic? Is there present an understanding of the harmonious movement of the individual body parts as a unified whole? Is there a weight shift? Could a Bronze Age artist have been working towards a symmetrical stance comparable to that which in later sculpture embodies the principle of *contrapposto*, and could

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- 68 The right heel is intact; the left is not. PLATE 15 does not show the right heel fragment, which was located later. The current state of the left heel is represented accurately at PLATE F *e-f*.
- 69 As previously mentioned, the left leg side of this join has two double-drilled holes which suggests that the smaller foot side was drilled first because there was less room for error. The dowel holes in the right leg side are slightly oval, suggesting that adjustments for dowel alignment also had to be made (PLATE F *a-d*).
- 70 Not far below the knee, particularly on the right leg, are visible very faint, thin lines made by what appears to have been a very sharp blade. These fine lines angle down and back. My feeling is that gold foil may have been formed around the leg and that the excessive gold was sliced away in place to produce the finished edge of high-topped footwear. If this is correct, this part of the Kouros' attire would appear to us today to signpost the type of an action figure.
- 71 Since the left foot is virtually 100% intact and the fragments of the right are consistent with the left, it is presumed that the right was carved similarly; therefore the characteristics of the left will be referred to.
- 72 This opening could have been created with or without drilling; on the replica, I simply used a blade to slice and scrape until the space was created. The bottom of the left foot supports this as there is an overcut/ 'overscape' cutting into the sole.
- 73 This may be due to an inward bow to the right leg directly above the ankle, caused by destruction or deposition factors. Or was the bow intentional?

he have been skilled and bold enough to attempt it? If the artist was, it was executed very subtly, and the component construction also makes this determination difficult. The head is turned slightly toward its right, but is this intentional? We cannot be sure whether the torso was meant to twist since we lack the waist piece, which could have allowed for that movement. The length of the legs differs slightly: the right is 4.0 mm shorter than the left, but this may be accounted for by destruction or deposition-related distortion. If there is no distortion, then two possibilities exist: i. if the feet were set on the same level, the axis of the hips would be slanted, hinting at a relaxed standing position or perhaps a shifting of the hips for a natural step forward. There are two problems with this: the legs should list to the right, but both legs are straight with locked knees; for there to be one engaged leg, the other should be bent; ii. if the right (back) heel were raised from the ground, the axis of the hips might still be level, but the legs would appear to thrust forward, implying forward motion; however, the legs remain straight and there is no upraised heel in the back foot to emphasize a natural walking pose. The stance looks very Archaic...not Classical, but on the verge.

On the destruction and deposition of the Kouros⁷⁴

Found in a LM IB destruction level, the greatest separation of fragments is about eleven metres from the Plateia to Room 2 of Building 5. All 194 ivory leg fragments were found within 0.64 m of each other in Room 2, whereas the fragments of torso, arms, feet, head and most of the gold were discovered as if exploded all over the Plateia (FIG. 1.8). Furthermore, differently burned adjacent ivory fragments indicate that the statue was broken before burning.

After giving some thought to the problem of how they became so dispersed and after much discussion, I would like to follow the proposal of MacGillivray and to suggest, for the final scenario, an act of deliberate vandalism or even iconoclasm. Perhaps this valuable object was wrenched from its base in the Plateia, snap-

ping off the dowelled-on feet, and was smacked face forward against the right door post causing head, neck, back and left arm to shear off and catapult across the Plateia. The torso and right arm, meanwhile, were dislodged, bouncing off the steps while the hair-thin gold fragmented and scattered from the impact and fire-generated wind. The legs, which served as a handhold, then were hurled into Building 5, where they broke against the SW wall of Room 2, fell in a heap and burned to about 870° C.⁷⁵

On the 'original' appearance of the Kouros

After my brief initial study of the finds in 1989, I attempted to visualise the young man. At that time we had most of a male body from the waist up, a serpentine head, rock crystal eyes, half feet with dowel holes, some gold fragments and gold-flecked Egyptian blue. Following sealstone examples of Minoans in robes or skirts, it was possible to visualise the young man wearing a skirt (coloured blue?) with the little feet pegged on and peeking out from under it. But then the legs turned up the following May.

Looking at parallel examples of young men in Minoan art—The Chieftain Cup from Agia Triada, the 'calmer' Vaphio Cup, the Cupbearer and Lily Prince frescoes from Knossos, and terracotta votive figures from Petsophas—and trying to account for the associated finds of the Kouros, I painted two more watercolour conjectures. PLATE K shows frontal and profile views that I feel are close to the original on present evidence.⁷⁶

74 This section is from a paper I presented at the 1992 AIA Annual Meeting, New Orleans.

75 The colours and textures of the burn patterns indicate that some areas on the legs reached this high temperature (1847° F). Baer *et al.* 1971b.

76 This reconstruction has appeared in Ashton and Taylor 1998, 51, but is printed in reverse.

A Late Minoan IB town shrine at Palaikastro

Jan Driessen

This Chapter explores the spatial context of the Kouros in more detail and argues for the identification of its architectural context in Building 5 as a shrine,¹ examining the possible function of this shrine, a question closely related to the function of the statue. Some additional thoughts are devoted to the original location of the statue.

THE IDENTIFICATION OF THE SHRINE

Construction in the central zone of the town at Roussolakkos, Area 6, came to a halt before the Minoan eruption of Thera in the LM IA period and resumed in LM II.² This struck us as odd, at the time of excavation, especially since the LM IB habitation period at Roussolakkos is characterised by over-crowded building plots and, as pointed out in Chapter 2, part of the open area surrounded by Buildings 1, 3, 4 and 5, called the Plateia, was encroached upon by the occupants of Building 1. Area 6, which measured at least 47.0 × 31.0 m, was abandoned, left open, and enclosed by a stout wall; the only function of the area in the LM IB period, contemporary with the Palaikastro Kouros, was for drawing water from two wells, which had been dug at this time. It has been suggested that this area served to concentrate livestock within the urban confines after the troubles caused by the Santorini eruption (*Troubled Island*, 82–3, 233). This may be so, but there may be more to it. The wells in Area 6 were gradually given up and filled in during the LM II–III A/B periods, partly with rubbish from surrounding destruction levels. Hence, Well 605, in the NE corner of the area, contained, amongst other objects, a fine but broken serpentine rhyton fragment depicting dolphins.³ At least part of this rhyton was covered in another material, possibly gold, as suggested by the prepared lower surface. From the other well, 576, several fragments of large, weathered *ammouda* horns of consecration were recovered, and at least three pairs of slightly different dimensions could be reconstructed (*PK 1994/96*, 261, fig. 19). There can be little doubt that all of these objects belong to the ritual equipment of a Neopalatial structure. One of the possibilities, suggested in the preliminary report (*PK 1994/96*, 261–2), is that these items derived from the fine mansion in the SE part of Area 6. Since this building was dismantled before the Santorini eruption, whereas these items came from LM IIIA–B

levels in the wells, it is perhaps more likely that another source should be sought. We have mentioned above, in Chapters 1 and 2, how Rooms 1 and 2 of Building 5 were reoccupied during the LM II–III A period. One hypothesis then is that the rhyton and sacred horns originally came from Building 5. This is suggested by the possible ritual connotations of the architectural modifications. Indeed, considering the facts that:

- i. The Plateia was closed off and aggrandized, involving actions of exclusion and concentration. Earlier entrances to Buildings 3 and 4 were blocked.
- ii. The NW part of Building 5 was given ashlar façades with masons' marks, which are the first to be discovered at Palaikastro. In this regard, the symbolic value of ashlar must be stressed: it signposts power and ritual and it must have been immediately clear to a Minoan that something special was to be expected behind these walls.⁴ Moreover, it can be shown that masons' marks, and especially double axes, have specific ritual connotations, enhanced by their repetition (Hood 1987, 205–11).
- iii. The doorways of Rooms 1 and 2 were given an axial alignment and are both very wide. This operation therefore was intended to direct and concentrate traffic and attention but also allow participation.
- iv. Room 1 was given a fine paved floor pointed with red stucco and bright wall frescoes. Again, public display seems to be intended. The paving seems to have acted as a 'red carpet', sign-posting something to be expected in the next room.
- v. The NW part of Building 5 was closed off from the rest of the building, which was accessible via a separate entrance. This act of separation should be seen in connection with the ashlar refurbishing of the NW rooms.

1 For methodology, see especially J. W. Wright 1994; 1995; Fernandez 1988 and Marinatos 1993.

2 As shown by a wall with associated deposit, including a ritual double vase, found during the 1996 season (*PK 1994/96*, 242–4).

3 *PK 1994/96*, 226, fig. 13. Cf. another rhyton fragment found during the early explorations 'in a trial east of town', which surprisingly still retained part of its gold foil covering and showed a charging boar (*PKU 136–7*, fig. 118).

4 On the symbolic aspect of ashlar, see Driessen 1995, 71–2.

- vi. A pit, a special receptacle, covered by slabs, was placed centrally near the door of Room 2.

These features imply a specially constructed location with controlled circulation pattern and access and the involvement of public display and great investment in the architectural idiom which is here the attention-focussing device. The court in front and the two axially placed wide entrances allowed participation by a larger community. The square can hold about 50 people, closely packed. Since the Roussolakkos settlement in its heyday may well have counted more than 5000 inhabitants, it is obvious that only a small proportion could have participated in whatever ritual was taking place. On the other hand, the ritual may not have been public at all but rather ephemeral, involving discrete, punctuated, individual visits.

It seems reasonable then to suggest that the Northwest Unit of Building 5 was set apart during LM IB for ritual or cult purposes. Shrines represent liminal zones, areas where ritual activity connects this and the world beyond. The consecration of an area originally apparently purely domestic was done through architecture. In addition, the size of the chryselephantine statuette found here and the care given to its manufacture are well in line with the care given to the architectural embellishment of this part of the building and of this quarter of town, involving the square. These cult rooms consisted of two sizeable spaces with axial doorways, accessible via steps from the Plateia. This would provide us with a communal cult area, or a town shrine, acting together with the Plateia in front. The position of the shrine on what may have been an important access road from the harbour may also be relevant.

The Northwest Unit of Building 5 may then be reconstructed with full ashlar walls at ground floor level. It is difficult to envisage how the building looked from the N, from the open Area 6, during LM IB. The ashlar SW wall of Room 13 must have been visible. The backdrop of Building 1, a structure built entirely in ashlar, would have increased an impression of opulence, if indeed it still stood at this time.⁵ In Chapter 2, the architectural evidence for windows on the upper floor was discussed. It is possible that the *ammouda* slab found on top of the ivory torso served as a base to support a column which stood in a window, looking out over the Plateia above the main entrance to Room 1 with its fine paved floor and plastered receptacle.⁶ It is perhaps also worth repeating that a serpentine block with smoothed upper face was found in Room 2, SE of the pit which may itself have served for libations. This stone is different from the building debris encountered normally, nor does it seem to have been used in manufacturing processes. At the same time, its shape does not really invite a comparison with known baetyls, which are much rounded as evidenced at Palaikastro (the cross-roads between Roads B-M-D-G), Gournia and Malia (Palace Court) or iconographically.⁷ Nevertheless, this pos-

sibility cannot be excluded. The well-stocked storage Room 13 allowed the shrine an economic independence or provided for consumption during ceremonies.

Although there are set topographical locations for particular types of shrines, such as peak sanctuaries, there is no standard or typical Minoan architectural form for a temple or even for a cult room, leaving aside the lustral basins.⁸ There can be little doubt, however, that, within palatial settlements, the palaces themselves or parts of these (West and Central Courts) were the main focal points of cult and ritual gatherings and the locus of public ceremonies,⁹ which served both the settlement and the surrounding territory. By implication, the repetition in the lay-out of the palaces should agree with a specific set of ritual prescriptions. Outside the urban environment, however, the situation may have been considerably different, as illustrated by the Middle Minoan Anemospilia Temple,¹⁰ although even this shrine may owe its existence to its dependence on the Iouktas peak sanctuary. Iconographic sources, however, leave no doubt about the importance of some kind of ritual buildings, dubbed *aedicula* by Furumark, 'a small construction of somewhat differing form, composed of architectural elements such as columns, horns of consecration and concave altar bases'.¹¹ An ashlar building then was a frame, a proper milieu for ritual action: 'it was not a temple one was supposed to enter, or where rituals could be held, but was apparently of symbolic significance and sufficient in itself' (Furumark 1965, 91).

- 5 This remains to be shown by the study for the final publication of this complex structure.
- 6 An alternative source, from a pillar supporting a balcony overlooking the Plateia from the SE, is shown on Jerome's reconstruction at FIG. 1.11.
- 7 For baetyls see Hood 1989, 17-21; Warren 1991a, 353-63; 1990b 193-206. See also Renfrew 1981, 79, fig. 31, for the baetyl in front of the Shrine at Phylakopi.
- 8 To the list of Lustral Basins in *Troubled Island*, 60, add now a recently excavated example from the West Town at Knossos, referred to and illustrated in *ADelt* 47 (1992), 556-7, fig. 2. Rutkowski 1973, 290-3 assumed that temples in the Aegean did not have an established ground plan but were recognisable from their specific tripartite façades, perhaps decorated with running spirals.
- 9 See e.g. Pelon 1984, 61-74; Hood 1995, 393-407; Marinatos 1993, 38-39; Dickinson 1994, 277-8.
- 10 Most recently discussed in Sakellarakis and Sapouna-Sakellarakis 1997, 269-82; see also Lebessi and Muhly 1990 for the sacred enclosure at Syri which was more of an architecturally elaborated landscape in its main phase than a real building.
- 11 Furumark 1965, 91; Rutkowski 1981, 11-34 and Schoep 1994b, 204-06, fig. 22 for different types of *aediculae* depicted in Minoan iconography (esp. types A, B and C); Morgan 1988, 68-87, esp. p. 85 where she identifies a building because of its association with horns of consecration as 'a shrine or a place which can be used as such when occasion calls'.

Urban (as opposed to rural) buildings specifically set aside for cult seem, however, not to have formed part of mainstream Minoan ritual tradition until an advanced stage, except perhaps in regions where peak sanctuaries were absent, as at Middle Minoan Malia (see Schoep 1994a, 20–4).

The urban buildings given the label 'Town Shrine' by Hood¹² comprise 'a building or roofed structure set apart for cult and having its own entrance from the outside world, not incorporated in a dwelling house or palace and approached through it. Some public shrines were evidently free-standing with paths or open spaces all around them...but others...although forming independent units with separate entrances, appear to have had one or more of their outside walls built against those of other structures, from which, however, there was no access. The inference is that these shrines, unlike the domestic ones inside palaces and houses, served a wider public than a single family or household, whether the population of the settlement at large, or a section of it united by ties of kinship or initiation'.¹³ Hood's observations may be linked to Renfrew's seminal work on Aegean cult practices (Renfrew 1985). Indeed, one of the primary criteria for the identification of ritual consists in the focussing of attention. 'In communal acts of worship', Renfrew argues, 'this invariably requires a range of attention focussing devices. These are spatially and temporally specific: that is to say the acts are performed at special places, and these places are often organised to facilitate the focussing of attention' (Renfrew 1985, 18). The archaeological correlate for this is a special building set apart for sacred functions, often involving conspicuous public display and hidden exclusive mysteries, whose practice will be reflected in the architecture (see also J. W. Wright 1995, 341–8). With this in mind, we may briefly consider the Cretan evidence. Hood's list of 'Town Shrines' includes those at i. Gournia; ii. Fournou Korifi; iii. Agia Triada;¹⁴ iv. Koumasa;¹⁵ v. Malia Stratigraphical Museum; vi. Malia Sanctuary of the Horns; vii. Pseira; viii. Palaikastro Block II; ix. Agia Irini on Kea; x. Rousses Chondrou¹⁶ and xi. Kania-Mitropolis. Numbers ii, iv, v and vi need not concern us since they are either Early or Middle Minoan, while i, iii and xi are examples of typical LM III shrines which have since become better known.¹⁷ The 'Temple' at Agia Irini (ix) on Kea and the Shrine at Phylakopi on Melos offer certain points for comparison with the Northwest Unit of Building 5 at Palaikastro from an architectural point of view since both are free-standing, axially organised structures. At Phylakopi, the identification of the LH IIIA–B building as a shrine largely depends on its contents, although the axiality of its plan also sets it apart from domestic structures.¹⁸ The 'Temple' at Agia Irini is our most impressive example of a public shrine in the Aegean (see e.g. M. E. Caskey 1981, 127–36; 1986). Built early in the MBA, the building largely kept its plan throughout eight centuries of occupation. The axially placed, off-centre en-

trances offer a parallel for our Building 5 situation. The evidence for LM I town shrines in Crete is not plentiful, with only vii and viii presenting convincing cases. The public shrine identified by Hood in areas 24, 38–40 and 41–43 of Block II at Palaikastro (viii) is based on the excavation during the 1902–06 campaigns of an area where pottery, ritual objects—including bull's head rhyta and animal bones—accumulated. Although this may, in fact, represent destruction debris transported and dumped into the area, which was abandoned during or after the LM IA period,¹⁹ its composition appears to derive its ritual association from its similarities with deposits in peak and rural sanctuaries, but its architectural context is not clear. This leaves the examples at Gournia and Pseira. It can be argued that these, as is the case for Palaikastro-Building 5, are also LM IB town shrines. Although most of the contents of the Gournia shrine (i) are Postpalatial, the construction of the building is clearly Neopalatial, but must date rather late in that period since the building was constructed on top of an earlier Neopalatial structure (Russell 1979, 27–33; Rutkowski 1987, 58–62; *Troubled Island*, 56, 213). It belongs to an orderly part of the Neopalatial town, with traffic channeled towards its entrance. It consists of a single room, measuring about 3.0 × 4.0 m, and accessible via three steps, as is the case with Building 5.

Likewise, recent soundings in the Pseira 'shrine' also date it to a post-Santorini phase.²⁰ Here too, traffic was

12 See Hood 1977, 158–72 and the additional comments in Gesell 1983, 93; see also the various contributions to *Sanctuaries and Cults*; see also Marinatos 1984, 22–3 who identifies shrines at Akrotiri on the basis of the occurrence of frescoes with religious iconography, cult equipment and architectural features (such as large windows facing squares, interconnected rooms or simply large spaces where people can gather).

13 Hood 1977, plates A–D for comparative plans.

14 Dated to Neopalatial times by Hood 1977, 163, but recent soundings established its date as LM IIIA2–B (La Rosa 1984, 185–7).

15 Georgoulaki 1990, 5–23 questions its identification as a shrine.

16 This may rather have been a normal house with a domestic cult area (*Troubled Island*, 219).

17 See the interesting remarks by Peatfield 1994, 19–36.

18 Renfrew 1985; the attention in the publication given to the architectural and spatial context, plan and reconstruction of the building (apart from its theoretical background, esp. p. 18–19) is rather limited, in contrast to that given to the finds; see especially the architectural details (*op. cit.*, 369, 374), and comments p. 390 about the scale, position and masonry, and p. 435–6 for possible parallels, although the axial symmetry and the occurrence of a bench is stressed. Renfrew (*op. cit.*, 435), argues for a Cycladic origin of the built sanctuary with large cult images but fails to discuss the precise function of the cult area nor the possible functions of cult areas in general.

19 The presence of white ash is explicitly mentioned, a feature which we now tend to associate with Santorini tephra.

20 Building AC, cf. Betancourt and Davaras 1988, 215–18; Pseira II, 126–30 and Gesell 1985, 132.

channeled to the SW side of the building and access was via steps and an offset entrance. Fragments of moulded plaster, belonging to at least one female figure, identified as a goddess by the excavator, are said to have fallen from the upper floor into a portico opposite a small paved court (Seager 1910, 15, pl. V; Kaiser 1976, 299–302; *Troubled Island*, 246). The recent re-examination by P. P. Betancourt and K. Davaras has clarified its plan and architectural history and underlines the special status of the building within the Pseira community.

The E wing in the country house at Kannia-Mitropolis clearly had a cult function, but again there is debate about its date (Levi 1959, 237–65; Hood 1977, 169–71; *Troubled Island*, 206–07)—LM IB and/or LM III. There are arguments, however, for associating the E part with the poor construction in front of the E façade, which has been tentatively identified as a tripartite shrine similar to the example at Vathypetro (Driessen and Sakellarakis 1997, 63–77; *Troubled Island*, 176–8, 206; Shaw 1978). If correct, both shrines, Kannia-Mitropolis and Vathypetro, may be added to the list of community cult places.

Apart from these four parallels dating to LM IB, there is a possibility that House B2, recently excavated on the island at Mochlos, also served as the ritual centre of the island during the LM IB period (Soles and Davaras 1996, 184–94; *Troubled Island*, 243). Surprisingly enough, this building, like Palaikastro Building 5, seems to have been rebuilt with an ashlar façade after the Santorini eruption. Moreover, some of the Palaces also underwent modifications in precisely this period to incorporate ritual areas (*Troubled Island*, 58). Both at Malia and Phaistos, several rooms were blocked off from the rest of the complex and given new entrances from outside (see Driessen 1997, 67–85). Within these rooms there are clear signs of ritual activity: at least five figurines and ritual equipment in Room 10 at Phaistos, and terracotta feet, tripod tables and a sandstone altar with mason's marks (a star and a cross) in room XVIII:1 at Malia. Both shrines had become inaccessible from within the structures, at least at ground floor level, and this again provides parallels for the situation in Building 5 at Palaikastro. Using this evidence, Driessen and Macdonald have recently suggested that a considerable change occurred in the ritual landscape of Crete during the crisis years after the Santorini eruption (*Troubled Island*, 54–61). Peak sanctuaries were mostly given up and cults were concentrated within settlements. Hence, urban, free-standing shrines came into use, a custom which would expand in Postpalatial Crete (Peatfield 1994). Palaikastro-Building 5, or rather Rooms 1, 2 and 13, may be placed somewhere between the urban shrines and the palatial examples,²¹ where some rooms were entirely closed off from the ground floor apartments and were given ashlar walls, wide doorways, frescoes and plastered paving. Therefore, the unit may have served as the ritual centre for a large part of the town, if not for the entire settlement. The fact that

several of the examples of town shrines (Gournia, Kannia, Kea) are re-used in LM III may be an argument for religious continuity. I would not exclude the possibility that the LM II–III successor of the LM IB Palaikastro shrine also had a ritual function. The architectural lay-out is remarkably consistent and Room 2 is given a bench, a characteristic feature of shrines elsewhere. Unfortunately, the room was found empty so that the question remains open.²²

The following features seem then to characterise Minoan urban shrines of the LM IB period:²³

- i. Access from a major circulation artery, preferably a square.
- ii. Access through a stepped entrance, perhaps so planned for symbolic reasons.
- iii. Wide entrances.
- iv. Axial alignment.
- v. Architectural embellishment.

THE FUNCTION OF THE SHRINE

There is a wide variety of Minoan cult places, usually identified on the basis of the discovery of votives (domestic or palatial sanctuaries), sometimes on the basis of architectural form (lustral basins, sacred spaces on courts, tripartite shrines) or on a combination of topographical features and votives (caves, peak sanctuaries, spring sanctuaries and/or sacred enclosures).²⁴ The identification of the Northwest Unit of Building 5 as a public shrine is supported by the above architectural and spatial observations. The built environment dictated an artificial milieu for the ritual action and deter-

21 The NE orientation of the Northwest Unit of Building 5 at Palaikastro does not betray any immediate recognizable ritual significance. Compare with the E orientation of the Kannia-Mitropolis, Vathypetro and Mochlos shrines (as well as most of the palaces cf. Shaw 1977, 47–59), the W orientation of the entrance of the Gournia shrine, the SE orientation of those at Pseira, Phylakopi and Agia Irini. See also van Leuven 1978 for the orientation of mainland shrines. To be consulted (with some caution) is also the paper by Blomberg and Henriksson 1996, 27–39.

22 Close-by to the E, however, some twelve fragments of discarded terracotta figurines were found together with LM IIIA2/B pottery (*PK 1988*, 434, fig. 14; *PK 1990*, 133, fig. 9 nos. 4, 5). N of the area, in Building 4, more figurines were found, one also showing the belted warrior (*PK 1988*, 432, fig. 12, 13).

23 Cf. Fernandez 1985, 259 on the orientation of buildings and rooms, the access, internal organisation and circulation pattern, size and furniture.

24 Rutkowski 1972, 39; Marinatos 1993, *passim*; Barshinger 1987; van Leuven 1981, 12, prefers to distinguish simply between natural and built sanctuaries; Dickinson 1994, 266–7 distinguishes between buildings which are or incorporate shrines, open-air sites, caves and tombs; for a critical assessment, see Fernandez 1985.

mined the amount of space, the length of time, the number of people and the type of activity.

Built shrines can have different functions, however, and the variety of cultic assemblages on Minoan Crete warns us against generalisations. Nilsson's often cited definition of a shrine as 'a separate building set apart to be the abode of the deity and to shelter its image and paraphernalia' (Nilsson 1950, 77) seems rather limited and Rutkowski's 'cult place' is a better definition to start from as it implies notions of topography, ritual actions and religious beliefs: 'the cult place must be clearly described from the point of view of the topography, so the boundaries have to be drawn between the holy place and the secular surroundings, and features such as altars, cult objects, images, sanctuaries, votive offerings, etc. have to be present. The second of the connotations is concerned with what happens at the cult site—for instance, the rites performed by priests, processions, dances, cult mysteries, and the making of sacrifices. And finally, coming to the third connotation, the cult place is so called because of its connection with religion—people came to it because there were manifestations of the deity there, or because it was a place where a being with superhuman powers dwelled or which such a being visited' (Rutkowski 1972, 16). Although already more useful, this definition implies certain preconceived ideas about religion and cult activity in general which need to be proven. Elsewhere, Rutkowski simply distinguishes between a 'sanctuary' in the narrow sense of a building intended for use in a wide range of cult practices, and public buildings accessible to the entire population of a town or village which are labelled 'temples'.²⁵ If the difference between the terms used is one of participation, the scale of the building involved would provide us with a reliable indicator. However, he (and others) regard 'Temples' also as the dwelling-place of some divinity. If so, an aniconic or anthropomorphic image should be present. Since such cases are extremely rare on Minoan Crete (excluding the LM III period), as we will discuss below, the island apparently counted very few temples indeed. One should then perhaps better distinguish between:

- i. Cult areas which served to house a cult statue permanently or occasionally, without themselves having major relevance since the statue is taken out at festivals. In these cases, the building acts more as a repository than as an actual liminal meeting point.
- ii. Cult areas which were considered as home of the gods on earth and therefore as some kind of Holy of Holies. Depending on the nature of the religion, the shrine may only have been accessible by the initiated and the priests, or provide space for a larger community of worshippers.
- iii. Cult areas serving for ritual actions inviting the epiphany of the divinity.²⁶ Here the shrine serves as a milieu for the action and its architectural manifestation as such bore symbolism.

Clearly the archaeological correlate of each type of shrine involved will be different. Moreover, case and context of the Palaikastro Kouros are unique in that they are not paralleled by other examples. The question of the specific function of the building at Palaikastro then is closely related to the function of the chryselephantine statue (*PK 1987*, 267). Human imagery in religious contexts can have different meanings. Renfrew distinguishes between four categories:²⁷

- i. Representations of anthropomorphic deities.
- ii. Representations of abstract deities.
- iii. Votaries or images of worshippers.
- iv. Votive offerings, representing either the deities or humans.²⁸

Moreover, a representation of a deity does not always represent a cult statue and the different categories can occur at the same time. With regard to the Aegean, it is evident from find circumstances that the Palaikastro Kouros is difficult to compare with the 55 statues and figurines from the shrine on Kea or the approximately 20 figures from one room (but only a single larger one) in the Temple at Mycenae. Again we have to be careful not to make generalisations since temporal and spatial differences may exist within Crete itself. Since the context of the Palaikastro Kouros is unique, comparative evidence can never provide definitive answers.

- 25 Rutkowski 1972, 17: only Gournia and Karphi are labelled Temples; Rutkowski 1973, 291 describes temples as 'a divinity's house, keeping its image or its paraphernalia'.
- 26 For rituals in general, see Hargrove 1979; for Minoan ritual action, see Warren 1986; For Marinatos 1984, 22, a shrine served to accommodate priests only who could perform rituals on behalf of the community, which itself would be gathering in a nearby open space.
- 27 Renfrew 1985, 22–3; 372–3; cf. Warren 1986, 33: 'An image, a central focus of activity, could have been understood either as a plain image of a divinity without any immanent power, a cult statue pure and simple, or as an image which was a vehicle of divine power, either temporarily during ritual (like the baetyls) or permanently, or as an image which was a concrete expression of a divinity envisioned in an ecstatic epiphany, or as a permanent image or model of a priestess conducting ritual such as an enacted epiphany. As with the believed anthropomorphic presence which we have argued lay behind painted or engraved representations of divinity, so too in the latter three of our proposed understandings of images a believed real presence is implied' (his italics).
- 28 Cf. Alroth 1989, 15, on the relationship between the appearance of votive figurines intended to represent a deity and that of the cult image itself in Early Greek sanctuaries. She concludes that such an influence is rarely detectable (p. 106). Furumark (1965, 91) assumed the opposite for Minoan votives: 'these so-called goddesses probably represent priestesses who during the rite appear in the goddess's image, and represent her. They can therefore give us an idea of the type of ritual, also possibly a suggestion of the character or identity of the goddess in question' (his italics).

The main question for Minoan Crete up to 1450 BC is whether three-dimensional representations of anthropomorphic deities existed at all. Hägg and Marinatos, accepting non-anthropomorphic cult objects such as stalagmites, stalactites, pillars, fetishes and baetyls without much hesitation, are much more reluctant to accept the existence of anthropomorphic cult images on Minoan Crete (Marinatos and Hägg 1983, 185–201; cf. Matz 1958, 28–43). They accept the evidence for life-size human statuary but assume that these portray votives, representing either worshippers or divinities. This, they argue, is because the epiphany of the deity was central to Minoan religion and the rituals involved the appearance of the divinity, something which could take place at any time and anywhere, but preferably outside. Since they doubt the existence of cult images, they likewise do not accept the existence of specific architectural forms that can be described as ‘Temples’ on Minoan Crete (meaning the abode of the deity). They make some salient points which need consideration.

First of all, it must be noted that the idea of epiphany does not necessarily contradict the existence of cult statues. The lack of a standard architectural form does indeed suggest that ‘Temples’ as defined by Nilsson as abodes of the deities do not find a place in Minoan cult. This may, however, still imply that specific architectural units served either as *repositories* of images which, on certain occasions, served the epiphany of the deity, or units which formed the built environment for specific cult actions. The difference would be that between a freely accessible communal shrine, a strictly controlled repository from which the image was taken solely during ceremonies, and a building which existed in its own right.

Secondly, there can be no doubt that large and even life-size *anthropomorphic statues* existed on Minoan Crete, in terracotta, stone, faience or composite materials.

Large terracotta statues depicting humans are rare on Crete before LM II–III A1. Most of the Petsophas male figures, for instance, are less than 0.20 m high although there are examples from other contexts approaching 0.50 m.²⁹ One notable exception is the fragment of a large human face from Petsophas which may originally have been 1.00 m high.³⁰ On Iouktas, however, Karetsou found fragments which must have come from clay male idols of a height of at least 0.80 m (Karetsou 1981, 146). The largest figure from the Temple at Agia Irini on Kea, however, would have stood more than 1.5 m high and several statues approach 1 m. Later statues, from Crete, the Mainland or the islands, vary in height but again rarely exceed 0.75 m.

In stone, there is an EM stone figure from Samba which is 0.675 m high (Sapouna-Sakellarakis 1983, 44–74) and a roughly half life-size marble arm from the Room of the Stone Vases in the Palace at Knossos (Evans 1900, 31). A mould fragment for an approximately life-

size hand (in bronze ?) was also found at Phaistos (Laviosa 1968, 499–510).

Perhaps the best parallel for the Palaikastro Kouros is provided by three faience figures, about 0.30 m high, the so-called ‘Snake Goddesses’ from the Temple Repositories at Knossos, stratified at about the time of the Thera eruption.³¹

Some indirect evidence for the existence of larger statuary is provided by the terracotta feet in the shrine in the Palace at Malia and those from the Temple at Anemospilia.³² Together with five feet from Room G3, NE of the Temple at Agia Irini and other examples from the Palaces at Phaistos and Zakro and from houses at Sklavokampos, Mochlos-Limanari and Gournia,³³ these may very well have served to support wooden statues or *xoana*. The other evidence listed by the Sakellarakises, including the heavy steatite wig weighing six kilograms (PM III, 419–22, fig. 288) and the bronze locks from the Knossos palace, originally thought by Evans to belong to a statue 2.80 m high,³⁴ also seems to corroborate the existence of such composite statues.³⁵

Thirdly, it has to be admitted that the evidence for Minoan *cult statues* is somewhat circumstantial and controversial.³⁶ The identification of an anthropomorphic deity or the interpretation of a human image as a cult statue is partly helped by the quality, scale, gesture and

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- 29 Rutkowski 1991, 22. A terracotta torso of a belted warrior in the Museum of Fine Arts at Boston (*Annual Report* 1992–93, 22) is preserved to a height of 0.14 m and could have stood originally about 0.50 m (compare with the torso of the Palaikastro Kouros).
- 30 PK II, 375, Plate XII.34; Hood 1978, 106, n. 132; Rutkowski 1991, 80, wonders whether the face could not have belonged to a vessel. A male warrior from Kannia-Mitropolis (H. 0.385 m) is probably LM III (Renfrew 1985, 421–2). Female figures are usually even smaller.
- 31 PM I, 500–10; *Troubled Island*, 141; the largest figure is 0.342 m (reconstructed); the other, a headless female figure, is 0.20 m (to neck, but restored); a third figure, more or less preserved to the waist, would have been slightly taller; see also Panagiotaki 1993, 49–91, esp. 54–9 on some other pieces from the same context.
- 32 Sakellarakis and Sapouna-Sakellarakis 1997, 530–9 for a detailed discussion citing all the relevant literature.
- 33 *Troubled Island*, 61; Sakellarakis and Sapouna-Sakellarakis 1997, 531 citing other examples; see Donahue 1988, 211 and *passim* for *xoana*.
- 34 PM III, 522–5, fig. 366; Marinatos and Hägg 1983, 194; Hägg 1995, 367, prefers to see these as belonging to several, smaller statues about 0.30 m tall.
- 35 See also P. M. Warren’s review of Renfrew 1985 in *Antiquity* 60 (1986), 155–6.
- 36 Dickinson 1994, 265. Most authors in fact do not accept their existence before the LM III period, e.g. Matz 1958; Furumark 1965, 91. Rutkowski 1973, 291–4 is in favour, however.

number of the images but especially by the spatial location or context, which should be conclusive.

- i. The quality of the statue. Although in part circular reasoning, the finest statue in a deposit is always identified as the cult statue.
- ii. The scale of the statue. As mentioned above, those Aegean statues identified as cult images are either quite tall, when found on their own, or exceed the associated figures in height. Thus Evans calls the largest faience statue from the Temple Repositories the Goddess whereas the two smaller images are labelled attendants, priestesses or votaries (*PM I*, 500–10, fig. 377).
- iii. The gesture of the statue. Minoan ritual idiom in Neopalatial times follows set gestures. Hence, male and female votaries are almost always depicted holding one hand to the brow. The gesture of the Belted Hunter, as discussed in Chapter 9, is reserved for very few Minoan pieces and recurs in other types of iconography.
- iv. The number of the statues. As Hood observed (1977, 169–70), Minoan town shrines are usually devoid of finds, an observation which applies to Building 5 at Palaikastro and the so-called Shrine on Pseira. The Sakellarakises also rightly draw attention to the fact that the terracotta feet found in the MM Anemospilia Temple or those found in the LM I Palaces or shrines elsewhere were usually not accompanied by other dedications (Sakellarakis and Sapouna-Sakellarakis 1997, 532–3)—this in contrast to peak, rural and domestic sanctuaries where representational terracotta votives abound. This is of course negative evidence but it could imply that a wooden cult statue (a *xoanon*) or indeed an anthropomorphic cult statue was considered sufficient for ritual focus and that it was ‘without rivals for attention’ (Renfrew 1985, 23).
- v. The context of the statue. Except for the number and presence of votives, the architectural context and location of the statue should be conclusive. Unfortunately there are only rare Cretan contexts before LM II in which a statue seems to take a special position. Apart from the Anemospilia *xoanon*, there is the ‘spouted goddess’ from EM II Fournou Korifi, found fallen from a bench.³⁷ The special context of the Snake Goddess from the Temple Repositories may, in the present writer’s opinion, also be in favour of an interpretation of this figure as a cult statue,³⁸ although its original location remains problematic. The palatial shrines of Malia and Phaistos can also be described as special contexts: accessible from the outside and not communicating with the rest of the complex, they have ritual equipment which may have included an anthropomorphic image. Room 10 in the West Wing of the Palace at Phaistos was fitted with benches

and on these stood at least five female figures, though only one was completely preserved (H. 0.17 m) (*Festos II*, 114, fig. 62; *Troubled Island*, 197). Room XVIII:1 in the South Wing of the Palace at Malia contained some ritual pottery as well as a small stone altar and two terracotta feet,³⁹ which could have belonged to a *xoanon*.

A combination of these five criteria was used to interpret the Phylakopi assemblage: the sheer number of figures in the different rooms suggested that they were votives or images of votaries, also alluded to by their gesture, with the arms held forward. Only the ‘Lady of Phylakopi’, standing 0.45 m high in a specific locus in Room A and with a different gesture, was a good candidate for a cult image. Thus, both the height, the gesture and the exceptional materials used for the Palaikastro Kouros support the suggestion that the statue was more than an *ex-voto*, especially since *ex-votos* rarely or never show up on their own without other cult paraphernalia.⁴⁰

Nevertheless, it is striking that active cult areas involving anthropomorphic representations remain a rarity in the Minoan archaeological record. Except for EM Fournou Korifi and MM II Anemospilia, all other evidence seems to cluster in the LM IB period. This raises the possibility that we should regard this phase as an aberration, as a transitional phase without which the later Mycenaean occupation and cults on the island are more difficult to understand and one which provides a prelude to the later situation.⁴¹

If the hypothesis that the Palaikastro Kouros was a cult statue is accepted, the representation of an anthropomorphic divinity, we still have to face the question of whether or not the statue was used for permanent display and devotion. If the Central and West Courts of

37 Warren 1972, 78–87, 209–10; 1977, 137–47 for a full discussion.

38 As suggested by Hood 1978, 133 and Panagiotaki 1993, 85–7. *Troubled Island*, 184 (for references).

39 The statue may have been quite new when deposited but there does not seem to be sufficient evidence to suggest a workshop situation (see comments by Evely in Chapter 1 above). Although Palaikastro has produced other exquisite ivories and seems to have supported its own craftsmen (Hood 1978, 121), and some ivory pegs and a disc as well as bronze chisels and tweezers were found in room 9 of Building 5 (FIG. 1.9: 1 and 6, PLATE Jf, and cf. *PK 1988*, 426, plate 60d.e), as well as a collection of bone and ivory plaques and strips hidden in Room 13 (PLATE 4c, and cf. *PK 1990*, 130, plate 10d), a workshop context such as that at Knossos is lacking, nor were any gold foil or ivory scraps found elsewhere in the building.

41 *Troubled Island*, 94–7, esp. 96, for the suggestion that this represents a ‘crisis cult’ (La Barre 1971, 3–7), somewhat similar perhaps to the rather unusual ritual context found by Warren in his excavation behind the Stratigraphical Museum at Knossos (Warren 1981, 155–67).

the palaces were meant for rituals and public festivals, as suggested by iconographic sources, it is clear that communal gatherings were a prime feature of the ritual activities involved. Several frescoes also stress that 'display' or ritual equipment was a major concern.⁴² At first glance, participation in rituals by larger groups outside the Palaces seems rather the exception than the rule, since the size and amenities of the urban shrines discussed earlier can only have involved a few dozen people at most. Remembering that the so-called Palace Treasuries contained ritual equipment, especially including finely decorated stone rhyta and other paraphernalia, which was probably to be used for public display and ceremony in other locations such as the Courts, we may ask whether the Palaikastro Kouros was intended to be 'housed' in a shrine, the NW rooms of Building 5, where it might have been displayed, or whether this building served only as a repository, from which the statue was brought occasionally to a larger gathering place outside? All LM IB shrines,⁴³ whether urban or part of Palaces, have in common that they are situated close to larger courts or open spaces. The 'shrines' at Palaikastro, Pseira and Gournia are located on corridor-like (even processional) roads leading to open areas, which, at Palaikastro are either Area 6 or the open terrain E of Building 1. The tripartite organisation of the façade of Building 1, adorned with at least one pair of horns of consecration (*PK 1987*, 265), would provide a suitable backdrop for any ceremony.⁴⁴ This possibility cannot be excluded, partly because it would help to explain the enormous investment put into the construction of Building 1 and its architectural link to Building 5 via an ashlar screen wall alongside the Plateia. As mentioned in the introduction to this Chapter, Area 6 remained unoccupied during LM IB, apart from two wells. The different pairs of stone horns found in one well and the serpentine dolphin rhyton found in the other well could then conceivably also have played a part in a larger ritual, giving Area 6 the appearance of a sacred enclosure (cf. Lebesse and Muhly 1990, 316, fig. 1). In view of the epiphanic character of Minoan religion, one could conjecture that the statue usually rested in the receptacle in Room 2 with only its base as an aniconic marker visible through the open doors. One could, in such a case, assume an initial ritual display or an appearance of the Palaikastro Kouros in Building 5 itself, involving a restricted group of initiated in the Plateia, and followed by a solemn procession in which the Kouros was brought to an open area where the entire community could participate. Appealing as such a hypothesis may be, it remains just that.⁴⁵

THE ORIGINAL LOCATION OF THE STATUE

As discussed in detail in the previous Chapters, the torso, feet and head of the statue were found on the surface of the Plateia beneath destruction debris

whereas the legs were lying on the floor of Room 2, about 10 m away. Both deposits were clear LM IB destruction deposits. The spatial separation between the fragments is most likely due to human agency, perhaps an act of malicious vandalism, during which the statue was deliberately broken into different parts. As proposed by Moak in Chapter 5, the distribution and dispersal of fragments in the square and the traces and modalities of damage observed on the individual pieces, suggest that the statue with its base was taken outside into the Plateia. The statue may have been held by its higher legs in a person's right hand and crashed in a southwesterly direction, face first, into the right-hand stone door-post of the main entrance of Building 5. This action would have shattered the face and could have caused both the stone skull and upper torso to fly to the NE. The heels with pegs inserted in the wooden base of the statue, covered with Egyptian blue and golden dots, must have come off the legs and front part of the feet at the same time. Holding just the legs in his hand, he seems to have thrown these through the open doorways into Room 2, which may already have been burning at this point. We can only guess at the motives for such a malicious destruction. Iconoclasm can certainly not be ruled out but there are other possibilities: a desperate attempt by the occupant of the house to keep the statue from leaving the site by breaking it; simple malicious destruction as part of the loot of the town (perhaps from anger that the statue was not in pure gold); or destruction of religious symbols which were too closely associated with a certain elite. There is some evidence from other LM IB sites on Crete which supports this last possibility since most stone rhyta with figurative representations and many stone horns of consecration were also found broken.⁴⁶ A combination of the social and religious motives is also a possibility: the rarity of anthropomorphic images in shrines,⁴⁷ their temporal concentration in the LM IB period and the obvious elite connotations (the materials, the ashlar building) may imply that both the statue itself and what

42 Stressed by the new frescoes of Xesti 4 at Akrotiri, Thera, where a man carries elaborate cult equipment (*Ergon* 1996, 75, fig. 61).

43 It also remains a possibility that the Palaikastro Kouros was kept in the pit in Room 2 of Building 5 which, as at Knossos, could have served as a repository for ritual equipment.

44 Cf. Shaw 1978, 428 on the use of tripartite façades as 'appropriate backdrops for still incompletely known ceremonies that were carried out in front of them, usually within courts'.

45 The precise ritual is now no longer identifiable: see Warren 1986, 13 ff. for dance, baetylic, robe, flower and sacrifice rituals.

46 *Troubled Island*, 109; for other suggestions, see Rehak 1994, 1-6; 1995, 435-60.

47 Hägg 1995, 367 also sees an emphasis on anthropomorphic figures in religious iconography during LM I.

it stood for invited enmity, causing its eventual shattering.

The final position of the fragments, however, betrays little about the original location of the piece since, if the above reconstruction of its depositional process is accepted, the final resting place of the statue—in an accidental primary deposit—does not have to correspond with the location where it was originally displayed. For the present writer, however, there is little doubt that the statue indeed derives from *Room 2* in Building 5.

Room 13 seems out of the question because of its function as a magazine, although one might argue that the statue was hidden at some point behind one of the storage vases, together with the other ivory fragments. Most Minoan cult areas and shrines seem to have included storage areas (Gesell 1983, 93; Pilali-Papasteriou 1987, 179–86). These could have given the shrine some economic independence or allowed the distribution of food and drink during specific festivals.

In favour of Room 1 are its architectural and plaster decoration and initially, before the excavation was completed, we had conjectured that the statue might have stood on the low plaster dais in Room 1c (see watercolour reconstruction at PLATE N b). In this case, however, the small partition wall between Rooms 1a and 1b would have hidden the statue from view by anyone entering the building from outside. Nor would the wide entrance to Room 2 have been necessary. The paving and fresco decoration of Room 1 seem to serve rather as a sign-post, a 'red carpet' somewhat similar to the raised walks in palace courts, signalling the way of approach to the main focus of ritual. Thus Room 1a can be seen as a transitional or ante-room, a vestibule.⁴⁸

Evidence in favour of Room 2 is that:

- i. The legs were after all found in this room, together with some other tiny gold and ivory fragments.
- ii. It only makes sense to block the doorways from Room 2 into the rest of the building if this room had a special function.
- iii. The same observation applies to the refurbishing with ashlar: this operation served to monumentalise three rooms, i.e. they were set apart as an entity.

- iv. The slabbed pit in front of the entrance of Room 2 may have served as some kind of treasury, similar to the Kasselles and Temple Repositories at Knossos, or for libations, as suggested by the presence of an amphora next to it. The serpentine block (0.385 × 0.20 × 0.23 m) in Room 2 may conceivably have been a baetyl. Its worn upper surface implies intentional rubbing.
- v. The axiality of the wide doorways as well as the 'red carpet' in Room 1 serve as attention-focussing devices for Room 2.
- vi. Finally, in other axial sanctuaries with cult images, it is always the inner room which serves as the 'Holy of Holies' (e.g. Kea-Temple Room 1; Phylakopi-Shrine Room A).

The statue must have stood on a wooden base in which the pegs for the feet would have been concealed. This base was undoubtedly painted with Egyptian blue and decorated with golden flecks, as discussed by Moak. It may be conjectured that this wooden base resembled a small square stone base from the Mt. Kophinas Peak Sanctuary (KO Za 1). This measures 0.11 × 0.08 m and is 0.063 m high. Its upper surface shows two small cavities, undoubtedly to support a similar (but smaller?) statue and its side is adorned with a Linear A inscription.⁴⁹ It may further perhaps be conjectured that statue and base stood on a higher pedestal.

A fine re-used ashlar block (0.72 × 0.46 × 0.26 m) was incorporated into a LM III bench in Room 2 and it would make a good candidate for such a function. Stone pedestal and wooden base would have stood to a height of about 0.80 m. Including the statue, 0.50 m high, this would give a height of 1.30 m. Its most likely location would then perhaps be in a line behind the steps, axial doorways and pit, close to the partition wall with Room 13, and very visible from the Plateia, when the doors were open (see David Parfitt's drawn reconstruction at FIG. 6.1).

48 Cf. Gesell 1983, 93; Rooms 1b–c could have served as preparation areas or spaces where other cultic equipment was stored.

49 I owe this suggestion to Dr. I. Schoep.

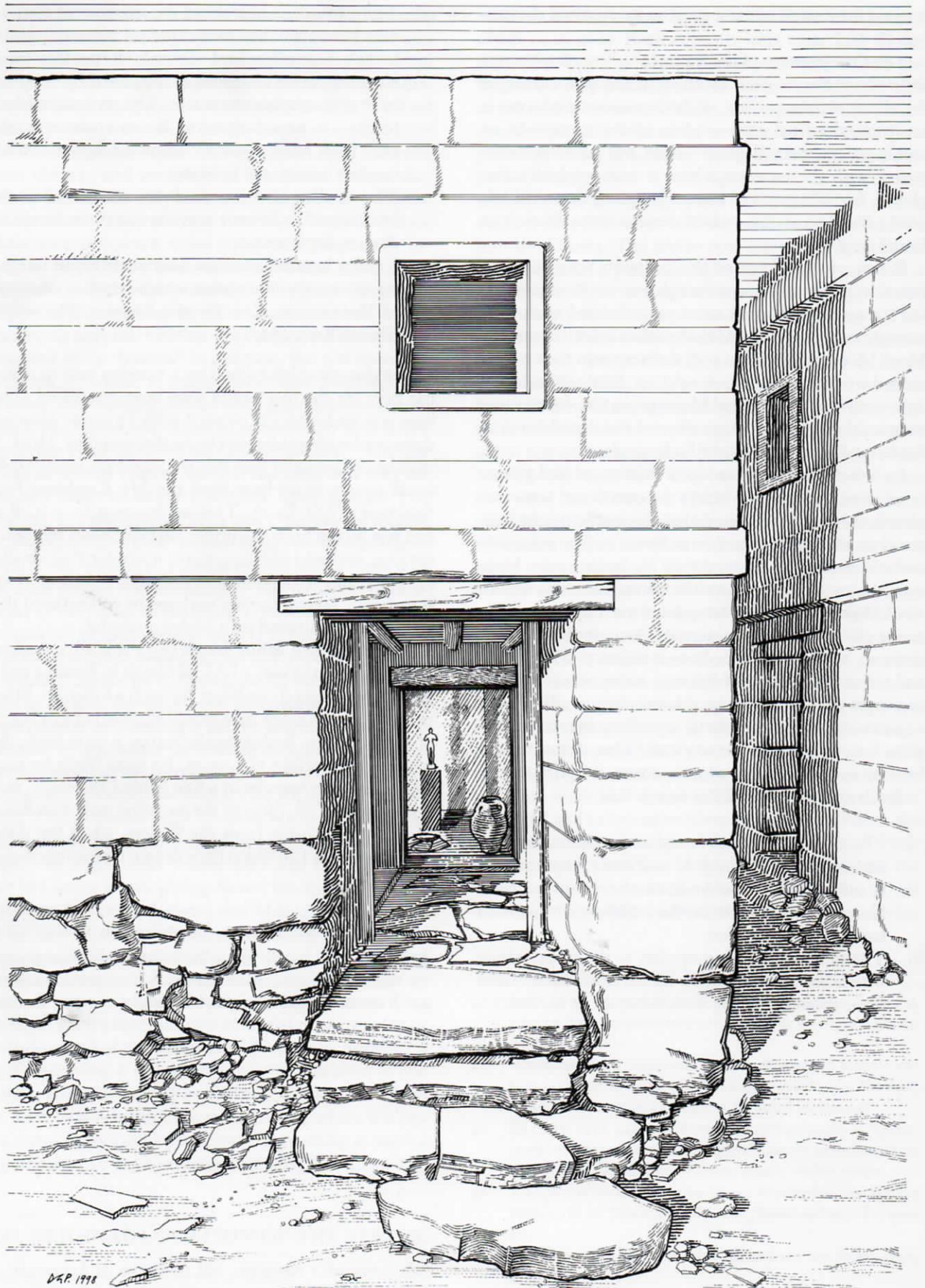


Fig. 6.1. Reconstruction of a town shrine for the Kouros at Building 5. Drawing by David Parfitt.



The anatomy of a Minoan masterpiece

*Jonathan Musgrave*¹

The purpose of this Chapter is to examine the Palaikastro Kouros, the figure of a youth approximately one-quarter life size, from an anatomical point of view.

THE TORSO AND UPPER LIMBS

These were the first fragments to be found (PLATE 23). Note the sculpting of each pectoralis major muscle as it forms the anterior axillary fold on each side. This recalls the Priest-King fresco from Knossos.²

Let us examine the shoulder region first. On the left upper limb a series of small ridges separated by shallow grooves can be seen (PLATE 24 a, FIG. 7.1: b). That they were carved deliberately cannot be doubted. The artist was not compensating for any defect in his material. It is tempting to speculate that he was either schematizing the multipennate structure of the underlying deltoid muscle (visible on the surface, if at all, only on very thin subjects), or he—or indeed she—was adding one or two extra, and superfluous, delto-pectoral grooves, or even imaginary veins analogous to the large cephalic vein.³

PLATE 25 illustrates one of the most interesting and human touches apparent on this piece. The sculptor may not have got everything right, but he had observed closely what happens to the musculature above and below the elbow when the forearm is flexed sharply on the arm—it bulges outward (FIG. 7.1: a, from points A to B). PLATE 25 a illustrates very precisely the bulging of the wrist and finger extensor muscles on the outer surface of the elbow⁴ (cf. FIG. 7.1: b, from points A to B). An excellent balance has been achieved between the bulging of the flesh, and the harder outlines of the lateral epicondyle of the humerus and the olecranon process of the ulna.⁵

In PLATE 25 b–c we come to the problem of deciding how well the artist understood the complex relationship between muscle bellies, tendons and veins on the back of the forearm and hand. There are a number of ridges on the back of the forearm (FIG. 7.1: b, running from A to B) which are easy to interpret as the boundaries of some of the muscles of the forearm extensor group.⁶ Bearing in mind that, when the fist is clenched, the extensor tendons are taut over the back of the hand and are overlain by the complex arrangement of superficial veins forming the dorsal venous arch, we should note that the artist has depicted the latter with com-

mendable accuracy (PLATE 25 b–c). His rendering does not appear to diverge too greatly from the schematic versions of this highly variable network illustrated in modern textbooks (Warwick 1973, 699, fig. 6. 129; Anderson 1983, fig. 6–5B). In particular he seems to have grasped the principle that each interdigital cleft is drained by a single vein formed by the confluence of two tributaries flowing down the sides of adjacent fingers. He may also have observed the subtle point that the ones over the second (index–middle finger) and fourth (ring–little finger) clefts dominate.⁷ Whether or not this artist's rendering of the back of the hand is completely accurate anatomically is neither here nor

- 1 An earlier study, originally contributed to the British Museum seminar on 'Ivory in Greece and the Eastern Mediterranean from the Bronze Age to the Hellenistic Period', was published in the British Museum Occasional Paper no. 85. I would like to thank the Trustees of the British Museum for permission to incorporate that material here; I should also like to express my gratitude to the Palaikastro excavators for involving me in their exciting project, and allowing me to examine and discuss an important unpublished object. I am grateful to Mark Moak for showing me his superb drawings.
- 2 *PM* II fig. 508. Cf. the professional comments by Sir William Richmond and Professor Arthur Thomson, FRS: 'The upper arm, especially in the treatment of the deltoid and of the pectoral group above the biceps, is not only accurate but admirably 'seen' (Richmond); 'The larger masses of the right arm are well conceived, displaying a keen disposition of the modelling of the structures of the anterior folds of the arm-pit, and the disposition of the deltoid muscles' (Thomson), *PM* II, 783.
- 3 Deltoid muscle: the multipennate structure is visible on a colour photograph of the athlete Ben Johnson reproduced on p. 69 of the *Telegraph Weekend Magazine* of December 9, 1989; cephalic vein: this lies in a groove between the upper border of pectoralis major and the antero-medial edge of deltoid.
- 4 Lateral to the lateral epicondyle of the humerus.
- 5 Cf. *PM* III 505, fig. 350A: 'Forearm of man with clenched hand, overlying tapering object: perhaps a horn'; and Evans' comments p. 504, Richmond's p. 506, and Thomson's pp. 506–7.
- 6 *Extensores carpi radialis longus et brevis; extensor digitorum; extensor digiti minimi; and extensor carpi ulnaris*. Cf. Keogh and Ebbs 1984, 124–5; Backhouse and Hutchings 1986, 132–3.
- 7 Examination of better enlargements of this area may help test whether the accuracy I have hinted at is more illusory than real.

there. What is remarkable is that he showed enormous courage in tackling such a complex subject and on such a small scale: c. 1:4.⁸

As we pass to the front—ventral—surface of the arm, we may recall that great artists of more recent times have not always got this region right. In Rembrandt's 'The Anatomy Lesson of Professor Tulp' (1632), we can see that the good professor is holding in his forceps the five superficial flexor muscles of the wrist and hand, which, seemingly unknown to him, are arising from the lateral epicondyle of the humerus instead of the medial!⁹

Several features of the palm of the hand deserve to be mentioned. First, the nails of only three fingers can be seen (PLATE 10 a, and cf. sketch at FIG. 7.1: d). The index finger has been flexed tightly into the palm and, on this view, is completely hidden by what looks at first sight like an abnormally long thumb. With practice anyone can make this fist and immediately appreciate that, though perhaps uncomfortable, it is not anatomically impossible. It is in fact the pose adopted by certain Minoans when worshipping their deities, or indeed perhaps one special deity.¹⁰ The lateral views at PLATE D show that the index finger had been carved, and how it came to be over-wrapped by the thumb (cf. also sketches at FIG. 7.1: c–d). Note too that the sculptor even took the trouble to include the styloid process of the ulna, a visible and palpable landmark on the back of the wrist on the little finger side (FIG. 7.1: c)—a delightful detail.

Secondly we notice that the thenar eminence—the ball of the thumb—has been beautifully carved. Thirdly the great accuracy with which the finger-nails have been carved (PLATE D) is most impressive.¹¹ Furthermore, the set, or degree of torsion, of each one is different, as in life. For various very clever functional reasons, the backs of our finger-nails are not parallel. Bearing in mind that all these features would not have been easy to see, if at all, on the intact figurine, it becomes clear that we are looking at the work of an artist who was a stickler for detail.¹²

THE LOWER LIMBS

In September 1991 I had the opportunity to examine the lower limbs of the figurine in the Agios Nikolaos Museum and made the following anatomical observations; details are best seen on Moak's drawing at FIG. 5.1.

External Genitalia

These must have been carved separately and attached by the dowel hole present in each inguinal region.

Thighs

On the right there is a depression running the full length down to the knee antero-medially which may indicate

that the artist had observed the division visible on a thin subject between the bulk of the quadriceps femoris muscle anteriorly and the adductor group medially.

Knees

Neither quadriceps tendon is clearly delineated above the knee anteriorly. However its continuation as the liga-

- 8 For comparison, see *PM* III 429, fig. 295 and comments; also 506, fig. 351. Of fig. 351 Richmond commented: 'The technique here is more refined, the knuckles are better expressed, and the fleshy masses better interpreted, while the superficial veins on the back of the hand are subtly suggested' (p. 507). Clearly the creator of the Palaikastro kouros was adhering to a well-established Minoan tradition, as Evans' comments on fig. 351 indicate: 'The careful rendering of the veins is very characteristic of Minoan sculpture, and is well illustrated, as we have seen, by the ivory figurines' (p. 507). That the back of the hand is a particularly difficult area to sculpt is indicated by Michelangelo's varied treatment. For example the veins on David's disproportionately large right hand—his sling hand—are very prominent, whereas those on his left are scarcely visible. This may of course reflect brilliant observation on Michelangelo's part. David's right hand rests against his right thigh, i.e. well below the heart, so that one might expect its veins to be full and prominent. The left is at a much higher level, the forearm being flexed upwards on the arm at the elbow. One also has to bear in mind that the left arm was shattered by a bench thrown out of a palace window when the Medicis were driven out of Florence on 26 April 1527. The three pieces were not reunited with the rest of the statue until 1543. See Goldscheider 1975, 10. Photographs of David's hands may be found in Hartt 1969, figs. 100, 109, 110, 112; 1987, fig. 2; Goldscheider 1975, pls. 19, 21, 24, 25. Other hands by Michelangelo may be seen in Goldscheider 1975, pls. 141, 143, 144, 170, 187.
- 9 'The Anatomy Lesson of Professor Tulp', 1632. Oil on canvas, 162.5 × 216.5 cm. The Hague, Mauritshuis. Signed and dated: REMBRANDT F 1632. This painting represents the anatomy lesson given by Dr. Nicolaes Tulp on 31 January 1632, when he dissected the body of a certain Adrian Adriansz, 'an arrow-maker of Leyden, who had been hanged for criminal offences the previous day'. See Puppi 1969, pls. 3–6, and catalogue entry on p. 36.
- 10 For examples, see the clay figurines from Petsophas (FIG. 9.3); the Priest-King fresco from Knossos (*PM* II, fig. 508); the Warrior Vase (Marinatos and Hirmer 1960, 232–3); the Worshipper or Flute-player in Leiden (Boardman 1967, fig. 5); Youthful God on seals (*PM* IV figs. 391–2); *Le boxeur au bracelet* (Coulomb 1981, 38, fig. 7).
- 11 *PM* III, 429, fig. 295, and comments on pp. 428–9: 'and the veins on the back of the hand and even the finger-nails are minutely rendered.'
- 12 Supplementary points which deserve a mention in this connection are: i. inlaid nipples; ii. groove in thoraco-lumbar region of spine; iii. smoothness; cf. Japanese *netsuke*; iv. evidence that a rod or wand may have been held in the right hand; cf. Chieftain Cup from Agia Triada (PLATE 28 b); v. anatomical detail on arms greater than elsewhere on the upper half of his body. To concentrate attention on them in votive pose? Cf. exaggeratedly large right hand of Michelangelo's David.

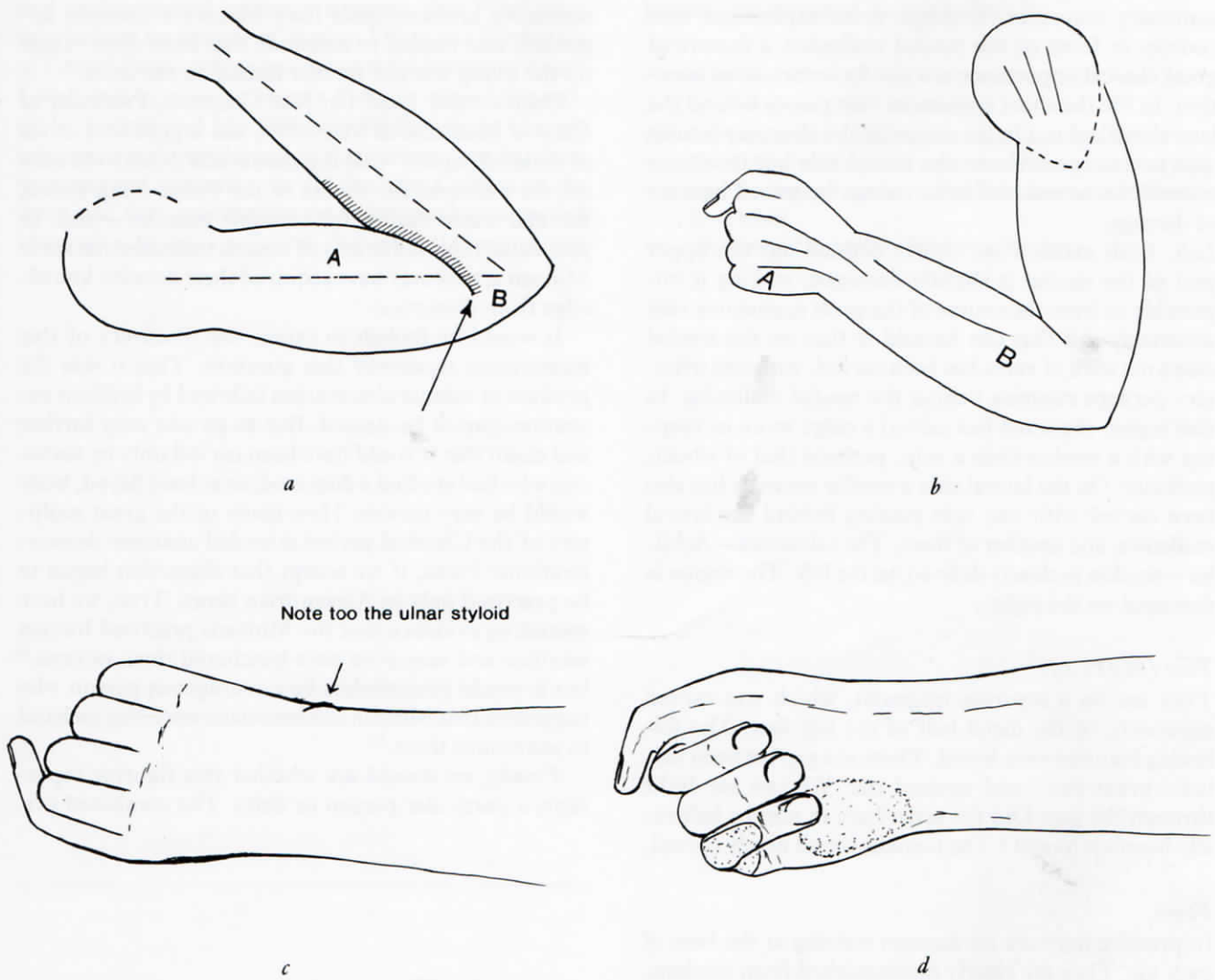


Fig. 7.1. Sketches of upper limbs showing: (a) right arm supine with flexure creases at elbow; (b) ridges on the left deltoid muscle, also lines of the hand extensor tendons and of the forearm muscles (A-B) when fist is clenched; (c) left forearm with the ulnar styloid arrowed; (d) palm of left hand, with index finger hidden by position of thumb. (JHM/ND)

mentum patellae below the knee is quite marked on each leg. The left patella is more distinct than the right. The carving is schematic and not very accurate medially.

Legs

The artist has made a valiant attempt to delineate the complicated arrangement of muscles and tendons inserting into the proximal ends of the tibia and fibula just below the knee. On the right side medially, where the tendons of sartorius, gracilis and semitendinosus insert, there is less detail than on the left. Laterally the lines in the region of the insertions of biceps femoris and the iliotibial tract are bolder. On the left side the converse seems to be true. For example, it is possible to identify two tendons, perhaps those of sartorius and

semitendinosus as they curve forward to their common insertion with gracilis.

The subcutaneous border of each tibia is sharply defined, perhaps more so on the left.

No attempt was made to carve the separate heads of gastrocnemius, but the conformation of the calf muscles, and indeed of all the leg muscles, looks accurate. Each calf region is beautifully smooth.

On the left the medial malleolus is slightly higher than the lateral, as it is in life. On the right the lateral malleolus is slightly damaged.

Superficial veins at ankle (PLATE F c, e)

Right: The artist has carved the great saphenous vein running both above and below the medial malleolus,

with a tributary coming up from the heel. This is anatomically incorrect. A single great saphenous vein courses in front of the medial malleolus, a feature of great clinical importance as a site for intravenous injection. In life the short saphenous vein passes behind the lateral malleolus. On the statuette the short saphenous vein is clearly visible on the lateral side but its course around the lateral malleolus cannot be traced because of damage.

Left: Both malleoli are clearly defined but the upper part of the medial is slightly damaged, making it impossible to trace the course of the great saphenous vein accurately. All that can be said is that on the medial side a network of veins has been carved, with one tributary perhaps running behind the medial malleolus. In this region the artist has carved a ridge more in keeping with a tendon than a vein, perhaps that of tibialis posterior. On the lateral side a similar network has also been carved with one vein passing behind the lateral malleolus, and another in front. The calcanean—Achilles—tendon is clearly defined on the left. The region is damaged on the right.

Toes (PLATE 15)

They are on a separate fragment, which was carved separately, of the distal half of the left foot. The following features were noted. There is a gap between hallux—great toe—and second toe. We can see light through the gap. Did the artist have in mind a habitually barefoot model? The toenails are all neatly carved.

Veins

Impressive network on dorsum starting at the base of each toe. They are clearly distinguished from tendons, more so than on the back of the hand. However, the arrangement is stylised and not anatomically correct, with a vein stemming from the base of the cleft between each toe and dividing into two, like a capital lambda, a few millimetres proximally. In life a vein courses down the side of each digit and unites in the interdigital cleft with the one from the adjacent digit.

On the assumption that the lower limbs were carved by the same artist as the rest of the figurine, it seems safe to say that the same balance between anatomical accuracy and individual artistic expression was achieved. The former is impressive but far from perfect, which suggests that it stemmed from acute observation of a living model.

CONCLUSIONS

What conclusions can be drawn from this descriptive exercise? First and foremost it is clear that on Crete at the end of the sixteenth century BC there was at least one artist who cared for anatomical detail. That brings us to the tricky question of whether Minoan artists

learnt their anatomy from dissected cadavers. Understandably, archaeologists have adopted a cautious approach, and tended to conclude that keen observation on the living was not further honed on the dead.¹³

On the other hand Dr. Jean Coulomb, Professor of Clinical Medicine at Marseilles, has argued in a series of detailed papers¹⁴ that the anatomical detail to be seen on, for example, the thorax of the Priest-King fresco, the Harvester Vase—'un véritable écorché'—and, in particular, representations of boxers, indicates that some Minoan artists may have acquired their detailed knowledge from dissection.¹⁵

It would be foolish to expect the discovery of this masterpiece to answer this question. That it was the product of minute observation followed by brilliant execution cannot be denied. But to go one step further and claim that it could have been carved only by someone who had studied a dissected, or at least flayed, body would be very unwise. How many of the great sculptors of the Classical period attended anatomy demonstrations? None, if we accept that dissection began to be practised only in Alexandrian times. True, we have mounting evidence that the Minoans practised human sacrifice and may even have butchered their victims,¹⁶ but it would nevertheless be a courageous person who suggested that Minoan academicians were also on hand to anatomize them.¹⁷

Finally, we should ask whether this figurine represents a particular person or deity. The combined evi-

13 See *BCH* 105 (1981) 29, n. 13 in which Coulomb cites Charbonneaux, Warren, Demargne, Boardman, Snijder and Hood. Cf. *BCH* 103 (1979) 39, n. 27, in which he quotes Sir William Richmond's wise words: 'Whether the Minoans were experts in morbid anatomy, who shall say?' Very probably they were not (*PM* III, 506).

14 *RevArch* (1978) 205–10; *BCH* 103 (1979) 29–50; *BCH* (1981) 27–40.

15 See Coulomb's comments: i. *BCH* 103 (1979) 39, n. 27: 'Nous ne disons pas que tous les artistes crétois ont appris l'anatomie grâce à des dissections; nous disons que certains documents de Knossos et de Phaistos (dont dépend Agia Triada) indiquent que quelques artistes travaillant dans ces deux palais qui sont, à ce jour, les plus riches de la Crète, ont indubitablement précisé leurs connaissances anatomiques par des études sur le cadavre et qu'ils l'ont trouvé par les réalisations gravées ou modelées qui paraissent spécifiques de la période des seconds palais, autrement dit de l'apogée de la civilisation minoenne'; ii. *BCH* 105 (1981) 29: 'Mais un examen attentif de certaines pièces, en particulier les représentations de boxeurs, montre que quelques artistes ont été capables de se détacher de l'art de leurs confrères'.

16 Knossos: Stratigraphic Extension Site; Iouktas: Anemospilia.

17 Executed criminals were often the only material available to anatomists. See n. 9 above.

dence of numerous ancient literary sources, inscriptions and archaeological evidence suggests that Palaikastro may indeed be the site of ancient Dikte, the birthplace of Cretan Zeus, and centre for youthful initiation rites.¹⁸ I shall end by quoting from a thought-provoking article by Sackett and MacGillivray: 'If the young Minoan initiates worshipped a god in their image—and at their own stage of maturity—as did the later Cretans on the same site, they may have stood before our statuette and chanted a hymn similar to the later 'Hymn of the

Kouros'. The statuette, then, would be the earliest known cult statue of Zeus Kouros'.¹⁹

18 Cf. Hutchinson 1962, 199–205 (esp. 202–03); Strabo 478; Diod.Sic. 5.70; Coronelli (15th century map), *AA* 1933–34, 254; Bosanquet 1940, 62–3. Full discussion now in Chapters 8–13 below.

19 *Archaeology* September/October 1989, 26–31.

Reading the Minoan body: proportions and the Palaikastro Kouros

Judith Weingarten

INTRODUCTION

Until fairly recently, whenever an artist drew the human body s/he quite normally adhered to rules of proportions as visually described in an underlying grid. By following this grid and placing key points of the body on the correct horizontal and vertical lines, the artist could paint or sculpt perfectly-proportioned figures to any scale. Naturally, each artistic culture had its own idea of the perfect body and its artists strove to achieve that ideal. In ancient Mesopotamia, for example, perhaps in accordance with the sexagesimal system, the body was often divided into parts of one-sixth (Aparpay 1990, 93–103; 1987, 183–203). Greek and Roman proportions, passed down by Vitruvius (*De Architectura*, III 3.1) were based on 10 perfect parts (possibly a Pythagorean concept). In Egypt from the 5th until the 26th Dynasty, the ideal proportions of the First Egyptian Canon divided the body into a grid of 18 units.¹ Each viewpoint turns up some points of interest and each yields perfectly viable proportions.

I submit that Minoan artists too had developed a systematic geometric division of the human body and that this had also been expressed in a proportional grid. I hope to demonstrate with a good deal of probability that this Minoan system was derived from, and was but a variation on the First Egyptian Canon of Proportions. The Palaikastro Kouros, the largest Minoan statue ever found, provides the perfect and necessary testbed for these hypotheses (continuing the discussion begun in *Measure for Measure*).

THE FIRST EGYPTIAN CANON OF PROPORTION

In the Egyptian system, the height of a standing male figure, as measured from the soles of the feet to the hairline, was divided by horizontal lines into 18 equal parts (FIG. 8.1, PLATE 26 a–c).² While the lines were inevitably slightly inaccurate, they nevertheless consistently intersected the body at certain key proportional points. During the periods with which we are concerned (Late Middle Kingdom and early 18th Dynasty) horizontal lines crossed a ‘typical’ major male figure at:

Line 18	the hairline
Line 17	bottom of the nose
Line 16	junction of neck and shoulders
Line 14	the nipples
Line 11	the navel (back: small of back)
Line 9	the hips (back: lower line of buttocks)
Line 6	the upper knee
Line 1	ankles
Line 0	under the soles of the feet.

Across these horizontal lines, vertical lines were drawn equidistant on either side of a median line—running (most commonly) in front of the ear—to form a squared grid. Just as the horizontals passed through certain key points, the verticals were also fixed, marking the frontal torso at the armpits two squares from the median line and the widest point of the shoulders at three squares from the median line.

By placing the key points on the correct horizontal and vertical lines, the artist could draw or sculpt perfectly-proportioned figures to any scale in accordance with the first Egyptian canon. It is not to be imagined, of course, that all artists slavishly followed every detail of this grid; freehand drawing and an artist’s eye always played some role. Still, the use of the modular grid standardized the representation of major male figures to the extent that, in the absence of visible grid traces (of course, the vast majority of cases) a hypothetical 18-square grid can be reconstructed which almost invariably picks out these key crossing points. Obviously, the Egyptians found these proportions satisfying and presumably exemplary.

The Minoans, of course, had another, quite distinct view of the human body: elongated, slim, and graceful, an ideal exemplified by the Palaikastro Kouros from

1 On the Egyptian canons and the use of grids, see Iversen 1976, 20–6 and Robins 1996, Chapter 2 (both citing previous literature); note especially the development and variations in the First Canon discussed in Robins 1996, Chapter 10.

2 The hairline is the highest visible point of the figure when the head is covered by a wig or headdress; in a sense, it is also the highest ‘true’ point since head coverings were of variable height.

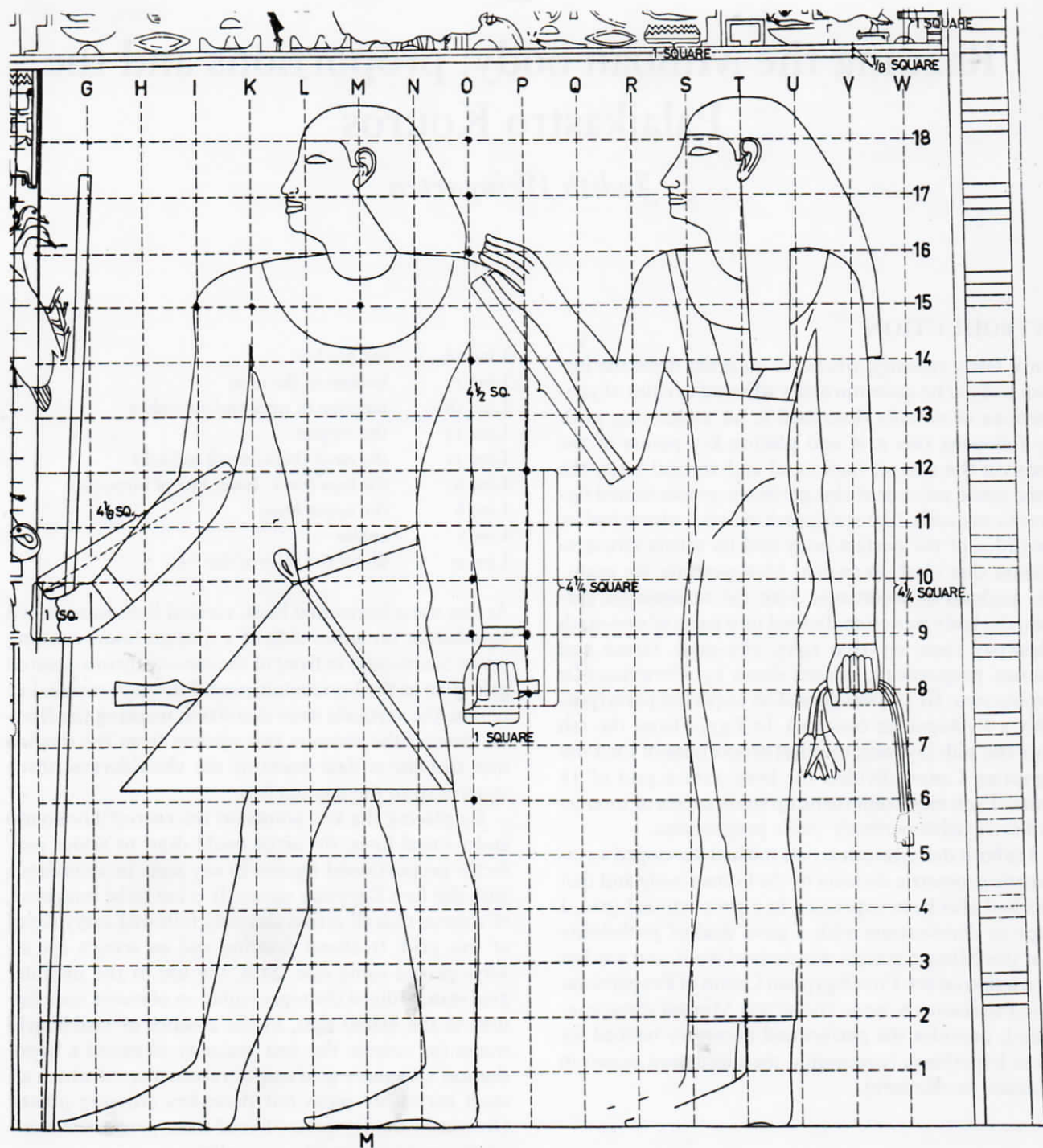


Fig. 8.1. Figure of Ukhhotep I and Wife (Meir B2, temp. Sesostris I) with grid completed from surviving traces (after Iversen 1976, pl. 8; added dots marking key points).

the finest period of the flowering of Minoan naturalism. Yet, despite superficial appearances, the Egyptian proportional system nonetheless underlies even this most Minoan-looking figure; not (needless to say) that it was carved according to the Egyptian canon, but rather that it was carved on a grid adapted from the Egyptian model. So, just as an undeciphered language can be cracked by finding a bilingual inscription, the Kouros' underlying structure can be decoded through the Egyptian canon. His grid is retrievable.

A METROLOGICAL MODEL

Erik Iversen, in an influential but controversial work, *Canon and Proportions in Egyptian Art*, claimed that the canon was built on a metrological model, that it was 'an anthropometric description of the human body, based on the standardization of its natural proportions expressed in the Egyptian measure of length' (Iversen 1976, 33). The force of such an elemental model might help explain the conservatism of proportional rules over

some centuries. As elsewhere in the ancient world, the basic units of Egyptian linear measurements were standardized lengths of parts of the body, chiefly fingers, hands and arms: i.e. digits, palms (= 4 digits), small cubits (= 6 palms) and royal cubits (= 7 palms). Iversen argued that each square of the grid was a modular unit equivalent to one metrological fist (that is, the fist as a measure, equal to the width of palm + thumb = 1 1/3 palms).³ Thus, in his view, the fact that the clenched fist very commonly fits *exactly* in a grid square was not a consequence of the grid but its cause. If Iversen was right, and the fist is the grid's original and smallest unit of measurement, it follows that all further dimensions of the artistic canon can be deduced from this metrological fist.

This fist-based module can be applied to the Palaikastro Kouros.

THE PALAIKASTRO KOUROS

The height of the Kouros from the soles of the feet to the top of his stone headpiece has been restored at 49.9 cm, with the hairline at 48.4 cm above the soles of the feet. The gap at the waist could be as little as zero or as much as 9 mm, which makes discussion of its original height problematical. However, we are not so much interested in restoring the total height of the statue as in retrieving its internal proportions; thus, we are able to test any possible grid *down* from the top of the head or hairline and up from the soles of the feet, to see which lines (if any) cross meaningful points.

The statue's extant left hand is drawn with meticulous anatomical realism and can be accurately measured: the back of the fist at its widest point across the second knuckles, i.e., equivalent to one palm in width, is a fraction under 1.8 cm (PLATE 26 *d*). The width of the thumb is 0.49 cm. Added together, the resultant fist measures a little under 2.29 cm. Since it is hardly likely that ancient craftsmen worked to a tolerance of less than one millimetre, I tested a grid module of 2.3 cm-squares.⁴

When such a grid is placed over the statue, the figure's underlying structure immediately becomes clear (FIGS. 8.2-3). The hairline is 21 modules high (with an estimated gap at the waist of 5.5 mm).⁵ Horizontal lines cross the following points:

Line 21	the hairline
Line 18	the widest point of the shoulders
Line 17	the nipples and armpits; note that the nipples are placed unnaturally high on the line of the armpits
Line 11	two small holes; perhaps lower attachment points for a codpiece (in profile: top of buttocks)
Line 10	join of the legs (in profile: lower buttocks)
Line 6	the top of the knees
Line 1	ankles (NB: for recent verification; see note ⁶)

Line 0 under the frontal toes
(in profile: under soles of the feet).

We may also tentatively locate the missing navel (and thus, in profile: the small of the back) on Line 13.⁷

3 That is, the fist as a proportional element deprived of numerical value (Iverson 1976, 30, n. 1). On the proposed metrological structure, see Iversen 1976, 27-38, and, more succinctly, Iversen 1990, 114-15.

These claims have been vigorously disputed by Prof. Gay Robins (Robins 1996, 40-56) and I do not intend to mediate between them (even were I competent to do so). My intention is rather to test the applicability of the fist-module to the Kouros. While the 21-unit grid is the best fitting grid, it is not the only possible one: no grid is that! A number of 'failed' grids is discussed in Weingarten 1997, n. 17.

C. Simon 1993, 157-77, discusses two wooden measuring rods from Lahun which W. M. F. Petrie thought exhibited non-Egyptian measures (see Preziosi 1983, 489-93): she proposes that their ±10 cm divisions mark the indigenous Egyptian *nbi* measure, used by draftsmen for setting out fist-sized grid squares.

4 The minimum Egyptian unit of length was 1/16 of a digit, or 12 mm. NB: by modern standards, Bronze Age metrology is fairly imprecise and one must allow for a certain degree of error. Hence, I take the electronic callipers reading of the palm width at 1.73 cm as between 1.7-1.8 cm and tested these width ranges plus thumb. Computer-generated gridlines are also unnaturally and unduly accurate compared with any possible hand-drawn grid. What the reader must judge is an overall goodness of fit, not an exact match with computer-generated lines. In Egypt, lines were inevitably slightly—and sometimes markedly—inaccurate, having been drawn with a straight edge or marked by a string dipped in red paint (on how grids were made, see Robins 1996, 26-30; for an example of the irregularity of gridlines in practice, see the extant grids on wall paintings from Meir: Blackman 1915, pls. 3, 10; Weingarten 1999, pl. CCXIV).

5 This gap seems dictated by the statue itself: at 5.5 mm, the 9th line of the grid descending from the hairline overlaps the 12th line of the grid ascending from the soles of the feet; but, again, counting millimetres on a computer-drawn grid is surely metrological overkill (*supra* n. 4).

6 After the publication of *Measure for Measure*, I received an independent proof of the 21-unit grid's 'goodness of fit': Mark Moak kindly sent me his new drawings (reproduced elsewhere in this volume). The detail is astonishing. The original drawings had not indicated the statue's ankles so I had not claimed that Line 1 ran across the ankles (as in the Egyptian First Canon) but it is now obvious that Line 1 on the Kouros is indeed the canonical 'ankle line'. Moak kindly informed me via e-mail, 15/02/98 that: 'the axis from medial malleolus of the tibia to lateral malleolus of the fibula (ankle bones) either passes through or just under Line 1 of your grid'.

7 The navel on this line finds support on more complete LM I Minoan and Thera male figures set on hypothetical 21-unit grids (cf. below, the Thera Fisherman); it also fits the natural distance of the navel under the armpits. See *Measure for Measure*, n. 21 for a more detailed discussion of this point.

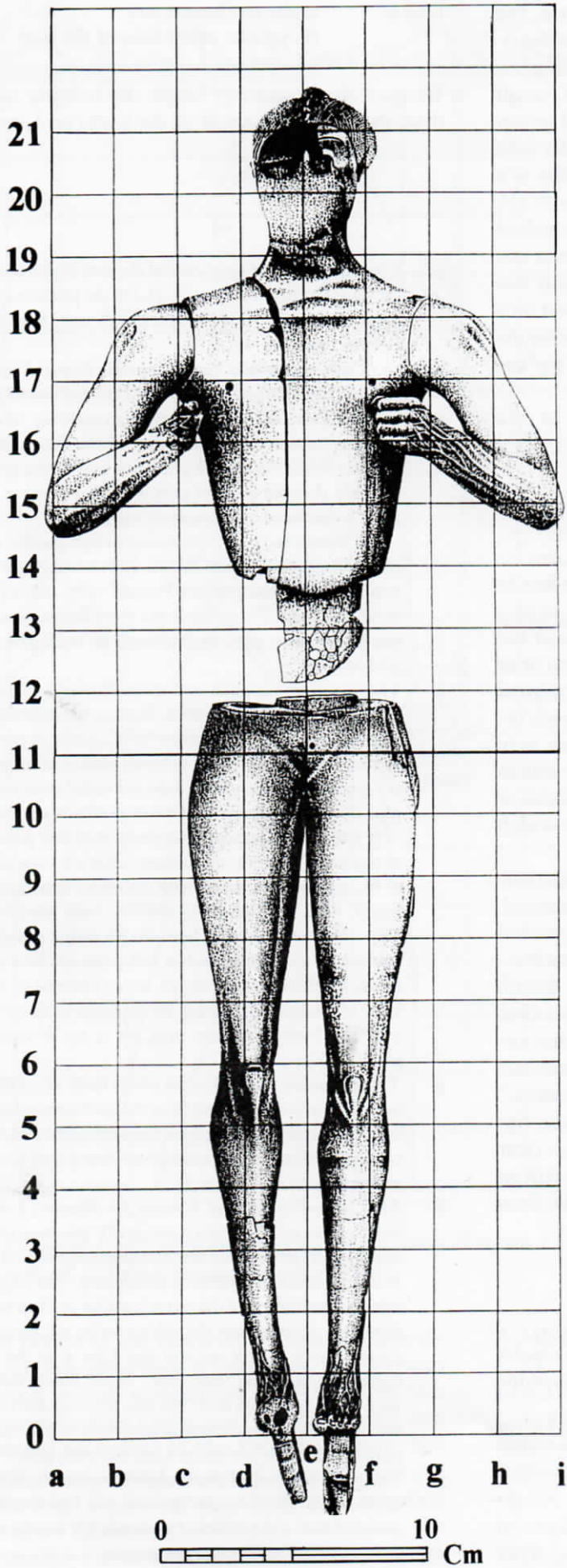


Fig. 8.2. The Palaikastro Kouros in frontal view, with superimposed 21-unit hypothetical grid of 2.3 cm squares. (MSM)

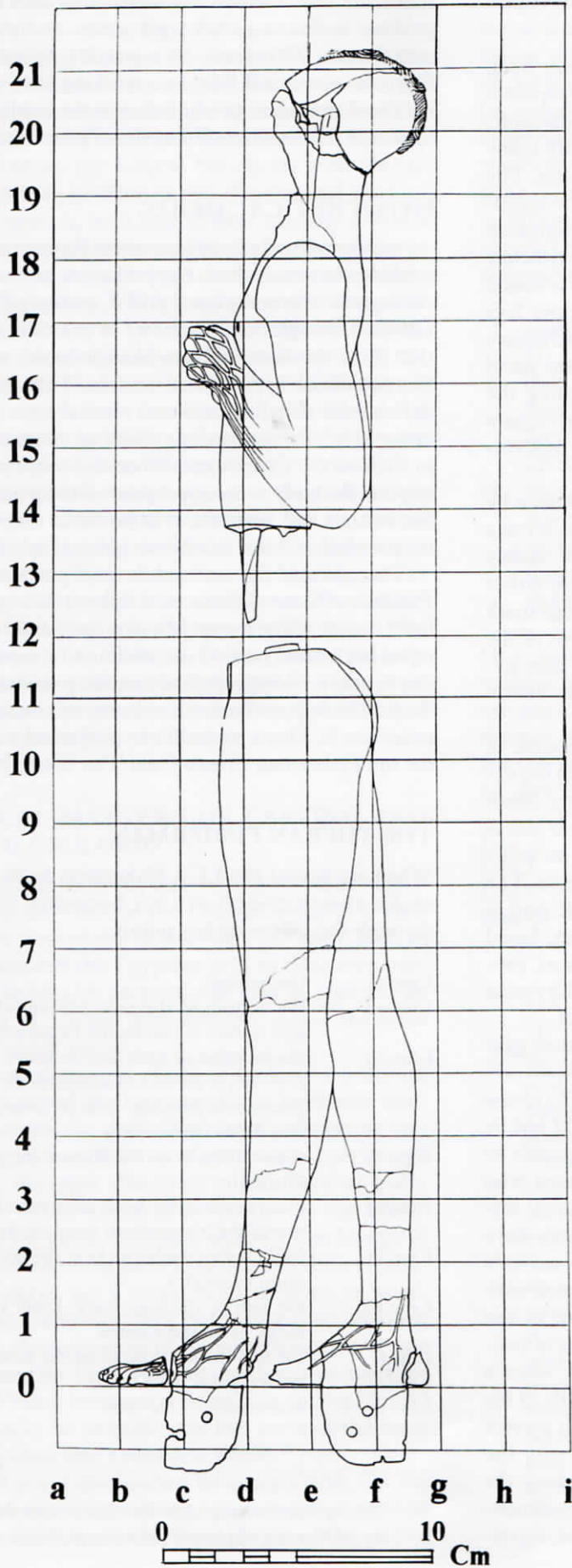


Fig. 8.3. The Palaikastro Kouros in left profile view, with superimposed hypothetical 21-unit grid of 2.3 cm squares. (MSM; torso angle slightly changed by the author)

FROM 18-EGYPTIAN UNITS TO 21-MINOAN UNITS

It seems likely that this 21-module grid descends from, and is but a simple variation of the 18-unit proportional grid of the first Egyptian canon. The horizontal divisions are in close accord with the Egyptian canon, with many of the same key points crossed by horizontal lines. The Minoans simply added three grid modules to the Egyptian 18-units in order to create their ideal elongated male figure. Elongation is limited to body parts below the nipples and above the knees. One square was added to the thighs, increasing the length of the upper legs from the Egyptian three to four squares; a second square was probably added between the nipples and the navel (increased from three to four squares [assuming the navel is correctly restored at Line 13]); and a third square was added between the navel and join of the legs (increased from two to three squares).

A grid's 'goodness of fit', however, is not proven by horizontal lines alone. Vertical lines must also serve a convincing purpose...that is, they too must be visibly useful. On the Kouros, vertical lines drawn on either side of a median line through the join of the legs mark the armpits at two squares and the widest point of the shoulders at three squares from the median line, exactly as in the Egyptian canon (see further discussion on the creative use of vertical lines below).

And, of course, in left profile view, the module of the statue's fist (i.e., Iversen's proportional fist) fits exactly within the square defined by L/M-16/17. Since the modular measure of the fist is taken from the statue itself, the coincidence of grid lines crossing so many important points is unlikely to be due to chance. The Minoan craftsman had clearly used a geometric grid in carving the statue and that grid was, I suggest, based on the proportional fist. The Kouros is thus 21 proportional fists in height, measured (as in the Egyptian canon) from the hairline to the soles of his feet.

The simplest explanation is that this 21-square grid used for carving the Kouros was a stretched Minoan version of the 18-square grid underlying the First Egyptian canon of proportions. Since the procedure could not be deduced from finished images, it seems reasonable to accept, firstly, that it was adopted by craftsmen who learnt its use from Egyptian (or Egyptian-trained) artists and, secondly, that this transfer could only have taken place in a sculptor's or wood or ivory carver's workshop, where artists were accustomed to work with three-dimensional grids. Egyptian sculpture in the round obviously does not follow all conventions of two-dimensional painting and relief. For example, when a sculptor sketched the side of a figure on the side of his stone, he drew it with both shoulders shown in correct profile (Edgar 1905, 137-50). This may be why the Kouros lacks the conventional guideline marking the juncture of neck and shoulders in Egyptian two-dimensional painting (at two lines below the hairline, Egyp-

tian Line 16). Perhaps the absence of this horizontal gridline is due to a shift from a two- to three-dimensional view. This leads to a testable hypothesis: the Egyptian canonical line, i.e., marking the juncture of neck and shoulders two lines below the hairline, should appear in Minoan two-dimensional paintings or reliefs.

HYPOTHETICAL GRIDS

As most commonly happens even in Egypt, overpainted gridlines have vanished. Egyptologists can nonetheless reconstruct the underlying grid if, and only if, the artist followed the rules of the canon.⁸ In practice, this means that $\frac{1}{18}$ of the distance from hairline to the soles of the feet equals one hypothetical module. This module then defines the distance between vertical lines drawn on either side of a median line running, most commonly, in front of the figure's ear. When the resultant grid intersects the body at the appropriate fixed points on both horizontals and verticals, it is probable that the figure is canonical and the reconstructed grid is correct.

Therefore, if the 21-module grid proposed for the Palaikastro Kouros is correct, it follows that we can similarly divide other major Minoan male figures into 21 equal horizontal parts from hairline to soles of feet and use the derived hypothetical module to restore the verticals. The happy chance of volcanic ash means that the proof lies in Thera: we built a hypothetical 21-unit grid for the Fisherman Fresco from The West House.

THE THERAN FISHERMAN

When we placed the LC I Fisherman from Thera on such a 21-unit grid (PLATE 27), horizontal lines passed through the following key points:

Line 21	the hairline
Line 20	the bottom of the nose (canonical Egyptian; this feature is lost on the Palaikastro figure)
Line 19	the junction of neck and shoulder <i>NB: this is the canonical line in Egyptian two-dimensional painting; as in the canon, it falls two lines below the hairline</i>
Line 17	the armpits, as on the Kouros (nipples not indicated)
Line 13	back: small of the back; anatomically, this line marks the (theoretical) navel on the front
Line 11	back: across the buttocks at the point of maximum convexity
Line 10	the join of the legs; back: lower line of buttocks, as on the Kouros
Line 6	the top of the knees, as on the Kouros
Line 1	ankles, as on the Kouros
Line 0	under soles of the feet.

8 Making hypothetical grids is described in some detail in *Measure for Measure*, 254 (citing Robins 1996, 61-2).

In fact, the Fisherman, albeit also stretched to 21 units, more closely follows the Egyptian canon than had the three-dimensional Kouros. For, on the horizontals, the only major difference between the Fisherman and the Kouros (as preserved) is at Line 19, marking the fisherman's junction of neck and shoulders; this line has no equivalent on the Kouros but agrees with the canonical Egyptian gridline in two-dimensional work.

On the verticals, with lines drawn on either side of a median line running in front of his ear (canonical Egyptian), lines pass through both armpits as they should (canonical Egyptian). His left armpit and widest point of left shoulder are at two and three squares respectively from the median lines; this conforms with the Egyptian canon. However, on his right side, the armpit is only one square from that line while his shoulder is less than a square in width. Is he meant to be turning slightly (as, indeed, he is leaning slightly forward)?⁹

Another question-mark hangs over the grid's original module. A fist-module was tested but yielded no useful grid. Apparently, the Fisherman Painter simply divided the space between hairline and baseline into 21 equal parts, with the resultant module used for the vertical lines. This results in a square slightly larger than the Fisherman's fist. That the Thera painter patently did not base his grid on the fist suggests a less strict interpretation of proportional rules than those followed by the Kouros sculptor on Crete.

PRACTICAL MATTERS OF CARVING AND DRAWING ON A GRID

What is remarkable is not that Aegean artists used proportional grids—before the twentieth century, such grids were commonplace—but that they had so skillfully adapted the Egyptian grid to their own purposes and images. A proportional grid is, after all, an artist's tool. If it is not demonstrably useful, the artist probably did not use it!

When a sculptor put chisel or knife to a precious, imported material like ivory, he would have been foolish to rely on his eye alone. Ivory is an unforgiving medium. By gridding the ivory (directly or via perforated 'pounces'), the artist effectively guarantees that 'every part of the whole will be in proportion to the whole' (Leonardo Da Vinci, *Notebooks* 93 E.v). The Master of the Palaikastro Kouros faced a particularly difficult task. He had to carve, not a single block of stone or wood, nor even an elephant's tusk but rather four separate, irregularly-shaped pieces of hippopotamus ivory: two lower canines for the torso and two lower incisors for the legs. While a certain irregularity in the legs would not necessarily be ungainly, the two parts of the torso had to be joined into a seamless whole.¹⁰

His skill is not diminished by using a grid. On the contrary, we can better admire his craftsmanship when we understand how cleverly he made use of the grid to

design the body's basic structure. In implementation, the vertical lines are of crucial importance. The central axis of the body is Vertical-line E. Proportional points of the torso are measured from this line: the armpits (as we have said) are at two squares and the widest point of the shoulders are at three squares on either side. His waist can also be tentatively reconstructed (on Line 13) at one square on either side of Line E.

When planning the grid, it is very likely (indeed, natural) that the Master of the Palaikastro Kouros first delineated the basic triangle of the human torso:

- i. drawing in the shoulder line between Line C and G;
- ii. then, marking the widest point of the shoulders between Lines C/B and G/H (which will also indicate where the separately-carved arms are to be fitted to the trunk);
- iii. next, drawing the right and left sides down to the waist (Lines D and F to Line 13?) and across to the navel (13/E?) [naturally, there can be no proof of this];
- iv. and sketching in the crotch at Line 11/E.

Of course, any skilled artist could draw such a torso without benefit of the grid (just as any astute observer can see it without a grid), but how much easier it is to design (and see) it on this grid. Similarly, I think he did the two separate pieces of the arms as follows. In frontal view:

Line A	the farthest point of the right elbow
Line I	the farthest point of the left elbow
Line C	the right wrist
Line G	the left wrist

9 Or, possibly, his narrower body indicates youth, or status (a servitor rather than a major figure in his own right)—two options with good Egyptian parallels—or it might simply reflect local taste in proportions. We need to study more figures from Thera to find an answer. One intriguing possibility is that his narrower shoulders point to the date when the original grid was borrowed from Egypt. In the Late Middle Kingdom, private persons and minor figures (thus, Fisherman but not Kouros) often have more slender shoulders and especially slender waists. At this period, too, a gridline often marks the maximum convexity of the buttocks, as Line 11 on the Fisherman: cf. a late 12th Dynasty stela from Abydos (PLATE 27 b). For other pointers to the grid's importation at this time, see *Measure for Measure*, n. 29.

10 Moak demonstrates (Chapter 5 above) the technical difficulties of joining these parts. However often the artist must have placed the pieces next to each other while carving, he still had problems fitting the dowels into their facing holes. Imagine then, how easily the proportions could have gone awry had he not cut along prepared gridlines.

In left profile view, Vertical-line L marks the outside of the left fist and Line O the back of the arms; that is, their widest points. He will fit the finished arms into the shoulders at Lines C (right) and G (left) at the top and bottom points where they cross through the upper shoulder and the armpit.

Just so, vertical lines also helped structure the Theran Fisherman (PLATE 27). Indeed, the Fisherman's trunk is a simple rectangle defined between the Vertical-lines F-I and the horizontals 10-19. The verticals again seem to serve a structural purpose, that is, the Fisherman is designed within verticals (from left to right):

Line B	outer right fist
Line F	right armpit (canonical Egyptian); Runs down chest to [theoretical] navel
Line G	in front of ear (canonical Egyptian); line of leg division
Line H	back of the head
Line I	left armpit (canonical Egyptian); bottom of buttocks
Line J	outer left arm
Line M	outer left fist.

The 21-unit grid thus visibly helps in structuring the Fisherman's body at the same time that it promotes correct proportions (with both horizontal and vertical lines crossing key points). While the 21-unit grid is not the only possible grid (no grid is that! *Measure for Measure*, nn. 15, 19), it does seem to be the *best-fitting grid* for the Fisherman,¹¹ as it was for the Palaikastro Kouros. In short, a 21-unit grid looks to be an excellent artist's tool for reproducing the elongated proportions favoured in the Aegean. Was it, then, also the Aegean canon, a set of proportional rules to be followed by every competent Aegean craftsman?

THE SURVIVAL OF THE 'PRIMITIVE' 18-UNIT GRID

Further research quickly showed that there was no such single set of rules and, hence, probably, no Aegean canon (*Measure for Measure*, 256-8). The craftsmen who carved the steatite relief vases, the Boxer Rhyton and Chieftain Cup, also used underlying proportional grids (PLATE 28 *a-b*), but these appear to be based on 18- (not the stretched 21-) units; thus, their height to the hairline corresponds with the original Egyptian model. It seems likely that these 18-unit grids directly descend from the original importation from Egypt, perhaps introduced during the late 12th/13th Dynasty (*supra*, n. 9). Even so, Minoan artists will have quickly modified the canonical grid (on the verticals) to create their wasp-waisted, slender figures, while experimenting with new poses, such as one-raised/one-lowered shoulder as seen on both relief vases (shoulder tops marked by Lines 16

and 17 on the Boxer; only Line 15 on the Chieftain). Although, at first glance, the Boxer and Chieftain seem to share few similarities in proportions, both figures demonstrably were drawn on the same modular grid. Their different visual impact has two causes:

First, while both craftsmen breached the grid in a most un-Egyptian manner, the carver of the Boxer had been the more daring (not least, extending the leg by one-half square under Line o: one small step on the way to 21-units?).

Secondly, while the Boxer's head was the canonical Egyptian 1.5 squares in length (cf.: the Fisherman), the Chieftain's head was two squares in length; in turn, this forced the craftsman to compress his chest from five squares to four. Both the oversized head and the consequent compressed chest were to be passed down in workshop traditions, at least in the Mesará: the same eighteen-unit grid was used on the LM IIIA Agia Triada sarcophagus.¹²

It is entirely possible that the development of the full 21-unit grid was linked to specific luxury-crafts or that it was the inspiration and innovation of a single workshop.

IDEOLOGICAL CONCERNS OF THE GRID

There is a great deal still to learn about the proportional grid, and its use if widely confirmed, will have

11 E. Guralnick, ('Proportions of Painted Figures from Thera', a paper presented at the Theran Congress in 1997), measured all large scale painted human figures on Theran wall paintings—including the Fisherman. She concludes that there was a 'probable use of a grid with nineteen squares in total height', measured from the top of the head rather than the hairline. Noting that some grid lines crossed key Egyptian points while many others did not, she concluded that '[the] differences in the distribution of the squares no doubt reflects the individual creative vision of the Aegean artist working with a methodology, the nineteen square grid, which was not native to his culture. Thus, he adapted the borrowed tool and modified its application to reflect his individual perception of an aesthetically pleasing image.'

I am most grateful to Dr. Guralnick for having sent me a pre-publication copy of her paper (which will appear in *Thera V*), but I nonetheless take serious issue with the proposed 19-unit grid—which seems to be of little technical value—as well as the idea that an ancient artist followed his individual vision in proportions. See my detailed criticism in Weingarten (1999, 926-7).

12 Weingarten 1999, 923-5, pl. CCXIII-IV.

important art historical ramifications.¹³ On one level, of course, the proportional grid is an artist's tool but, on another, it functions as a geometric model for the conceptualization of space. In Egyptian royal workshops, that took the shape of an ideal male figure, a social and cultural construct. Of course, we do not know to what extent even Egyptian working artists understood the ideology underlying ideal proportions. Still less can we judge if the Minoans adopted any beliefs along with the proportional grid, though it is difficult to imagine that the original travellers would not have been exposed to some ideology and notions of decorum when they came to learn and understand the technique.

Psychologically, the use of a planning grid suggests a rigorous view of the human form, akin in conception to a modular system of building.¹⁴ It is difficult to conceive of this as an artist's individual inspiration but rather a development issuing from central workshops in which formal rules were preserved and passed on. However, the little evidence that we have suggests that, on Crete, the writ of any such central workshop did not run very far.

An 18-unit grid was still in use in LM I, at least for small-scale relief vases. Though adhering more closely to the original Egyptian model, the carvers of the Chieftain Cup and the Boxer Rhyton nonetheless worked on proportional grids that had already integrated un-Egyptian poses and movement into its rules. Yet, even in this single craft, and despite near-identical underlying grids, proportions were diverging: there had already been time for the development of perhaps a regional variation: the Chieftain's awkward-looking proportions were neither inept nor individual, but survived into Mycenaean times on the Agia Triada sarcophagus (see n. 12).

It is entirely possible that the development of the full 21-unit grid was linked to specific luxury-crafts or that it was the inspiration and innovation of a single workshop. If so, unlike in Egypt, that workshop (at Knossos?) was unable to impose its vision forcefully or widely. The LC I Fisherman Painter, though assiduous in composing his figure on a 21-unit grid, may well have been ignorant of, or willfully ignored the fist-based module, a module that appears essential to the structured integrity of the Kouros. Perhaps the fist-module had been lost in the grid's transmission from Crete, or his Theran 'school' had learnt the use of the proportional grid from Minoan artists governed by less strict rules. The carving of the Palaikastro Kouros, on the

other hand, does speak of a central tradition, developed in a workshop where three-dimensional grids were in common use. The precision of its carving, too, the sharpness of line, and the accurate, close observation of anatomical detail, all argue for a dedicated workshop that had spent generations mastering the carving of soft materials. Such achievements are not diminished by their reliance on a grid, still less by a Minoan importation of the proportional grid from Egypt. Emphatically, one of the artistic differences between Egyptian and Aegean vision is that Aegean grids provide structured guidelines but do not nearly so much determine the result. The Master of the Palaikastro Kouros proves (as only the 20th century AD seems to doubt) that creative skill goes hand in hand with the mastery of underlying structures.

13 There is, of course, the intriguing question of when the grid might have been borrowed. The Fisherman indicates that a 21-unit grid was in use by mature LM IA. If, as is probable, it arrived there via Crete (the Fisherman painted by an artist 'very close to the tradition of Minoan painting': Televantou 1988, 135–66), the original Egyptian 18-unit grid probably reached Crete by early in LM IA (at the latest); an 18-square grid with two developing variations in proportions was used on the Chieftain Vase and Boxer Rhyton. I see no objective reason to place the Chieftain Cup earlier than the Boxer Rhyton (*pace* Kaiser 1976, 140–2, who considers it MM IIIA/B); the vase shape seems more at home in LM IA. Yet, it must have taken some time for Minoan artists to adapt the rather stumpy Egyptian proportions to their ideal, elongated figures and more time still to create a new 21-unit grid. Some very tentative hints place the original Minoan borrowing in the late 12th/13th Dynasty (*Measure for Measure*, n. 29; cf. *supra* n. 9).

More research is certainly needed but, should this date turn out to be correct, we would again want to turn our attention to the origin of Minoan fresco painting. As S. Sherratt (*JMA* 7, 1994, 237–40) justly remarked, given that the early Dab'a frescoes (?), the Kabri floor and the Alalakh frescoes are all Middle Bronze Age, she asks again (following Woolley) if Alalakh may not represent the influence of western Asia on the development of Cretan frescoes rather than vice-versa; or, in questioning recent interpretations of the Dab'a frescoes, '[if] Bietak had got to Dab'a or Kempinski and Niemeier to Kabri, before Evans got to Knossos, I doubt if the question of a diaspora of Aegean fresco artists to the east would seriously have arisen'.

14 Preziosi 1983, 320–21, on evidence for modular grid planning and layout in Minoan ground plans; also now see Hitchcock 1997, 243–50. For Theran modules, see Palyvou 1990, 44–56.



The place of the Palaikastro Kouros in Minoan bone and ivory sculpture

Seán Hemingway

INTRODUCTION

The Palaikastro Kouros is the most remarkable example of Minoan ivory sculpture known to us. It is not a unique phenomenon, however, but belongs at the apogee of a tradition of Minoan ivory carving that begins in the Early Minoan II period and flourishes during the Second Palace Period. Unlike the well-known ancient Egyptian and Syrian traditions of ivory carving that grew and were maintained through the availability of native ivory, Minoan craftsmen had to rely on the importation of hippopotamus and elephant ivory to the island, achieved through trade connections with Egypt and the Near East. These trade connections were established and maintained by the palaces and other regional centres like Palaikastro.¹ Given the limitations of the availability of ivory, the output of Minoan craftsmen cannot have been great. The number of preserved ivory sculptures is very small and mostly fragmentary, and this limits our ability to understand the full range of the Minoan repertoire. Nonetheless, many of the extant examples, particularly of the Second Palace Period, attest to a variety of sculptural types and a highly-developed craft tradition that holds a significant place in the history of ivory carving in the E Mediterranean.

At present, there is no comprehensive study of Minoan ivories,² and many of the pieces have not been fully published. This paper is a synthesis of the evidence from the Prepalatial to the Postpalatial periods³ for ivory and bone figurines and for ivory statuettes.⁴ They are presented chronologically, with an emphasis on examples from the Second Palace Period, the time of the Palaikastro Kouros. Consideration is given to the large series of unprovenanced Minoan ivory statuettes that surfaced in the first part of this century and the impact that they have had on the modern perception of Minoan ivory sculpture, practically from the very beginning of Minoan archaeology.

PREPALATIAL PERIOD (FIG. 9.1)

Ivory and bone carving began on Crete in the Prepalatial period with the manufacture on a very modest scale of small seals, amulets and figurines.⁵ The earliest figurines are made of bone or boar's tusk—local, indigenous

materials.⁶ The corpus is very small and precise chronological distinctions are difficult. The majority of Prepalatial ivory and bone figurines fit into a larger group of Cretan stone figurines that were influenced by contemporary Cycladic figures of the so-called Folding Arm Figurine type (FAF). Of these, two indigenous Cretan types have been identified.⁷ A third type closely resembles Cycladic FAFs of the Spedos grouping. The figures are small, ranging between three and eight centimetres in height and, with few exceptions, are worked from a single piece of bone or ivory. Additional figurine fragments of EM III to MM I date suggest that other distinctly Minoan types were made in the latter part of the Early Minoan period and into the First Palace Period.

The largest group, of the so-called Trapeza type (fig. 9.1: a), is represented by six bone figurines excavated in the Trapeza Cave (see Pendlebury *et al.* 1936, 5–131, esp. 116–22) and one fragmentary ivory example from Tholos A at Agia Triada (Banti 1931, 155–251). All

- 1 Elephant tusks were discovered during the excavations of the palace at Zakros: Platon 1971, 61, 245–6. Unworked ivory has also been excavated at the palace of Phaistos and at Palaikastro (Hood 1978, 120–1), as well as at Archanes. See also Krzyszkowska 1992, 25–36, esp. 30, n. 1.
- 2 Several broader studies have included brief discussions of Minoan ivory sculpture: Barnett 1954, 663–83, esp. 672–3; 1982, 35–8; Hood 1978, 117–32; Higgins 1981, 129–35; Davaras 1989; Evely 1993, 227–30; Dickinson 1994, 168–79; Rehak and Younger 1998b.
- 3 The chronology and the terminology adopted here for the periods of Minoan habitation follow those of Dickinson 1994, 9–22.
- 4 For the purposes of discussion in this paper, a figurine is a figure of less than 10 cm in height; a statuette is 10 cm tall or more.
- 5 For a discussion of the seals and amulets, see Krzyszkowska 1983, 163–70; Krzyszkowska 1989, 111–26.
- 6 Krzyszkowska 1983, 164–5. On the identification of ivory in general, see Krzyszkowska 1990; *ead.* 1988, 209–34.
- 7 The figurine terminology adopted here follows that used in Branigan's and Renfrew's fundamental works: Branigan 1971, 57–78; Renfrew 1969, 1–32.

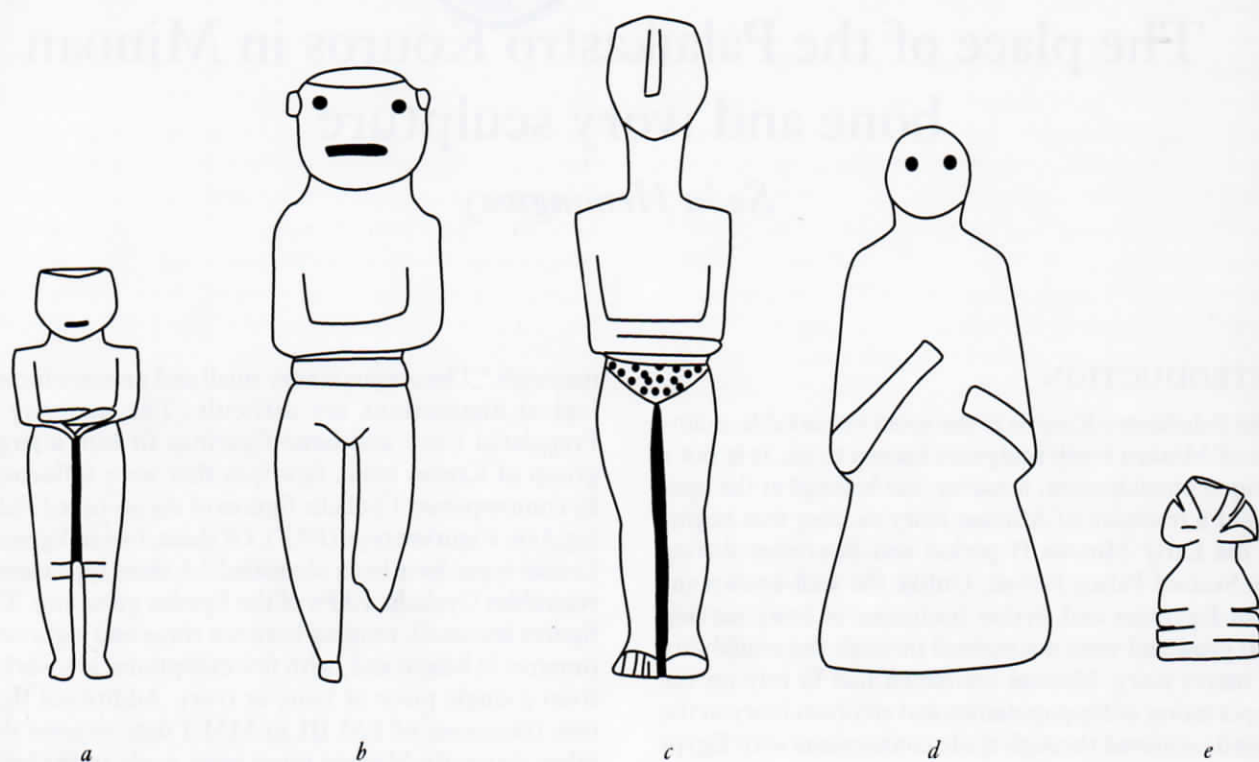


Fig. 9.1. Minoan Prepalatial bone and ivory figurines: (a) Trapeza 13; (b) Agia Triada C124; (c) Archanes HM 440; (d) Agia Triada C123; (e) Platanos 230. Scale 1:1

seven figurines can be broadly dated EM II–MM I.⁸ The fundamental characteristics of the Trapeza type are a spade-shaped head with a ridge running vertically down the centre of its face, little or no neck, well-defined angular shoulders, arms folded across the waist (proper right over proper left), and broad straight legs with or without feet (Branigan 1971, 70). The figures are schematically rendered, abstract in form, with little attempt to model physical features.⁹

The second Cretan type is known as the Siva type. There are only two certain examples, both of ivory. One is from the southern tholos tomb at Siva and the other is from Tholos Tomb A at Agia Triada (FIG. 9.1: b). The figurine from Siva is dated EM IIB–III (Branigan 1971, 72). The figurine from Agia Triada is dated between EM IIB and MM I (Branigan 1971, 71–2; Banti 1931, 190–1, 247–8, no. 130, fig. 58n). Fundamental characteristics of the type are a roughly circular head, little or no neck, narrow but distinct shoulders, a roughly square torso, and tapered legs. Another fragmentary ivory figurine from Agia Triada has been associated with this group but this identification must remain uncertain.¹⁰ Interestingly, its arms, now missing, appear to have been attached separately.

A third type of Prepalatial Minoan bone figurine is known from one beautifully preserved example unearthed in Tholos Tomb C at the Phourni Cemetery of Archanes (FIG. 9.1: c).¹¹ Dated EM II–III, its form is very close to the Cycladic FAF Spedos grouping. Drilled holes in the pubic triangle are one unusual technical

8 The archaeological context for the figurines is even less specific, EM I–MM I (Banti 1931, 247). Branigan's persuasive stylistic argument and Krzyszkowska's work on the use of ivory on Crete in the Prepalatial period suggest that an EM I date is unlikely.

9 Branigan (1971, 70–1) demonstrates the close typological association between the Trapeza type and the Cycladic Chalandriani type. If the Trapeza type is derived from the Chalandriani type as Branigan suggests, these figures are not earlier than EM III.

10 For example, the figure may have been holding its arms to its chest, like the Palaikastro Kouros type, a gesture that can be documented as early as the Neolithic period. See discussion below.

11 Herakleion Archaeological Museum inv. no. 440. See Sapouna-Sakellarakis 1994, no. 47, p. 321, pl. 47; Sakellarakis and Sapouna-Sakellarakis 1997, 703–05, figs. 813, 815.

feature of the figure.¹² In the same tomb was discovered a second head of uncertain type which appears to have fitted into a separately made torso (Sakellarakis and Sapouna-Sakellarakis 1997, 705, figs. 812, 814). If this head did fit into a torso of wood, as the excavators suggest, this figurine would be an important precedent for the figures that combine ivory with other materials in the Second Palace Period.¹³

Male and female figurines of distinctly Minoan character also exist in the Prepalatial Period. A bone head excavated in the Hypostyle Crypt at Malia is dated stylistically by the excavators to EM III (Amouretti 1970, 65, fig. 8, pl. 29.2). Attention is given to the modelling of the face; the mouth, nose, ears and eyes are rendered with some sensitivity. A hole at the back proper left side of the bald head may have been for the attachment of bronze hair.¹⁴ The head may have been part of an amulet or figurine. A male figure in ivory, perhaps also an amulet, from Tholos A at Platanos comprises only the head and torso without arms.¹⁵ Holes through the shoulders, waist and centre of the pelvis may have been for the attachment of limbs and clothing.

Small ivory figures of female type are known from several examples found in the tholos tombs of the Mesará plain in central southern Crete. A standing figure of a woman comes from Tholos A at Platanos;¹⁶ another female figure wearing a flounced skirt and holding her hands to her breast was discovered in Tholos B at Platanos (FIG. 9.1: e).¹⁷ Two more ivory female figures of the same type with flounced skirt are known from Tholos B at Koumasa,¹⁸ and two further examples of ivory are known from Tholos A at Agia Triada (FIG. 9.1: d).¹⁹

FIRST PALACE PERIOD

Large numbers of male and female clay figurines have been recovered from peak sanctuaries, deposited as votive offerings during the First Palace Period.²⁰ These terracotta figures, as well as bronze figurines and representations in glyptic, give an indication of the figural art of Minoan Crete in this period;²¹ however, there is very little evidence for ivory figurines. An ivory arm of EM II–MM I date was discovered in one of the central chambers of Chrysolakkos, a necropolis at Malia. The articulated arm, bent at the elbow, is broken at the forearm and socketed at the shoulder with a circular hole at its centre (Demargne 1945, 57–8, pls. 33a, 67.5). It appears to have been a separately fitted piece of a figurine.²² Stylistically and technically this fragment looks more to the sculptures of the Second Palace Period than to the works discussed above.²³ A finely worked head of a male figure, dated to EM III–MM I, from the cave at Trapeza was considered to be an import at the time of its discovery but it is more likely to be an example of Minoan craftsmanship (Pendlebury *et al.* 1936, 122, no. 15, pl. 19; Hood 1978, 90). The face is carefully modelled and the drilled eyes are inlaid with shell. A hole

under the neck indicates where a dowel would have been used to join the head to the body.

SECOND PALACE PERIOD (FIG. 9.2; PLATE 29)

Nothing in the preceding periods prepares one for the high quality of the ivory sculptures that appear in the Second Palace Period. The sculptures created at this time, especially those from Knossos and Palaikastro, represent a new level of technical and artistic achievement for Minoan ivory carvers. Many were chryselephantine, gold frequently being employed for hair, clothing and other attributes. Over 30 figures are known from very fragmentary to nearly complete specimens. Unfortunately, most of the best preserved examples are without archaeological context and, consequently, their authenticity is open to debate. The material is presented here by site with the unprovenanced statuettes discussed last.

Archanes (FIG. 9.3: a–b)

Fragments of several ivory statuettes have been excavated at Archanes. During the 1980–82 excavations of the palatial building at Turkogeitonia, carried out under the direction of Yannis and Efi Sakellarakis, fragments from at least six different figures were unearthed in a LM IB horizon.²⁴ It appears that the original fig-

12 Sakellarakis and Sapouna-Sakellarakis (1997, 704) gather other examples of bone figurines of Cycladic type and note that they all occur outside of the Cyclades. They suggest that the Archanes figurine was made by a Cycladic craftsman working on Crete.

13 A lion 'gaming piece' with a foil gilded mane from Phaistos may be the earliest forerunner of the chryselephantine technique. See Evelyn 1993, 253, n. 52; Hood 1978, 117.

14 Amouretti 1970, 66. On the variety of Minoan hairstyles and their possible ritual significance, see Koehl in this volume.

15 Xanthoudides 1924, 121–2, pl. XV, no. 229; height 5 cm. This figure is identified as stone by Zervos (1956, 169, no. 191).

16 Xanthoudides 1924, 122, pl. XV, no. 223; height 2.6 cm.

17 Xanthoudides 1924, 122, pl. XV, no. 230 (height 2.3 cm). Branigan dates this figure or amulet to EM II; Branigan 1970, 168.

18 Xanthoudides 1924, 25, pls. IV, XXI, nos. 135 (height 2.5 cm), 525. No. 525, while fragmentary, has an intaglio design on its base and therefore also served as a seal.

19 Banti 1931, 191, Inv. C 123 (height 7.3 cm) and Inv. C 127 (height 3.2 cm), fig. 580.v.

20 For a discussion of clay figurine types, see Pilali-Papasteriou 1992.

21 For bronzes, see Sapouna-Sakellarakis 1995. In general, see also Wingerath 1995.

22 Chapouthier and Demargne (1942, 58, n. 1) suggest that it could also have been a votive, like those found in clay at peak sanctuaries such as Petsophas.

23 Hood (1978, 119) would date this fragment to the beginning of the Neopalatial period.

24 Sakellarakis and Sapouna-Sakellarakis 1997, 707–17, with previous bibliography.

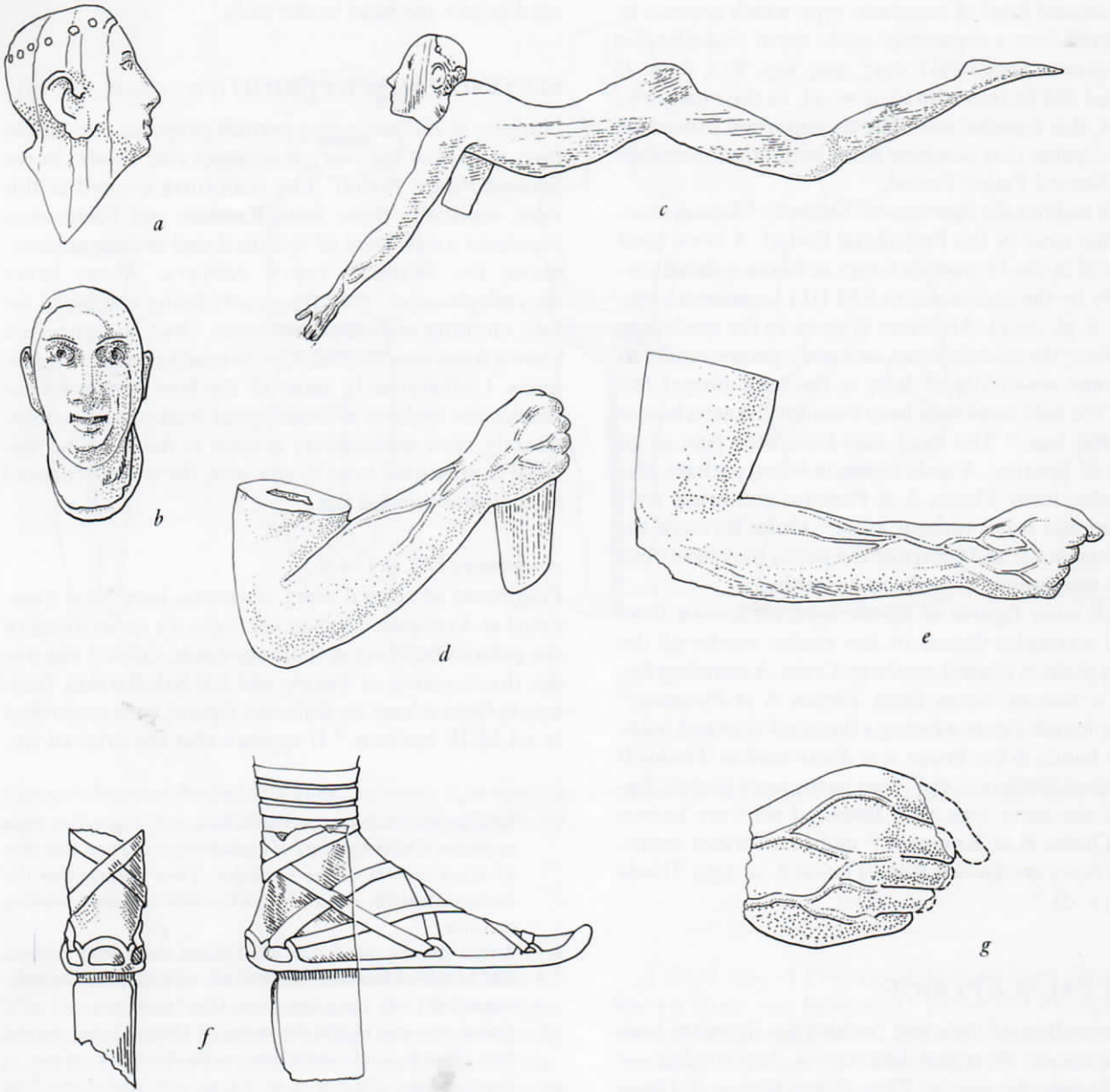


Fig. 9.2. Minoan Neopalatial figurines in ivory, except (g) in plaster: (a)–(b) Head from the Knossos acrobat group, H. 4.5 cms (after Hood 1971 pl. 82–3); (c) the Knossos acrobat L. 29.9 cms (after M&H 1960 pl. 97); (d) arm with dagger from Royal Road, Knossos (after AR 1962, fig. 40); (e) arm from Royal Road, Knossos (after Hood 1978, fig. 107); (f) sandalled foot with peg, H. (pres.) 7.4 cms (after PM II 727, fig. 455); (g) hand fr., H. (pres.) c. 8.1 cms (after PM III 506, fig. 351). (RD) Not to scale.

ures were made of ivory, gold, silver, and wood. The fragments include a head of a youth (FIG. 9.3: a) with short or shaved hair represented by stippling, similar to the Palaikastro boys (discussed below), and a second slightly larger head (FIG. 9.3: b). One head preserved red pigment at the time of excavation suggesting that the figure adhered to the Minoan convention of red male skin commonly seen in wall paintings (Sakellarakis and Sapouna-Sakellarakis 1997, 713). Legs and arms were also found together with gold sheet and folded silver

sheet. Torsos may have been made from wood. The excavators have suggested that, like the Knossos statuettes from the Temple Repositories, these statuettes may have belonged to a complex group.²⁵ A second group of ivory fragments, from at least five figurines, was exca-

25 A hypothetical restoration is offered by Sakellarakis and Sapouna-Sakellarakis 1997, 714–15, figs. 828, 830.

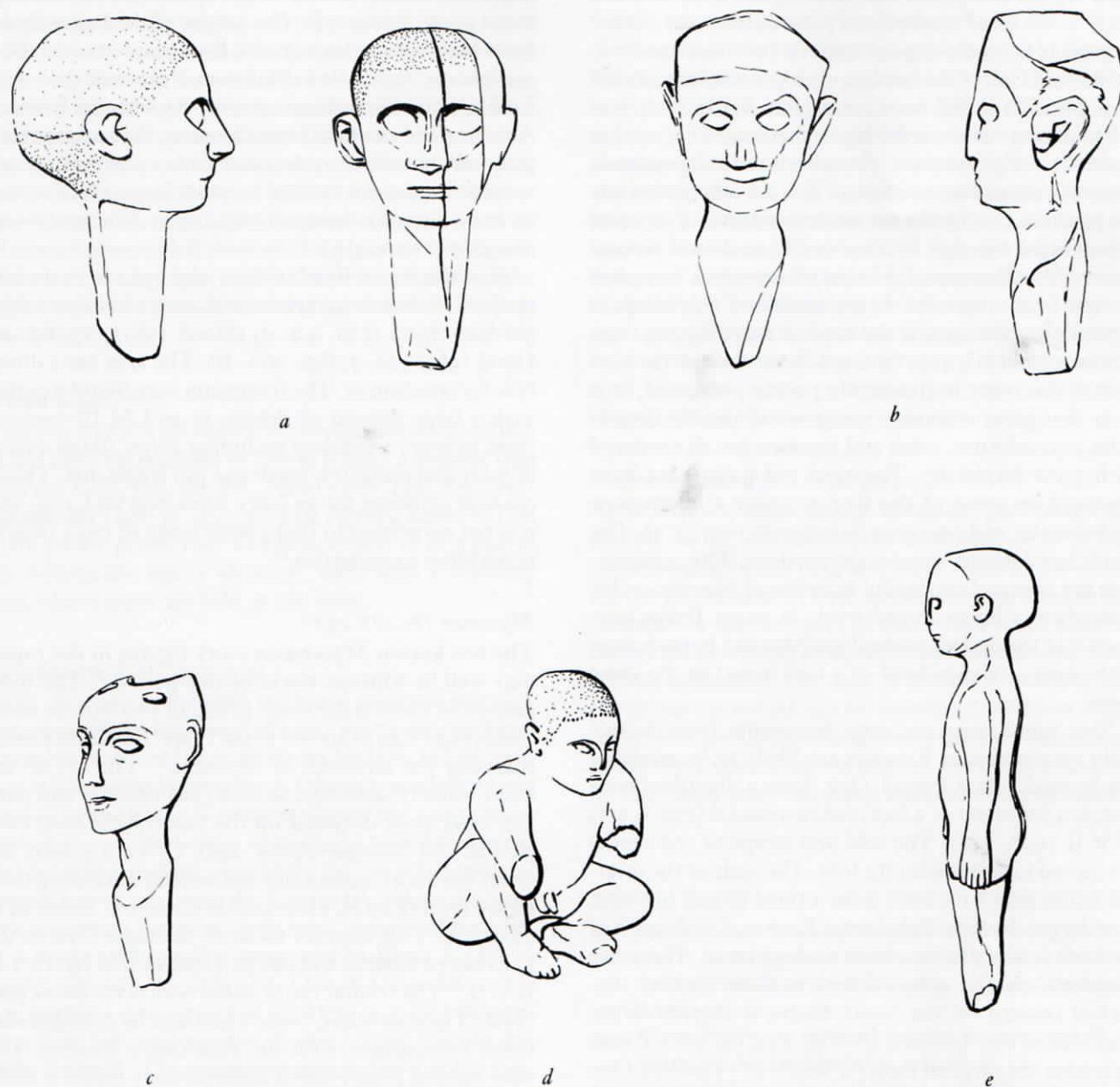


Fig. 9.3. Minoan Neopalatial bone and ivory figurines: (a)–(b) Male heads in ivory from Archanes, HM o-E 569 and 570; (c)–(e) from Palaikastro, (c) bone head of a youthful figure, (d)–(e) seated and standing boys in ivory (H. 0.43 and 0.86 m; both from Block Σ). (ND) Not to scale.

vated in the theatral area at Agios Nikolaos (*ibid.*, 717–19, figs. 832–3). These consist primarily of thigh and leg fragments from male figures whose heights can be restored to between 10 and 26 cm (*ibid.* 1997, 718).

Knossos (FIG. 9.2)

The largest number of ivories comes from Knossos. The first ivory statuettes to be discovered were the youthful 'acrobats' from the Temple Treasury (FIG. 9.2: a–c) (Evans 1902, 72–4, pl. II). There are fragments of at least three 'leaping' figures, all of similar scale, which

Evans dates to MM IIIB. The fragments were found together, inside what appears to have been a fallen wooden box lying in a cupboard beneath a stairway (*PM* III 1930, 428). Only one is sufficiently preserved to give a clear understanding of the entire figure (FIG. 9.2: c).²⁶ He appears to be jumping down with arms outstretched and head thrown back. The waist, right forearm and

26 Herakleion Archaeological Museum inventory number 3.

right leg are not preserved. The figure is nude but is likely to have had a belted cod piece at the waist. Other fragments from the deposit include two heads and two right arms. One of the heads is clearly in the same thrust back position as the nearly complete figure (FIG. 9.2: a–b).²⁷ Holes visible in the top of this head were used to attach hair of gilt bronze. The other head still preserves some of this gilt bronze hair *in situ*. As was commonly the practice, the figures are made from several separate pieces fitted together by a series of dowels and tenons. One of the disconnected arms represents a complete section from fingertips to the middle of the biceps, a typical place for joining the arm on ivory figures from Knossos (PM III, 429: fig. 295). Even though the surface of the ivory is frequently poorly preserved, it is clear that great attention was given to details: fingernails, musculature, veins and tendons are all rendered with great sensitivity. Traces of red paint have been observed on some of the ivories under a microscope (Sakellarakis and Sapouna-Sakellarakis 1997, 713). The youth has delicate, slender proportions. The composition is a rare and successful example of Minoan sculpture where a figure moves freely in space. Evans suggests that the figures are bull jumpers and he associates with them a faience head of a bull found in the same room.

Two more ivory statuette fragments from Evans' early excavations at Knossos are likely to be works of the Second Palace Period. One, from a disturbed context, is a fragment of a foot clad in a sandal (FIG. 9.2: f) (PM II 1928, 728). The sole and straps of the sandal are carved together with the foot. The scale of the original figure may have been from a third to half life-size, even larger than the Palaikastro Kouros,²⁸ and much of the body is likely to have been made of wood. The other fragment, part of a muscular arm from another disturbed context on the South Slope, is slightly larger than that of the Acrobats (PM III 433, fig. 301). Evans estimates the original figure's height at 15 inches. One further example from Knossos, dated by Zervos to LM I, is a small female head (height 2 cm) and may have belonged to a figurine or amulet (Zervos 1956, 358, no. 524).

Between 1957 and 1962, excavations in the area of the Royal Road, conducted under the direction of Sinclair Hood, yielded fragments of several more ivory statuettes and evidence for an ivory workshop. In 1957, S of the Royal Road, fragments of at least two large ivory statuettes were recovered in association with parts of an ivory box and pottery of LM II date (Hood 1958a, 21–2, pl. 2a; 1958b, 299–301, esp. figs. 10, 12–13). It is probable, however, that the statuettes were manufactured in the Second Palace Period (Evely 1993, 228). The remains of the statuettes consist of an outstretched arm and short kilt of one figure with the bent arm, clenched fist and part of the torso of an even larger figure (FIG. 9.2: e) (Hood 1958b, 299). An ivory foot was discovered in the same area in 1958 and Hood sug-

gests that it may belong to the smaller of the two figures (1959, 20, fig. 33). The height of the larger figure must have been at least 40 cm. Both statuettes exhibit a complex series of dowel holes and grooves that were used to unite the sections of ivory. As with the Knossos Acrobats and the Palaikastro Kouros, the sculptor took great care in modelling the musculature and pronounced veins around the wrist and hand. A fragment of a plaster hand from Knossos exhibits similar detail and workmanship (FIG. 9.2: g).

N of the Royal Road in 1959 and 1960 were discovered two feet and the arm of a statuette holding a dagger-like object (FIG. 9.2: d) (Hood 1961b, 27, fig. 40; Hood 1961a, 26–7, figs. 30A–B). The arm has a dowel hole for attachment. The fragments were found together with a large deposit of debris, in an LM IB context, from an ivory workshop including chips, flakes, pieces of inlay and marketry, comb and pin fragments. This is the best evidence for an ivory workshop on Crete, and it is not surprising to find a wide range of ivory objects in addition to statuettes.²⁹

Mycenae (PLATE 29)

The few known Mycenaean ivory figures in the round may well be Minoan works of this period.³⁰ The most famous of these is the small group of two women and a child (PLATE 29 a) known as the Ivory Trio from a sanctuary on the acropolis of Mycenae.³¹ The sex of the child, usually identified as male, has recently and convincingly been disputed on the basis of the long robe (Rehak and Younger 1998b, 240). Of even greater interest here is a fragmentary statuette of a standing male figure (PLATE 29 b), excavated in Chamber Tomb 27 at Mycenae. This appears to be of the same type as the Palaikastro Kouros and can be dated to LM IB–II/LH IIA–B.³² The frontal youth holds both arms to his bare chest. The thin waist, broad chest and large thighs also invite comparison with the Palaikastro Kouros. The poor state of preservation unfortunately makes it diffi-

27 Herakleion Archaeological Museum inventory number 4. See PM III, 432–3, figs. 293, 300a–c; Sapouna-Sakellarakis 1994, 183, 321, no. 53.

28 Large sculptures are not common in Minoan art. See Evely 1993, 228.

29 On issues pertaining to Minoan ivory workshops, see Evely 1986, 397–416; Evely 1993, 227–30; Evely 1992, 7–16; Tournavitou 1986, 447–76.

30 Hood 1978, 123; Higgins 1981, 130. Jean-Claude Poursat collects the existing examples in his valuable book on Mycenaean ivories. See Poursat 1977a, 45–6, 49–50, 52–3. Also on Mycenaean ivories, see Kopcke 1997, 141–3. On Mycenaean ivory workshops, with previous bibliography, see Tournavitou 1995.

31 Athens NM inv. No. 7711. H. Wace 1939, 1–14; Poursat 1977b, 20–1, no. 49, pl. IV.

32 Athens NM inv. No. 2471; H. (max. pres.) 9 cms. Xenaki-Sakellariou 1985, 98, no. E2471, pl. 23.

cult to discern the precise nature of his *zoma* and whether or not the left leg was advanced.³³ Many other ivory objects were found in the same chamber tomb including the well-known head of a warrior³⁴ and a fragmentary female figure dressed in a long flounced skirt.³⁵ Clear contact between mainland Greece and Crete during the Palatial periods is best exemplified by the multitude of Minoan objects in the Shaft Graves at Mycenae (see Vermeule 1975). The frequent appropriation of Minoan iconographic elements for Mycenaean religious and ritual iconography makes the precise nature of the Mycenaean ivory sculptures in the round difficult to interpret.

*Nirou Khani*³⁶

Two ivory pins with figural decoration were unearthed in the early excavations of Nirou Khani, a palatial villa (Zervos 1956, 356, no. 521; Hood 1978, 120; Sapouna-Sakellarakis 1995, pl. 45.3,5). The figures, dated to LM I, are poorly preserved. The pins appear to be a pair as the figures are nearly identical, each with a standing man whose arms are held at the waist.

Palaikastro (FIG. 9.3: c-e)

Early excavations between 1902 and 1906 and more recent excavations between 1988 and 1997 have produced a number of worked bone and ivory finds including figurine and statuette fragments. A delicately modelled bone head of a youth was discovered during the 1903 season (FIG. 9.3: c).³⁷ Its hollow eyes would have been inlaid and holes in the skull were likely for the attachment of bronze hair as occurs on the Knossos Acrobats. In 1904, two important ivory carvings were unearthed together in a house with a pillar courtyard in Block Σ (PKU, 125-7, fig. 107, pl. XXVII). One is a standing nude boy, perhaps 4 or 5 years of age (FIG. 9.3: e). His right arm, both feet, and most of the left leg are missing. He looks forward. The preserved arm is down at his side, genitals are indicated. The extremely short hair or shaved head is rendered by stippling. The second figure is a seated boy of approximately the same age (FIG. 9.3: d). Both figures have been identified as Egyptian imports (PKU, 125-7; Pendlebury 1930, 33, nos. 52, 53, pl. 3); however, it is more likely that they are Minoan works as the type can be paralleled in a bronze and the shaved head is a characteristic feature of this age group.³⁸ Recent excavations in a LM IIIA2/B level of Building 7 have unearthed a small ivory arm. It is likely to date to the Second Palace Period (PK 1990, 121-47, esp. 140-1, fig. 17).

The Palaikastro Kouros is a frontal, youthful male with both arms held up at the chest and his left foot slightly forward. The pose is not a common one in Minoan art but appears to be an important local type as it is paralleled in terracotta figures of the First Palace Period from Petsophas, the peak sanctuary associated with Palaikastro and in later Postpalatial figures as well.³⁹

Further parallels exist in clay and bronze from the E Cretan sanctuaries of Piskokephalo⁴⁰ and Kato Symi (Lebessi and Muhly 1990, 315-36, esp. 326, fig. 14). The type also occurs on a sealstone in the Benaki Collection (CMS V, 1, 156, no. 201; PM IV, Part II, 467, fig. 392). The sealstone is of particular importance as it clearly represents the figure with arms held to the chest and left foot forward. The Palaikastro Kouros type may have very old associations on Crete as variations are known from a marble Neolithic figurine excavated at Knossos⁴¹ and from Prepalatial figurines from Archanes (Sakellarakis and Sapouna-Sakellarakis 1997, 509-10, figs. 499-500; 527-8, fig. 525). The gesture of the arms held at the chest has been interpreted as one of adoration like the more common 'αποσκοπεῖν' type (Sapouna-Sakellarakis 1994, 110-11).

Unprovenanced (PLATES 30,31, L)

At least seven statuettes of unknown provenance appeared on the art market, in museums, or in private collections between 1914 and 1931. Growing evidence for the production of high quality Aegean Bronze Age forgeries in the first part of this century increases the likelihood that many or all of the unprovenanced pieces are not authentic. The issue is complex, however, and the group cannot simply be dismissed solely on stylistic or even technical differences with the provenanced pieces since more than one ancient workshop could easily have been involved. Each statuette must be consid-

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- 33 Parallel narrow horizontal incisions at the small of the waist (PLATE 29 b) suggest the location of the belt. For some of the detail of the back of the loin cloth or codpiece, see Xenaki-Sakellariou 1985, pl. 23.
- 34 Athens NM inv. no. 2468; H. 8.2 cms. Poursat 1977b, 88, no. 288, pl. 27; Xenaki-Sakellariou 1985, 98, pl. 22.
- 35 Athens NM inv. no. 2472; H. (rest.) 12 cms. Poursat 1977b, 87, no. 287, pl. 26; Xenaki-Sakellariou 1985, 98-9, E 2472, pl. 24.
- 36 For recent discussion of the villa at Nirou Khani, see Koehl 1997, 137-49 and in the same volume Hood 1997, 105-16, esp. 114; Fotou 1997, 33-50, esp. 41-6. See also other articles in the same volume.
- 37 PK II, 279, fig. 1. Hood (1978, 117) identifies this head as female.
- 38 There is a general consensus that the Palaikastro boys are Minoan works. See Lambrou-Phillipson, 1990, 266, nos. 222-3. Cline (1991) does not consider the Palaikastro boys in his catalogue. For a Minoan bronze infant, see Sapouna-Sakellarakis 1994, 33-4, no. 49, pl. 12.
- 39 Rutkowski 1991, 22-9, pls. A-B, 3-18, and 20-2; see also the MM II stone figurine from Platanos of similar type (Zervos 1956, 191, no. 231). For an LM III example, see PK 1988, 417-45, esp. 432-3, fig. 12. For a discussion of the type, her 'Segengestus Aa', see Sapouna-Sakellarakis 1995, 106-07.
- 40 Zervos 1956, 277, no. 395, height 9 cm, dated to MM III.
- 41 Herakleion Archaeological Museum inv. no. 2623. Hood 1960, 21-2, figs. 21-2; Ucko 1968, 209, 258, no. 15, fig. 85.

ered on a case by case basis.⁴² Authenticity notwithstanding, the fact that Arthur Evans believed the four chryselephantine statuettes he saw to be Minoan and that he featured them prominently in his monumental work on Minoan culture, *The Palace of Minos at Knossos*, has secured their place in the history of Minoan archaeology. Their consequent display in major museum exhibitions in England and America has also influenced modern perceptions of Minoan art, and especially Minoan ivory sculpture.

The first ivory statuette to appear and the one with the greatest claim to authenticity is the figure of a woman with snakes entwined around her outstretched arms known as the Boston Goddess (PLATE L). The statuette was brought to the United States from Crete in 1914 when it was acquired by the Museum of Fine Arts and published soon afterwards in two articles by L. Caskey.⁴³ Made from several pieces of ivory, the figure is dramatically adorned with gold foil, frequently nailed to the figure by means of small gold pins, for details of the skirt, the snakes and the elaborate headgear. The ivory surface is very worn recalling the preservation of the Acrobats from Knossos. The type of female figure, known as the snake goddess or priestess, is well paralleled by excavated faience examples from Knossos (Foster 1979, 70–8). The hips of the Boston Goddess are, however, uncharacteristically narrow for a representation of a full-grown Minoan woman.

Three other statuettes are discussed by Evans in *The Palace of Minos at Knossos*. The first after the Boston Goddess is a youthful male figure (PLATE 30 a) which Evans believed to be the counterpart of the Boston Goddess.⁴⁴ This figure was acquired in 1957 by the Seattle Art Museum.⁴⁵ The figure, of nearly the same height as the Boston Goddess, also exhibits the chryselephantine technique. Numerous unparalleled features and the unusually soft modelling of the face of the figure raise questions about its authenticity. The statuette travelled to the United States in 1938 with an exhibition of Arthur Evans' sealstones and finger rings that were shown at the Worcester Art Museum (*Worcester Art Museum* 1938, 1–2).

The third statuette appeared as the frontispiece to the first part of Evans' fourth volume of *The Palace of Minos at Knossos* (PLATE 31 a). Known as the 'Lady of Sports' or 'Mistress of Sports', it is an unusual representation of a standing, full-breasted, female figure with arms raised, wearing an elaborate loin cloth and girdle of gold (PM IV Part I, 28–40, figs. 14–16, 18–19, frontispiece and suppl. pl. 43). The combination of short male loin cloth and female bodice evokes a hermaphroditic quality unparalleled in existing Minoan art of the Second Palace Period. The statuette was purchased by Canada's Royal Ontario Museum of Archaeology in 1931 where it is now a feature of the permanent collection.⁴⁶

The fourth unprovenanced chryselephantine statuette discussed in Evans' *The Palace of Minos at Knossos*

is a standing male figure with arms raised above his head (PLATE 30 b). It was acquired by the Ashmolean Museum and is said to come from S Crete (PM IV Part II, 468–75, suppl. pl. LIII; Ashmolean Museum 1951, 26, pl. 11). Like the three preceding examples, the entire body and head are made from a single piece of ivory while the arms are attached separately. This statuette was featured prominently along with excavated material from Knossos in the first major English exhibition of Minoan artefacts held in honour of the jubilee of the British School at Athens (Evans 1936, 808–09, 842, esp. fig. 1).

Three more female ivory statuettes appeared on the art market in the first part of the twentieth century. One, called the 'Simiriotti' Goddess and known only from a photograph, appeared in Paris in the 1920s with a similar faience statuette of dubious authenticity (Butcher and Gill, 1993, 383–401, esp. 394–7, fig. 9). Two others were purchased by Henry Walters from the Parisian dealer Feuerverden at some time before 1931, when the statuettes were discovered in their boxes in a desk at the Walters Art Gallery (Hill 1942, 254–60). One is a female figure of the snake goddess type, the ivory of which is very corroded (PLATE 31 c).⁴⁷ The second figure (PLATE 31 b) is much smaller and of solid ivory.⁴⁸ Its unusual style, costume and headdress have

- 42 The possibility that pastiches of ancient ivories and clever modern restorations exist must also be considered. See Hill 1942, 260. Scientific and technical analysis of the statuettes would undoubtedly be of great assistance. A detailed study has been undertaken by Ken Lapatin, the preliminary results of which were presented at the 1996 Techne conference in Philadelphia in an unpublished paper entitled, 'Minoan and 'Minoan' Chryselephantine Statuary'. A summary of his more recent Mycenaean seminar at London (27 May 1998) is given in *BICS* 42, 1997–8, 244–5. See also Lapatin 1997, 663–82, esp. 664, n. 7.
- 43 Boston, Museum of Fine Arts inv. no. 14.863; L. Caskey 1914, 51–5; Robinson 1915, 211–12; L. Caskey 1915, 237–49. *PM* III, 436–44. For an account of the origin of the statuette, see Comstock and Vermeule 1969, 466–73, esp. 467.
- 44 *PM* III, 444–57. The statuette was originally acquired by Evans in Paris. A drawing by Gilliéron illustrates Evans' hypothetical reconstruction of the group (p. 456, fig. 318). It has been suggested that this is the ivory statuette that was offered by Gilliéron senior to G. Karo in 1914. Karo 1959, 110–11; Butcher and Gill 1993, 396.
- 45 Seattle Art Museum inv. no. 57.56. *Annual Report of the Seattle Art Museum* 52 (1957), 48–9, fig. 17. Joice, Knight and McClusky 1987, 15, no. 11.
- 46 Toronto, Royal Ontario Museum of Archaeology inv. no. 931.21.1. Watson 1932, 1–12; Heinrich 1963, 90–1.
- 47 Baltimore, Walters Art Gallery inv. no. 71.1090. Height 21.5 cm. For a description of the conservation and restoration of the statuette at the Walters Art Gallery, see Kirby 1953, 9–31, esp. 28–30. See also Buitron and Oliver 1985, 62–3, no. 56; Buitron 1983, 10–11, fig. 8.
- 48 Baltimore, Walters Art Gallery inv. no. 71.1091. Height 10.4 cm. Hill (n. 83), 258–60, figs. 3–4.

raised suspicions about its authenticity since its appearance (Hill 1942, 260).

High quality reproductions of Aegean Bronze Age artefacts were being produced from the very beginning of the twentieth century, most notably by E. Gilliéron senior, his son and their workshop.⁴⁹ It is apparent that equally high quality forgeries were being produced. Several stone statuettes, including the Fitzwilliam Goddess, have been shown to be probable forgeries made for the art market (see Butcher and Gill 1993; A. J. B. Wace 1927). A number of dubious gold rings⁵⁰ appeared on the market in the first part of this century as well as a 'Minoan gold treasure' that includes relief-decorated gold vessels with scenes bearing a striking resemblance to the relief-decorated stone vases from Agia Triada (Eisen 1934, 134–9).

In a book of his memoirs, the eminent British archaeologist Sir Leonard Woolley recalls a visit with Arthur Evans on Crete when an elaborate forger's workshop was discovered by the police. In addition to creating various Minoan artefacts, the forgers had a complete manufacturing line for the production of Minoan ivory statuettes:

In Crete in the early years of this century I was stopping with Arthur Evans when he was excavating at Knossos, and one day he got a message from the police at Candia asking him to come to the police station, so we went together—he, Duncan MacKenzie who was his assistant, and myself. And the most surprising thing had happened.

Evans for years had employed two Greeks to restore the antiquities which he had found. They were extraordinarily clever men—an old man and a young one—and he had trained them, and they had worked under the artist whom he employed there, and they had done wonderful restorations for him. Then the old man got ill and at last the doctor told him he was going to die.

He said, 'Are you sure?' The doctor said, 'Yes, I'm afraid there's no hope for you at all.'

'Right', he said. 'Send for the police.' The doctor said, 'You mean the priest.' 'No I don't', he said. 'I mean the police.' He insisted, and they sent for the police, and the police came and asked him, 'What on earth do you want?'

'Now I can tell you', said the sick man. 'I'm going to die, so I'm all right, but for years I've been in partnership with George Antoniou, the young fellow who works with me for Evans, and we have been forging antiquities.'

'Well', said the policeman, 'I don't know that that concerns me.' 'Yes,' he said, 'it does. Because we've sold a statuette of gold and ivory which was supposed to be a Cretan one to the Candia Government Museum, and that's a criminal offence. George is a scoundrel and I hate the fellow, and I've been waiting for this moment to give him away. Go straight to his house and you'll find all of the forgeries and all our manufacturing plant there.'

The police went, they raided, and they found exactly what he said, and they asked Evans to come and look, and I never saw so magnificent a collection of forgeries as those fellows had put together.

There were things in every stage of manufacture. For instance, people had recently been astounded at getting

what they called chryselephantine statuettes from Crete; statuettes decked out with gold—there is one in the Boston Museum and one at Cambridge, and one in the Cretan Museum at Candia. These men were determined to do that sort of thing, and they had got everything, from plain ivory tusk and then the figure rudely carved out, then beautifully finished, then picked out with gold. And then the whole thing was put into acid, which ate away the soft parts of the ivory giving it the effect of having been buried for centuries. And I didn't see that anyone could tell the difference!

Sir Leonard Woolley, *As I Seem to Remember*, 21–3.
London, 1962.

This considerable body of evidence for Minoan forgeries reveals a market that was driven no doubt in part by the large sums that were being commanded for these works already in the first part of this century. It casts further doubt on the unprovenanced Minoan ivory statuettes.

THIRD PALACE AND POSTPALATIAL PERIODS⁵¹

There is no secure evidence for the production of ivory sculpture in the round during the Third Palace and Postpalatial Periods. It has been suggested above that the few ivory statuette fragments thus far discovered in LM II and LM III contexts are products of the Second Palace Period workshops. However, other kinds of ivory objects do continue to be represented in the archaeological record.⁵² Relief decorated pyxides and combs⁵³ of ivory are found at numerous sites, and their craftsmanship and style reflect Mycenaean influence. Elsewhere, at least, Aegean ivory sculpture in the Minoan-Mycenaean tradition did continue to be produced. A Mycenaean ivory statuette from Samos of similar type

49 Gilliéron 1905; 1906; undated. These reproductions were purchased individually and as collections. The Harvard University Art Museums has a nearly complete set. For a ring by Gilliéron that was later purchased as a Minoan original, see Hoopes 1947, 99–103.

50 These include the 'Ring of Nestor', the 'Ring of Minos', and a ring purchased by the Copenhagen Museum in 1921. See Younger 1991, 90–1 for further bibliography on the debates over the authenticity of these pieces.

51 See n. 3 above for the terminology adopted in this Chapter.

52 See Sakellarakis and Sapouna-Sakellarakis 1997, 720–43 with previous bibliography; Poursat 1977a, 165–9.

53 For ivory combs, see also Phillips 1998, 849–62. Phillips noted that LM/LH III Aegean representations of crocodiles occur primarily on a group of ivory combs found on Crete (including at Palaikastro) and in mainland Greece. He suggests that all the crocodile combs were made by a single workshop at a palatial centre such as Knossos or Mycenae (Phillips 1998, 858, 862).

to the Palaikastro Kouros probably dates to the 13th or 12th century BC.⁵⁴

CONCLUSIONS

A survey of the evidence for Minoan bone and ivory sculpture allows one to appreciate the Palaikastro Kouros in the context of ivory sculptural production on Minoan Crete. Modest works of the Prepalatial and First Palace Periods give way to a truly specialized craft in the Second Palace Period that was practised by more than one workshop on the island and supported by trade networks of the palaces. Ivory figures of the Second Palace Period tend to be between 12–50 cm in height. The scale of the ivory foot with sandal from Knossos implies that even larger statuettes of ivory (perhaps as big as half life-size) were made. Ivory statuettes of the Second Palace Period are comprised primarily of male figures of several identifiable types: children (Palaikastro, Archanes), youthful acrobats (Knossos), and the standing 'Kouros' type (Palaikastro, Mycenae), as well as several uncertain types represented by fragmentary examples. Female ivory statuettes of the Second Palace Period, if one leaves aside the unprovenanced examples, are less common and usually of small scale. The findspots of the Second Palace Period ivory sculptures differ dramatically from the preceding periods when they are primarily known from funerary contexts. During the Second Palace Period, ivory sculptures occur in association with villas, palaces, and other important centres like Archanes and Palaikastro.

In many ways the Palaikastro Kouros adheres to the known sculptural milieu of the Second Palace Period. Its dramatic use of ivory and gold foil provides the best excavated example of the Minoan chryselephantine technique. Its technical design, with many parts doweled and fitted together, closely resembles excavated statuettes from Knossos as well as several unprovenanced pieces. The iconography of the figure is not a common palatial type in any medium but can be compared with terracotta figures from Petsophas.

The Palaikastro Kouros, however, distinguishes itself in several ways—setting it apart as a masterpiece

and also revealing new facets of the Minoan craft hitherto unknown. Its composite design—combining ivory, gold, serpentine stone, wood and rock crystal—utilizes a greater variety of precious materials than any other existing example. The quality of the carving is exceptionally fine. Its closest parallels are the ivories from Knossos, most notably the arm from the Royal Road. While some scholars have argued that the stylistic and technical features shared by the Palaikastro Kouros and the other Second Palace Period statuettes are the product of a single workshop, most likely at Knossos,⁵⁵ the evidence is still too fragmentary to be certain. The affinities of style and general technique could also be indicative of craft trends in the Second Palace Period shared by more than one workshop.

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54 See Kyrieleis 1989, esp. p. 13 and following where he compares the piece to the earlier statuette from Mycenae discussed above. The statuette was unearthed in a late 7th century BC context but Kyrieleis' stylistic argument for dating the statuette to the LBA is convincing. I thank Katie Demakopoulou for drawing my attention to this reference.

55 Evely 1993, 228; Rehak and Younger 1998a, 118–19. The same craftsmen may have moved from site to site for different commissions.

The Great Kouros in Cretan art

Alexander MacGillivray

The Palaikastro Kouros is one of the most striking examples of realistic sculpture in early Aegean art. The gesture—arms bent with fists tightly clenched at the breast, the movement—the left foot leading the body, pulsating with life, in a determined forward step, and the anatomical details of shiny crystal eyes, delicate ears, and even fingernails with cuticles, were carefully rendered to elicit a response from ancient viewers accustomed to representational art. Part of that response must have come from the recognition of who was portrayed in the sumptuous materials chosen to advertise the figure's importance. I review here three contexts, which I believe are crucial to understanding the artist's intentions, to explaining the shattered state of the Kouros at the time of his recovery, and to guessing the figure's identity.

HISTORICAL SETTING

Cretan artists of all periods create images, which are motivated by the requirements of their patrons reacting to trends prevalent in the Aegean and its environs. To understand the overall influences prevalent at the time of the Kouros, the end of the Cretan Neopalatial period around 1475 BC, as charted in FIG. 14.1,¹ we must review the history of the Cretan palatial period, defined by dominant personalities and influential leaders, whether political, religious or artistic, who shaped the events which left their mark in the artistic and archaeological record. Our sources are the ancient historians, written archives, and the archaeological evidence recovered from over a century of archaeological excavation in the Aegean and the Near East.

The first Cretan palaces were built around 1950 BC, during the early years of the Egyptian Twelfth Dynasty and under strong Egyptian influence.² The Labyrinth, which Daidalos built for Minos at Knossos was a copy, so Diodorus (1.97.5–6) and Pliny (*Nat. Hist.* 36, 13, 19, 85) tell us, of the first Labyrinth, which Menes built at Hawara for Amenemhat III, one of the great monarchs of the Middle Kingdom. The ancient Greek authors compared the building material at Hawara to Parian marble, but it is more likely that a fine white limestone, or Egyptian alabaster was used. The entire façade of the first palace at Knossos was built of Cretan gypsum, perhaps regarded as the local equivalent to the finest Egyptian material. Ashlar masonry and pillared

halls, also employing gypsum, were architectural novelties, which arrived in Crete for the first time with the palaces. Diodorus stated that Daidalos, while in Egypt studying architecture, learned the *rhythmos*, or 'pattern of composition', of ancient Egyptian statues, for which we might understand the Egyptian canon of proportion, elucidated by Gay Robbins and identified in Aegean art by Weingarten in Chapter 8 above. This could account for one of the most conspicuous of the many innovations, which arrived in Crete along with the palaces: the sudden and abundant occurrence of naturalistic representational figural art after centuries of the schematic and shamanistic figurines of the Neolithic and Early Minoan periods.³

Using Minoan pottery in Egypt as an indicator, we may trace Cretan relations with Middle Kingdom Egypt, beginning with East Cretan examples in the MM IB period, Mesará wares in MM IIA and then Knossian wares by the end of MM IIB.⁴ At that time, the long and fruitful reigns of the Twelfth dynasty rulers Senusret—the Greek Sesostris, his son Amenemhat II and Amenemhat III, extended Egyptian cultural influence and economic dominance along the Levantine littoral as far as Syria. The Twelfth Dynasty closed, however, with weak, short-term rulers around 1795 BC, and the belligerent Thirteenth and Fourteenth dynasties led to a time of internal struggle, which culminated in the Hyksos occupation of the Delta around 1638 BC. Cretan pottery imports to Egypt ceased at the end of the

- 1 Younger and Rehak 1998b, 98 table 1, suggest 1490 BC for the end of the LM IB period as argued from recent ¹⁴C results, but we agree with Warren and Hankey 1989, 137–44, that the majority of the evidence for connections between Crete in the LM IB period and Egypt are in the early and middle part of Tuthmosis III's reign, which extended from roughly 1490 to 1430 BC. The end of LM IB, then, is most likely between 1475 and 1450; we have chosen the former because of the close stylistic connections between the art at Akrotiri in Thera in about 1530 BC and that in Crete during the final LM IB destruction.
- 2 MacGillivray 1998, 106–7. I use Kitchen's 'best' dates (1989, 152–3; 1996) which are the most commonly accepted by Aegean scholars (Warren and Hankey 1989; Warren 1991b; Kuhrt 1995, 161).
- 3 For example those cited by Hemingway in Chapter 9 above (cf. FIG. 9.1).
- 4 Argued in MacGillivray 1998, 107–08.

Old Palace period in MM IIB, around 1760 BC, perhaps because of the decline in Egyptian authority in the E Mediterranean.

The Mari archives tell of Kaptarite, most likely Cretan, traders at Ugarit, where MM IIB pottery indicates Cretan contacts, when Hammurabi conquered Zimri-Lim's kingdom in 1762 BC. But as the great Babylonian dynast proceeded to consolidate his rule over N Syria, he may have closed the Levantine ports to the Cretans, which explains the drop off in ceramic imports there and at neighbouring Byblos. The next major trading posts, where Neopalatial Cretan pottery arrived or was imitated in abundance, were at Knidos, Trianda in Rhodes, the Seraglio in Kos, Miletos and Iasos on the Anatolian coast (Furumark 1950; Davis 1982; Papagianopoulou 1985; *Troubled Island* 248–52; Niemeier 1997).

I have not found any clearly stratified examples of representational art in Crete between the end of the Old Palace period, which was followed in MM IIIA by the rebuilding of some palaces and the entirely new architectural styles of the New Palace (or Neopalatial) Period, and a late stage of LM IA, which I believe is roughly contemporary with the Thera Eruption, around 1530 BC. There are plenty of examples of deposits and architecture from this early Neopalatial period, including the substantial palace recently discovered at Galatas (*Troubled Island* 193), but none containing deposits of statuary.⁵ This is the period of the Minoan Hall, defined by a porch with colonnade leading to a *polythyron*, which may have its origins in Anatolia (Watrous 1987), as I suspect that the early Neopalatial Cretans were reacting to their contacts with the Anatolian colonies, and adapting some of their ideas.

Ahmosé rose to power in Egypt around 1550 BC, and his re-unification of Egypt under the XVIIIth Dynasty with a series of conquests, starting with Avaris, the Hyksos capital in the Nile Delta, marks the beginning of the New Kingdom. Imperial expansion motivated New Kingdom foreign policy, and the history and art of the period was filled with tales and images of conquest and control, as successive monarchs campaigned widely in the Levant and Nubia eventually establishing an empire, which at its greatest extent stretched from N Sudan to the Euphrates river in W Syria, making Egypt the wealthiest country in the ancient world. The subjects of this empire provided Egypt with tribute and trade goods of all sorts, and all exchanges were carried out under royal authority.

The extent of Pharaonic control is well demonstrated in documents like the hymn of praise placed in the mouth of the deceased Tuthmosis III in about 1424 BC, equivalent to the early LM IIIA₁ period. The hymn lists the lands that the Pharaoh 'smited' on behalf of his god, Amon. It begins with the princes of Zahi in the highlands of Phoenicia and Syria, then the Asiatics of Retenu, in Syria, and the eastern lands. He then turned to 'the western land', where, he boasted, 'Keftiu

and Cyprus are in terror; I have made them see thy majesty as a young bull, firm of heart, ready-horned and irresistible.' These were followed by the Mitanni, an emerging power E of the Euphrates, who were made to 'tremble under fear', then 'those who are in their isles in the midst of the great sea' followed by the Libyans, and ending with the sand-dwellers of North Africa (Breasted 1948, 318–19). In one of the most important images of his reign, from the Aegean point of view, we see the 'Great men of Keftiu and the Isles of the Sea' arriving in Thebes to pay homage to Tuthmosis III in the tomb of his vizier, Reckmire, in the valley of the nobles in Thebes (Wachsmann, S. 1987). Similar images in the earlier tombs of Senmut and Useramon take us back to roughly 1475 BC, at the end of the LM IB period and the time of the Palaikastro Kouros. These subjects are shown paying tribute to their master in the company of the others listed in the hymn, and there is little doubt that they are subordinate to the higher authority. Whether we choose to locate the Keftiu in Crete or in SW Anatolia, where the Cretan colonies had become established cities, we must include 'those who are in their isles in the midst of the great sea', and so Crete belongs either way. This means that the Cretans of the late LM IB, LM II and LM IIIA₁ periods were beholden to the most powerful man in their world.⁶ Further proof of this relationship is suggested by the sudden increase in Cretan and early Mycenaean products in Egypt, after an interval of almost two centuries, but the evidence goes far deeper than exchanged goods.⁷

Ahmosé and his successors in the XVIIIth Dynasty were conscious of their roles as restorers of the 'greatness' of the Middle Kingdom, and so the monuments they sponsored were viewed as part of a renaissance, which far surpassed in scale and execution those of their ancestors. I suspect that this major change in the wealthiest and most powerful nation in the region had a profound effect on Crete, but the sudden and conspicuous appearance of representational art around the time of Ahmosé's accession to the throne has been obscured to scholarship by the debate surrounding the date and effects of the volcanic eruption of Thera. Driessen and Macdonald argue that the Thera eruption caused the changes in Crete evident during the transition from the LM IA to the LM IB period (*Troubled Island*). However, I believe that something much deeper than fluctuations in the weather patterns must be found to explain profound changes like the abandonment of

5 Many studies of Cretan figural art, such as Sapouna-Sakellari 1995, assign material to this period to fit what are seen as gaps in the notional stylistic development of Aegean art, but there is no stratified evidence to support these hypotheses.

6 Bernal 1991 presents the case for Egyptian hegemony, dismissed as trade links in Cline 1994, 31–42.

7 As argued in Kemp and Merrill 1980, 226–45; Warren and Hankey 1989; Warren 1995; Cline 1994, 31.

the Minoan Hall, with its wooden colonnades, in favour of the revival of the stone pillared hall, for example. This coincides with the inundation of Crete with pictorial scenes and symbols connected to ritual behaviour, which, in any case, had already begun to arrive at Akrotiri in Thera before the eruption.

RELIGIOUS SETTING

Arthur Evans regarded the abundance of religious scenes and symbols in the Neopalatial period as 'the evidences of a real religious syncretism,' or fusion of beliefs and deities between Crete and Egypt, citing 'the constant recurrence of sphinxes and griffins and the adoption of the Egyptian *was* and *ankh* symbols', and how 'Ta-urt, the Hippopotamus Goddess, becomes the prototype of the Minoan Genii' (*PM I*, 14), the latter being a concept he invented to naturalise in Crete an otherwise well-known Egyptian figure (see Weingarten 1991).

Egyptian political domination of the Levant brought with it a number of changes in religious practices there, including the cult of Hathor, later Isis 'The Lady of Foreign Lands', and Osiris 'The Foremost of the Westerners', meaning the dead. In Syria, for example, Hathor was combined with Astarte, who then assumed the iconic signifiers of her Egyptian counterpart, FIG. 10.1 (*PM III*, 419–20, fig. 285). If, as Tuthmosis III declared, Egyptian domination extended to the 'Great men of Keftiu and the Isles of the Sea', shouldn't we find evidence of a similar phenomenon there? I believe that we

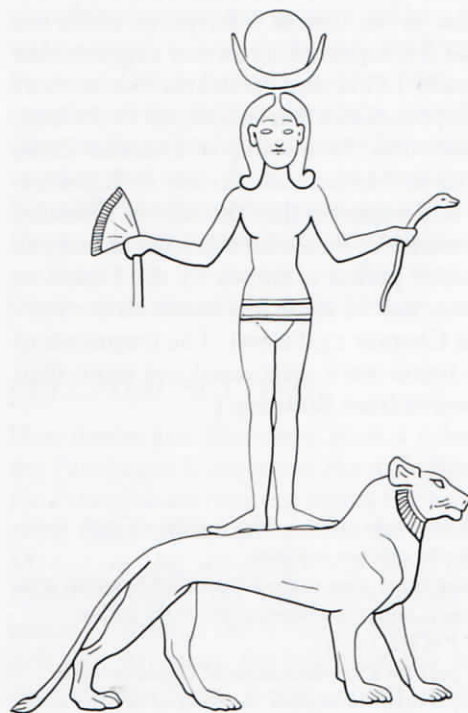


Fig. 10.1. Astarte as Hathor holding a lily and snake standing on a lion (after *PM III*, 419–20, fig. 285). (RD)

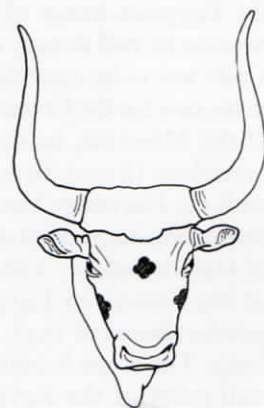


Fig. 10.2. Restored drawing of bovine head vase from Isopata with quatrefoil inlays (after *PM I*, 513, fig. 370D). (RD)

have been looking at it for over a century without seeing it.⁸

Hathor/Isis was the sister or wife of Osiris, whom Set, or Seth, cut up into pieces and scattered throughout the kingdom. Set was the desert god who competed with Horus, the sky god equated with the sun and moon, in a struggle symbolic of the judgement of the soul at the time of death. Isis and Osiris came to have strong afterlife associations, but were also equated with the fecundity of the earth in the yearly agricultural cycle. Osiris was the Egyptian player in the primeval drama of the dying youth whose return brings new life to the land; the Hathor–Osiris pair, as reflections of Ishtar (Astarte)–Tammuz, Inanna–Dumuzi, Aphrodite–Adonis and later Artemis–Hippolytos, represented the fertility goddess and her youthful consort (see Koehl, Chapter 11, below).

Evans was well versed in the ancient Egyptian's creation stories, their funerary myths and their rituals when he excavated Knossos, and he often cited the Egyptian counterparts to and origins of the artefacts he encountered. When he re-assembled the restored finds from the Temple Repositories, as he imagined they might have once stood on a bench, he placed the marble cross, which he likened to 'the simple 'Greek' cross as a star symbol of religious import', observing that it 'is found in Egypt as a mark of Hathor', in the central position, with the two female figurines, the Snake Goddess and her votary on either side (Evans 1903, 89, 92 fig. 63; see also *PM I*, 510–17). He also noted that the faience group of the cow and calf from the same deposit 'in fact, presents essentially the same type as the Cow and Calf of Hathor and Isis' (Evans 1903, 71).

Hathor's celestial aspect as a sky goddess was symbolized as the cow who lifted the sun god into the heavens with her horns and so appeared most often as a bovine head surrounded by stars with a solar disc between her horns or on her forehead. When Evans first recovered the steatite bovine heads from the Little Palace and the Isopata cemetery, FIG. 10.2, he made the link to

8 Some of the reasons for 'not seeing' are explored in Bernal 1987.

the Egyptian image of Hathor as the astral cow. But because he had already decided that the bovine head in Crete was to be masculine and was to be a key element in his case for the Cretan bull cult preserved in the myth of the Minotaur, he did not pursue alternative interpretations (Evans 1914, 52 fig. 70). Even when faced with the Harvester Vase *sistrum*, the arched, rattle-like percussion instrument singularly identified with the cult of Hathor, held by a man recognised by Egyptologists of the time as an Egyptian priest in a procession of youths (Breasted 1948, 338), Evans maintained his silence. The scene is quite closely paralleled in a painted wall relief of the Egyptian XVIIIth Dynasty in the Hathor shrine excavated by D. G. Hogarth at Queen Hatshepsut's funerary temple at Deir el-Bahari in Luxor (Neville 1894–1908). Evans acknowledged that Hera was the Classical Greek equivalent to the bovine Egyptian goddess, but stubbornly maintained that the Cretans worshipped the Nature Goddess 'of whom Aphroditê Ariadnê is a later transformation' (Evans 1903*b*, 111).

Cemeteries, in the ancient Egyptian and Greek sense, where the dead are 'put to sleep' as primary inhumations in individual wooden coffins, appeared in Crete at Knossos for the first time in the Late Minoan II period.⁹ Prior to that, the bones of the departed were either re-deposited, or left, as in the Mesarâ tholoi, where they fell.¹⁰ Clay coffins, or larnakes, decorated with the plants and animals well-known from the Nilotic scenes from Thera (Doumas 1992, 64–7, 172–3) and Mycenae,¹¹ soon appeared in these new cemeteries and their use became the predominant burial practice in Crete.¹²

In Egypt, the deceased was believed to return to the *Sekhet Ialu*, the primordial field of reeds in the marshes on the western shore, which the later Greeks called the Elysian Fields, where those who passed judgement became *maakheru*, the Egyptian root for the Greek word and concept of the *makares*, or blessed dead (Vermeule 1979, 72–3). They paid the boatman to take them across the river and to one of the four islands in the winding waterways at the edge of the world. Ideally, the dead man became Osiris, and was mystically rejuvenated, which, in the case of the king, was a symbolic rejuvenation for the entire land. This was associated with the yearly inundation of the land by the Nile, which came at the time of the heliacal, or dawn, rising of Sothis, our Sirius, to mark each new year. There is little doubt, as Evans believed, that some variant of the *Sekhet Ialu* is the source for the Cretan funerary iconography.¹³

Male figures with a distinctive belt, called the Minoan *Zoma*, standing upright with both arms bent and hands at the chest, often with a knife or dagger at the waist, first appeared in significant numbers in Cretan art in the Old Palace period, FIG. 10.3, PLATE M. The largest group from any site is that from the top of Mt.

Petsophas, overlooking Palaikastro, where John Myres cleared a tiny structure with a burnt deposit of terracotta figurines in 1902 (*PK II*, 356–87). Stance, gesture, costume (almost always limited to a loin-cloth and pair of boots), and hairstyle (varying from bald/shaved to two or three 'bun-like discs' representing topknots) are, with minor variations, shared by all. The application of a dark wash with added white and, rarely, red/orange paint for details places these examples stylistically in the early stages of the Old Palace period, contemporary with the Alternating Red and White Floral Style and the Plastic Style ceramics of E Crete, which are contemporary with MM IB and MM IIA at Knossos (*PK Settlement*, 398). A similar figure in schist from the Porti tholos in the Mesarâ has been assigned to the MM I period, but the latest pottery from this mixed context is stylistically MM IB and MM IIA, for example the Early Printed Ware (Xanthoudides 1924, pl. VI no. 5069), and White Banded Style,¹⁴ so the figurine could be contemporary with those from Petsophas.

Myres interpreted the Petsophas deposit as a dump filled with surrogate human votaries, not deities. He noted that 35 of the male figurines were 'bisected from crown to groin by a clean cut' in antiquity, which, he proposed were 'attempts to exhibit more exactly the seat of internal disease; and in that case would fall into line with the detached arms, legs and other parts of the body', which he found in great quantities in the burnt group (*PK II*, 380–1). Myres based his interpretation on the modern Greek Orthodox Christian practice of placating their god with symbols to accompany a vow, or *tama*, often relating to a medical complication.

Petsophas also yielded stone tables inscribed with unreadable formulae in the Linear A script, in which the pattern DI-KI-TA is repeated. Crowther suggests that this pattern reads Dikta and indicates the ancient oronym for Petsophas (Crowther in Chapter 12, below). Dikta may be linked to the worship of Diktaian Zeus, first referred to in Mycenaean Greek at Knossos. Thorne agrees and suggests that the cult of Diktaian Zeus, whose presence at Palaikastro at least as early as the Cretan Archaic period is shown by the Hymn to the Great Kouros, had its roots in a much earlier worship (Thorne in Chapter 13, below). The fragments of the Palaikastro hymn were discovered not more than one hundred metres from Building 5.

9 Hägg and Sieurin 1982, 180–1, who suggest a Greek mainland origin for the practice in Crete.

10 Cretan funerary ritual prior to the adoption of Egyptian style burial practices is under re-investigation by the author.

11 Discussed in *PM III*, 112–16.

12 See Watrous 1991 for a full discussion of Cretan larnakes.

13 Evans cited this myth to explain the Ring of Nestor as the 'Minoan idea of Paradise'. *PM III*, 145–57.

14 Xanthoudides 1924, no. 5119, pottery; argued in MacGillivray 1998, 58–9.

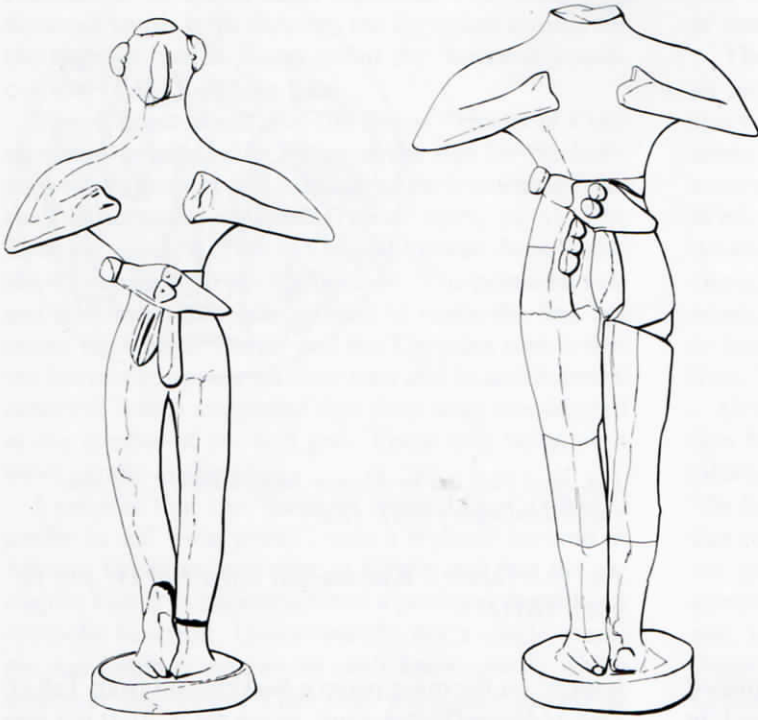


Fig. 10.3. *Petsophas terracotta kouros* (after PK II, Pl. IX, X, 1). H. 17.1 and c. 14.0 cms. (ND)

In her analysis of the Palaikastro Hymn, Jane Harrison identified Diktaian Zeus with the most primitive of ancient cults associated with the death and re-birth of the fields throughout the seasons, linking them to rites of passage (J. Harrison 1927, 16–18). The burning of the wheat chaff, breaking up the soil and then ploughing it under was personified by a young man who was bisected, or torn limb from limb, and scattered or burnt and then buried—hidden from view, with the expectation that he, like the wheat, would become whole again in time for the next year's harvest. This provides another and very different explanation from that of Myres for the *Petsophas* terracotta males—and it is only the males—who were bisected then burnt and buried, perhaps with the invocation that they, like Egyptian Osiris, reappear whole at the harvest.

CELESTIAL SETTING

Henriksson and Blomberg posit a celestial origin for the Palaikastro Kouros and the male figure depicted in the *Petsophas* terracottas, basing their identification on astral observations taken from the building cleared by Myres on the mountain's peak (Henriksson and Blomberg 1996, 113). Their calculations from the alignments of walls at the N end of the tiny structure suggest that Arcturus, the brightest star in the northern constellation *Bötes*, was the object of the ancient Cretans' astral observations. I agree that Cretan farmers, merchants and sailors relied on observations made from *Petsophas* and that the walls on *Petsophas* could well

be aligned to chart Arcturus, but, like Evans, I believe that the ancient Cretans understood Arcturus the way the Egyptians did, as the figure holding the 'Ox-haunch', which, they believed, held the sky in place, FIG. 10.4 (PM IV, 433–40 fig. 359). Modern observers call the 'Ox-haunch' the Big Dipper or the Wain/Wagon; it was the Great Bear to the ancient Greeks, hence the title Arcturus, or 'bear guardian'. In Egyptian art, the figure who holds the 'Ox-haunch' is the hippopotamus Goddess Ta-urt, whom Evans renamed the Minoan Genius. The clearest evidence for the Cretan adoption of the 'Ox-haunch' is its representation alongside the vertical staff held by the faceless male on the Master Impression from Chania, FIG. 10.5 (Hallager 1985, 24 fig. 13d). I believe that the figure portrayed as the Palaikastro Kouros is a different asterism, whose yearly celestial journey is more closely related to tales associated with ancient Dikta.

Orion, named for the later Greek mythological hunter, is one of the most conspicuous constellations and contains many bright stars. One of these, Betelgeuse

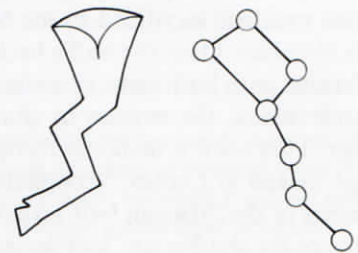


Fig. 10.4. *The Big Dipper, or Great Bear, as the Egyptian Ox-haunch* (after PM IV, fig. 359). (RD)



Fig. 10.5 (left). The Master Impression H. 2.7 cms (after Hallager 1985). (RD)



Fig. 10.6 (above). Kydonia seal (after PM IV, 467, fig. 392). (RD)

(Alpha Orionis), a variable star, is easily distinguished by its reddish colour. The total brightness of Rigel, in the hunter's leg, when measured over all visible light, is greater than that of Betelgeuse. The third brightest star in the constellation is Bellatrix. Orion's girdle, or belt—consisting of three bright stars—lies nearly on the celestial equator. His dagger, S of the belt, contains the great Orion Nebula, visible to the unaided eye, an emission nebula containing hundreds of young stars. Faint extensions of this nebula fill almost the whole constellation. In Hesiod's day, the harvest began 'When Great Orion rises', and the farmers were told to 'set your slaves to winnowing Demeter's holy grain' (Hesiod, *Works and Days*, 598), and thus marked the end of the year. If the Cretans did as the later Athenians, the first month of the year began with the first new moon after the summer solstice, our June 21 in the northern hemisphere, when 'through the ether to the lofty ceiling... Orion and Sirius dart from their eyes the flaming rays of fire' (Polymester in the *Hecuba* of 425 BC). The harvest had to be completed by the next month when 'Orion and the Dog-Star move into mid-sky, and Arcturus sees the rosy-fingered Dawn' (Hesiod, *Works and Days*, 611–14), and the 'dog days' of summer scorched the land.

Orion stands, in the celestial procession, facing Taurus, the bull with the Hyades in its head and the Pleiades, or seven sisters—perhaps the origin for the seven Athenian maidens sacrificed to the Minotaur each year, in its shoulder. Over the bull's back somersaults the hero Perseus with both arms extended, on his way to rescue Andromeda, the woman in chains, beyond the bull's rear. This scene is instantly recognizable to anyone who has looked at Cretan Neopalatial art as the basic elements of the 'Minoan bull-leapers'; it is the most likely source for the Syrian 'bull-leaper',¹⁵ and for the 'bull-

leapers' on the maze pattern background from Tell el-Dab'a/Avaris (Bietak 1995, 19–20 pls. 1, 2). It is a very obvious narrative sequence to all who gaze upward at the winter night sky over the northern hemisphere.¹⁶ All of these characters journey toward Hades, which literally means nothing more than 'unseen'. Those who go there simply disappear from view until they reappear again later in the year having travelled through the 'underworld'—literally under the world. The Greek myth of Theseus, Ariadne and the Minotaur could be nothing more than recollections of the tales created as mnemonic devices to remember the yearly procession of the constellations.

Orion's reappearance just before sunrise in mid-summer may have marked the completion of the old year, perhaps the 'year's wend', as in the Hymn to the Kouros. If the Greatest Kouros of the Hymn is the same as the Greatest Kouros of the sky, it would help to explain the epithets 'Lord of all that is wet and shining' (Harrison 1927, 7), because Rigel, his brightest star, rises, or 'leaps forth' from the sea at 'fair dawn' on the first day of the harvest, which is clearly the time of this invocation, indicated by 'leap for full jars' and 'leap for fleecy flocks'. An excellent candidate for the Orion-Diktaian Zeus synthesis is Evans' 'youthful male god', with the four topknots and the same pose and gesture as the Palaikastro Kouros, stepping forth between Ta-urt and a winged lion with a goat's head, 'at the head of his

15 Seyrig 1956; 1963. I am indebted to Edith Porada for these references.

16 For a layman's introduction to the complexities of celestial mechanics worked out by careful observation over the past six thousand years, see Krupp 1991. Ulansey 1989 suggests the same astral narrative as the origins for the later Mithraic mysteries.

Daimones' on a seal from Kydonia, FIG. 10.6. The Kydonia youth steps through the Egyptian symbol for the horizon, which Evans called the 'horns of consecration' (*PM IV* 467 fig. 392).

Powell pointed out that the Evans' 'Horns of Consecration' originated in Egypt as the sign for the horizon, where the sun god reappeared each morning from the Netherworld of death (Powell 1977, 72–3). The Kydonia youth, if taken as Orion–Diktaian Zeus, is also shown returning from the horizon. The principal reason why many scholars refused to make the link between the Cretan 'horns' and the Egyptian sign is that the horns also appear on their own and in architectural contexts, which suggested that they were worshipped as the symbol of the bull god. There may be an even more simple explanation.

I propose that the 'horns of consecration', which I prefer to call 'twin peaks', were a stylized horizon in Minoan Crete, as they were in Egypt, and that the examples found in excavation had a practical as well as a symbolic function. Unfortunately, not a single example was found *in situ*, so we can't know exactly which direction they faced. That they were once placed on the tops of walls and on balconies is evident from the art of the Old and New Palace periods, which shows them in plastic house models, in relief on stone vases, painted on wall plaster and engraved in the glyptic arts (Hallager 1985, 19–21; Morgan 1988, 83–5). In figured scenes, we see women facing the horns in an attitude we assume to be one of worship. I suspect that they are indeed in the process of worshipping something, but not the horns themselves; rather, I believe that they are anticipating what appears between the peaks.

The architectural 'twin peak' devices are ideally suited to measure and record, among other things, the four main points of the solar calendar. An Aegean observer standing on consecutive days at a fixed point facing E will observe the horizontal journey that the rising sun makes as it appears to alter its position each day due to the 23.5° tipped axis of the earth's spin. At the northern extreme of the journey, the sun will seem to stand still for a few days around June 21, the Summer Solstice—the longest day of the year. It will then journey back across the horizon reaching its southernmost point around December 22, which is the Winter Solstice—the shortest day. Exactly half-way between these two extremes is the centre of the transit which, if marked accurately, will give the observer the position of due E where the sun passes twice: once on the Vernal Equinox heralding the first day of Spring around March 20, and again on the Autumnal Equinox, around September 22. The length of day and night are exactly equal at each equinox. A useful symbol to mark the central point in the transit and to represent symbolically the equality of day and night is a simple staff with crossed diagonal lines forming two opposed triangles of equal proportion—the 'double axe' of Aegean art. The fact that the sun journeys twice through the equinox each

year could explain why some elaborate representations of double axes are doubled.

The 'twin peak' device, when fixed at a point with an uninterrupted view to the E allowing for enough space behind it for an observer to assume the same position and distance each morning, would provide an accurate measure of the four seasons in the solar year. While the 'twin peaks' device is practical, it and the double axe can also symbolize the passage of time, the changing seasons, perhaps the changes in the earth and whatever metaphorical meaning could be transferred to humans as they pass through the seasons of their lives.¹⁷

Orion, to the ancient Egyptians, was the constellation SAH 'whose leg is long, and his stride extended' (Wallis Budge 1911, Vol. II, 307, 384). Also known as 'the far strider', Orion was the last month of the Egyptian calendar followed by Sothis/Sirius, and so was often portrayed as Osiris, FIG. 10.7, and Sothis/Sirius accordingly became Hathor/Isis (Lockyer 1897, 193–200, 302–3). This provides a likely association between Osiris and Diktaian Zeus, and Hathor as herself or as a Cretan goddess, as yet unidentified. This syncretism may explain two figures painted on either side of a larnax from Mochlos, FIG. 10.8, in an undeniable funerary ritual learned from Egypt.¹⁸ The human figure on the left could be Orion–Osiris in the gesture of the Kouros, the one on the right may have a dog's head and be Sirius–Hathor; the deceased, therefore, was placed in the middle: at the transition from one life to the next.

CONCLUSION

I suggest that the Cretan figure we see portrayed in the Palaikastro Kouros, and therefore also in the male terracotta statuettes with a similar pose and gesture was the ancient god immortalized in the constellation Orion, seen arriving as he did each year to mark the beginning of the harvest. There was a festival in ancient Crete to mark this event when the Palaikastro Hymn to the Great Kouros was sung to invoke the shining one to jump up, as Rigel, the brightest star of Orion, did at its heliacal rising from the sea before the dawn at 'the year's wend'. I believe that the ritual invocation first arrived in Crete under Egyptian influence, possibly as a syncretism with the cult of Hathor and Osiris, in the Old Palace period, but only became important and a part of state religion when Egyptian funerary practices were introduced un-

17 Ancient Cretan observation of the heavens to construct and maintain their calendars is the subject of a research project far beyond the scope of this chapter, but which I initiated some years ago and plan to present in greater detail in future.

18 Soles and Davaras 1996, fig. 21 Larnax C 283 from Tomb 10.

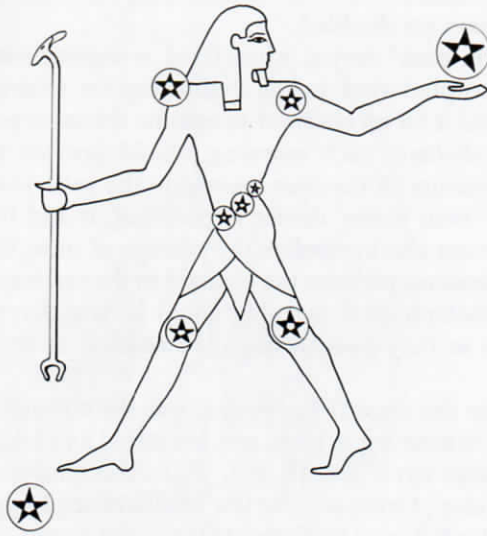


Fig. 10.7 (left) Osiris as Orion. (RD)

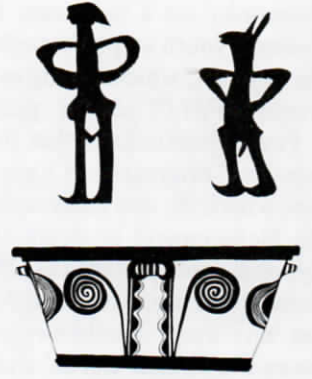


Fig. 10.8 (right) Painted kouros from interior of a larnax, Mochlos. Not to scale. Figures H. c. 14 cms. Larnax L. c. 1.16 m. (after Soles and Davaras 1996, fig. 21)

der the powerful XVIIIth Dynasty domination of the E Mediterranean at the start of the New Kingdom.

The names that we can posit for this figure are as numerous as those of the dying vegetation gods in myths retold by agrarian societies throughout the ancient

world, but anyone in the northern hemisphere who gazes into the winter sky at night and recognises the belt and dagger of Homer's 'illustrious Orion, the tallest and most beautiful of men' will consent that the 'Great Kouros' of the Palaikastro Hymn fits best.

II

Ritual context

Robert Koehl

INTRODUCTION

Despite the loss of its face and costume, the chryselephantine statuette from Palaikastro, the Kouros, preserves two iconographic elements which are crucial to an interpretation of its meaning and significance, namely its pose and hairstyle. Prior to its discovery, the pose and simplified variants of its hairstyle were familiar from terracotta figurines of male youths discovered at several peak sanctuaries, especially Petsophas, the peak sanctuary of Palaikastro (e.g. *PK II*, 361–7, pls. 9–10; Rutkowski 1991, 58–74, pls. 3–22, 38–9, 52). However, its size, combination of precious materials, extraordinary craftsmanship, and find context distinguish the Kouros from the terracotta figurines in significant respects. Based on this combination of unusual characteristics, it may be fair to conclude that the Kouros depicts a Minoan divinity, or a divinised hero, while the terracotta figurines represent his mortal age grade equivalents.

If this is true, its implications are not insignificant. It suggests that the Minoans believed a special connection might exist between a divinity and a specific age group and gender (as women are never depicted in this pose), similar, perhaps, to the relationship between Hermes, Apollo and their respective age grades in the Classical period (see below; also Graf 1979). How this connection was maintained must surely have been through ritual actions which are themselves likely to have been modelled on the role(s) ascribed to this divinity in the Minoan cosmology. Indeed, the mere existence of this kind of relationship implies, in the very least, that, as in Classical Greece, there was a certain amount of overlap between the social and religious spheres in the Minoan world.

If the rituals appropriate to this age grade could be reconstructed and the role of the divinity identified, it might then be possible to understand just how these two spheres were linked. The following study considers the evidence bearing on these questions in hopes of gaining a fuller understanding of the relationship between the secular and religious, or mortal and divine, in the Minoan (and Thera) world. The iconographic evidence which links the Kouros to other Minoan objects, their similar hairstyle and pose, implies an identification between these two groups based on gender and age.

Thus it may also be assumed that the rituals performed by the mortal equivalents of the Kouros were gender and age specific, especially if they were modelled on his cosmological function. The one universally attested class of rituals which pertain specifically to age and gender and, at the same time, link the social and religious spheres in society, is known generally as 'rites of passage'.

Shortly before the discovery of the Kouros, the present author had compared the various male hairstyles depicted in Minoan (and Thera) art and, also taking physical development and attribute into consideration, suggested that Minoan male society was organized by age grade, not unlike the social structure of historical Crete.¹ It was suggested furthermore, that Minoan society practised 'rites of passage,' a class of rituals commonly practised in societies structured by age grades (Koehl 1986, 104–10). Based, primarily, on an interpretation of the 'Chieftain Cup' from Agia Triada, a group of bronze votives from Kato Symi, and a text from the historical period, the rituals appropriate for one age grade of Minoan youths, perhaps of the aristocracy, was reconstructed (Koehl 1986, 104–10).

In addition to the Kouros, the recently published male figures painted on the walls of Xeste 3 at Akrotiri supplement and enlarge the corpus of male hairstyles from the early years of the LBA Aegean. One of them, the youth who holds a cloth (Doulas 1992, fig. 113), can be linked through pose and hairstyle to the Kouros as an age grade equivalent. An analysis of the narrative context of the Xeste 3 paintings not only sheds light on the role played by this youth in the age grade rituals, but helps explain the cosmological function of the Kouros.

We begin by introducing the concept of 'rites of passage' generally and touch on some of the social institutions with which they are commonly associated. The evidence for age grade rituals from post-Bronze Age Greece and Crete are briefly discussed as possible models for reconstructing analogous social structures in the Minoan era. Surely it is at least worth comparing the post-Bronze Age literary evidence with the Bronze Age

¹ Koehl 1986, 100–03; for the female equivalence on Thera, see Davis 1986.

archaeological evidence to see whether they are compatible or contradictory. The new discoveries from Palaikastro and Akrotiri are examined and incorporated into a more refined sequence of Minoan male age grades and rituals than was suggested in 1986 (Koehl 1986, 100–03).

THEORIES OF 'PRIMITIVE' RITES OF PASSAGE

The rituals which celebrate the critical events of life, such as birth, puberty, marriage, and death, and the transitional stages of maturation, are known collectively as 'rites of passage'. This term was introduced into the ethnographic and anthropological literature by A. van Gennep in his seminal study of 1909 (Gennep 1960). In this work Gennep examined the rituals from many different cultures which accompany these events and stages and found that they were all based on a similar tripartite ritual structure comprised of rites of separation, rites of transition, and rites of incorporation (*ibid.*, 1960, 11).

After ninety years, Gennep's tripartite scheme still forms the basis for many studies concerned with rites of passage (e.g. Turner 1967; Pentikainen 1986, 1–24). After Gennep, perhaps the most influential scholar to investigate rites of passage in a cross-cultural context was M. Eliade (1958; cf. Ries 1986, 13–26). Eliade concentrated on the symbolic elements in these rituals which express the idea of death and rebirth (Eliade 1958, xii–xiii, 13–37). Thus the rituals which celebrate the departure from one stage of life often contain elements which allude to death, while entry into the next is accompanied by rituals which suggest rebirth.²

Comparative studies in cultural anthropology and ethnography have shown that groups which practice rites of passage often share other social institutions. Frequently, the populace is separated by gender and age grade (e.g. Eliade 1958, 4–10; Van Baal 1984, 131–2). While both male and female children will normally live at first with their mothers, once male children begin their initiatory process, they are separated and live afterwards primarily in the company of men. These societies often have a special building, the men's house, where boys are taught tribal myths, songs, and dances, men dine communally, and secret rites are performed (Webster 1932; Gennep 1960 29, 35). The presence of women is usually taboo, as they may be perceived as having a weakening effect on the males (e.g. Allen 1984, 117).

The data upon which these studies are based derive largely from observations by early European ethnographers and travellers or on the memories of tribal elders. Unfortunately, many of the rituals are no longer practised, having been prohibited by European colonists and missionaries who replaced traditional tribal customs with European Christian values (Thomson 1949, 35–6). Hence the accurate reconstruction of these rites and

their interpretations are widely debated (e.g. Herdt 1984, 1–81).

RITES OF PASSAGE IN ARCHAIC GREECE AND DARK AGE CRETE

These caveats are even more pertinent to the student of ancient societies, where the data derives exclusively from secondary sources and thus are subject to an even greater degree of unreliability. No documents survive from ancient Greece which explicitly claim to describe rites of passage. However, scholars of the Classical world have recognized in the surviving literary sources, archaeological remains, and myths, some of the same initiatory patterns and concomitant social institutions identified first by anthropologists.³

E. Harrison has recently garnered epigraphic and iconographic evidence to show that during the eighth and seventh centuries BC Athenian aristocratic youths were organized into age groups similar to those of Sparta, Thera and Crete (discussed below).⁴ Harrison proposes that the *orchestai* mentioned on the earliest surviving Attic inscription, from the third quarter of the eighth century BC, were a group of aristocratic adolescent boys who danced together under the patronage of Apollo.⁵ She notes that Athenaeus, quoting Theophrastus, states that as a boy, the poet Euripides poured wine for the *orchestai* who were boys from the first families of Athens that danced around the Temple of Delian Apollo (Athenaeus *Deipnosophistae* 4.423).

Harrison identifies the existence of an older age group from a reinterpretation of the finds discovered in the sanctuary of Zeus Ombrios on Mt. Hymettos (M. Langdon 1976). She ascribes the graffiti, small jugs, cups, and animal bones to aristocratic youths 'pursuing their training for adulthood: learning to write as in Thera, hunting and feasting in the country as in Crete' (E. Harrison, see n. 4). Harrison's reference to Thera involves the seventh century BC inscriptions found on the terrace near the dancing ground of Apollo Karneios written by *epheboi* who danced there in honour of the

2 Turner 1967, 96–9; for death symbolism in Classical Greek initiations see Jeanmaire 1939, 342–3; Nagy 1986, 73–88; Dowden 1989, 36; for parallels between marriage and funerary rituals, see Gennep 1960, 92; for Classical Greece particularly, see Jenkins 1983, 141–2.

3 Thomson 1949, 7, 45–9; Cole 1984, 233–44; Sergent 1984; Sergent 1986; Dumas 1987, 153–4; Dowden 1989, 35–47; Dacosta 1991, 9; Kennell 1995, 74 ff.

4 Professor Harrison's ideas were first presented in a keynote address delivered at the first annual symposium of Classical and Mediterranean Archaeologists in Southern States, March 1987. It is with her kind permission that I am able to make reference to her unpublished ideas (personal communication, October 20, 1997).

5 On the inscriptions, see Immerwahr 1990, 7; Jeffery 1990, 68; for Apollo as a god of male initiations, see Graf 1979, 2–22.

god.⁶ Apparently youths on Thera were organized in groups similar to the Athenian *orchestai* (see also Sergent 1986, 357–69).

By the Classical period, age grade initiation rites had become part of the civic educational system of the *polis* (discussed below) and a condition for participation in certain cults, such as that of Artemis Brauronia. Kraters and krateriskoi from Brauron depicting little girls in short dresses dancing in procession towards an altar and nude girls with long hair and legs running races may portray two different age grade initiations.⁷

According to some scholars, certain enigmatic rituals performed at Greek athletic competitions might also be survivals of 'archaic' age grade initiations. At the games for Zeus Lykaios in Arkadia, for example, participation was open only to young men who had completed a mandatory nine year period of abstinence lasting from age sixteen to twenty-five, during which time they were called 'wolves' (Burkert 1983, 100; also Eliade 1958, 109). At the age of twenty-five the men could compete in the games and if successful, marry and enjoy the rights of full citizenship. These adult men were now called 'acorn eaters'.⁸

Scholars have also detected survivals of primitive age grade initiations in the civic educational institutions of Athens and Sparta. In Athens, the maturation process of young males was divided into three stages: age six to fourteen, fourteen to eighteen, and eighteen to twenty (Willetts 1962, 47–8; Cole 1984, 233–6; Vidal-Naquet 1986, 106–28). The transition from the first to second stage was marked by an offering of the boy's hair and his receipt of a new garment (Picard 1960, 98; Cole 1984, 234). For entry into the last stage, the hair was cut again and a new cloak given, marking the boy's initiation as an *ephebe* (Willetts 1962, 48). Changes in hairstyle, often involving cutting and/or shaving, and the receipt of new garments, are typical age grade initiation rituals, which serve to proclaim publicly the initiate's new status.⁹

The *agoge*, the term generally used for the organization of Spartan male youths, is the most familiar educational system from the Classical period based on age grades and initiation.¹⁰ Children in Sparta remained at home until six years of age at which time they were enrolled in an *agela*, or herd, where they stayed until the age of twelve. Graduation from the herd was marked by a severe haircut (Doumas 1987, 153). Childhood in Sparta was thus organized on a tripartite initiatory structure like that identified by Gennep: separation at age six; transition from six to twelve; incorporation at age twelve.

Upon graduation, the cycle of initiations would start again. The youth would now leave the city, a rite of separation, to survive for a year, weaponless or light-armed, hunting, stealing, or killing in the country, all the while hiding from the view of any Spartan citizen; hence its appellation, the *krypteia* (Willetts 1962, 46; Vidal-Naquet 1986, 112–14, 147–50). The *krypteia* is

thus a liminal or transitional stage. Upon its completion, a youth was incorporated into society as an *ebion* and remained one until the age of eighteen. At nineteen, a youth was regarded as a *melleiren*, or a future *eiren*, at which point he was entitled to speak in the assembly and lead a group of soldiers.

While scholars usually focus on the *krypteia* as the decisive element in the education of Spartan adolescents (e.g., Vidal-Naquet 1986, 112–14), Harrison draws attention to figurative scenes on Archaic Laconian pottery which depict bearded men and beardless youths hunting together (Stibbe 1972, pls. 78.1 [220], 91.2 [275]). It is these activities, she maintains, which would have instilled the values of comradeship and mutual dependence that formed the backbone of the Spartan hoplite infantry, more so than those learned in the *krypteia* (E. Harrison, see n. 4). By way of comparison, she cites the Cretan institution of the *philetor* and *parastatheis*.

Literary and archaeological evidence indicate that age grade initiations played a significant role in the social structure of Archaic and Classical Crete (Jeanmaire 1939, 421–7; Willetts 1955, 7–17; 1962, 46–7; Sergent 1984, 17–73). The youngest boys on Crete, the *paides*, were also called *apageloi*, meaning that they had not yet joined an *agela* (Willetts 1955, 11). Perhaps during puberty the cycle of initiations would begin. The boys would leave the city, a rite of separation, and spend two months in the country, during which time they were known as *skotioi*, since they were secluded from view (Willetts 1955, 14; 1962, 47; Vidal-Naquet 1986, 116). This liminal or transitional phase would thus be equivalent to the Spartan *krypteia*. Upon return, the boys were incorporated into society by joining an *agela*, where they received preliminary military training, and also served in the *andreion*, the men's communal dining hall. However, the boy was still considered a minor, called an *apodromos*, i.e., someone who was not yet permitted to exercise in the *dromos*, the Cretan gymnasium (Willetts 1955, 11). Upon graduation from the *agela* at twenty, the young man, now called a *dromeus*, would join an *andreion* and a *dromos* (Willetts 1955, 1), and marry in a communal ceremony (Strabo 10. 4.21 C482). Graduation from the *agela* and enrolment in an *andreion* were

6 *IG* xii. 3. 540, 543, 546; see also 533–7, 573, 767, 1414, 1416, 1437, 1461; Jeffery 1990, 319.

7 Kahil 1977, 86–98; 1983, 231–44; Lloyd-Jones 1983, 87–102; E. Simon 1983, 83–8; Cole 1984, 238–44; Sourvinou-Inwood 1988; Dowden 1989, 25–47; Reeder 1995, 323–6, nos. 98–9; cf. Eliade 1958, 2–3.

8 Burkert 1983. On rites of passage and the origin of the Olympic Games, see Nagy 1986, 71–88.

9 Leach 1958, 147–64; Gennep 1960, 75, 84–7, 166–7; Van Baal 1984, 132–6; Serpenti 1984, 297–8, 305–06; for haircutting in the ancient Near East, see Karageorghis 1990, 67–71.

10 Kennell 1995; also Jeanmaire 1939, 449–512; Willetts 1955, 15–16; 1962, 45–6; Sallares 1991, 160–2.

celebrated on Crete during certain festivals, especially at the *Thiodaisia* (Willetts 1962, 200–04), the *Ekdysia* at Phaistos (Willetts 1962, 175–8; Dowden 1989, 65–8) and the *Periblemaia* at Lyttos (Willetts 1962, 294). The latter two refer to rituals involving changes in dress, a custom mentioned above as typical of rites of passage. The *Ekdysia* may emphasize the removal of the old garments of youth, while the *Periblemaia* emphasizes the putting on of new ones denoting manhood (Willetts 1962, 294).

While these initiation rites provided an educational and social structure for the general citizenry, a more exclusive set of age grade initiations seem to have been practised on Crete only by an aristocracy. Strabo (10.4.21 C483–4), quoting the fourth century historian Ephoros (*FGrHist* 70 F 149), describes a peculiar erotic custom wherein a young man, called a *philetor*, would abduct an adolescent, called a *parastatheis*, and with the help of the boy's friends, take him to the young man's *andreion*. After giving the boy presents, the *philetor*, the boy, and his friends, would leave the city for two months hunting and feasting in the woods. Upon returning to the city, the *philetor* would give the boy three gifts required by law: military gear, an ox, and a drinking cup. The *parastatheis* would then hold a feast for his friends where he would reveal intimate details about his lover. Thereafter, the boy received special honours, assuming the choice position in dances and races, and wearing distinctive clothes. After reaching manhood, he would be known as a *kleinos*, or 'famous one.' A *parastatheis* would thus be equivalent in age grade to an *apodromos* during his period as a *skotios*, while a *kleinos* would be equivalent to a *dromeus*.

Bethe was the first scholar to explain this passage as a form of ritualized homosexual behaviour associated with rites of passage (Bethe 1907, 438). Later Jeanmaire hypothesized that it documented a social system by which an aristocratic warrior elite was perpetuated through recruitment from the general citizenry, his so-called 'society of *kleinoi*' (Jeanmaire 1939, 450–5). Since Jeanmaire, nearly all scholars have accepted the interpretation of this passage as a puberty initiation ritual.¹¹ What has not been emphasized in these discussions is its tripartite ritual structure. The abduction is clearly a rite of separation; the two months secluded hunting and feasting in the woods would be the rites of transition; the return to the city, the giving of gifts by the *philetor*, and the banquet offered by the *parastatheis* would be the rites of incorporation.

Particularly relevant to the present study is the question of the antiquity of these rites. Since Ephoros describes them as a *nomimon*, or custom, they surely predate the fourth century BC. While Jeanmaire believed that they antedated the Dorian arrival on Crete (Jeanmaire 1939, 422, 425), most scholars regard them as essentially Dorian.¹² In a previous article, the present author proposed however, that the passage quoted by Strabo describes an initiation rite which was actually Minoan in origin.

THE MINOAN RITES OF PASSAGE

The evidence for its Minoan heritage derives from the present author's iconographic interpretation of the Chieftain Cup and a comparative examination of male hairstyles and physiognomy in Minoan and Theran art (Koehl 1986, 99–110). The latter investigation revealed a pattern of distinctive hairstyles which corresponded to the various stages of male maturation.¹³ It is clear that Minoan and Theran artists rendered the anatomical changes which occur naturally during the male ageing process in an intelligible, at times exaggerated, manner.¹⁴ As already mentioned, rituals involving hair are characteristic of societies which practice age grade initiations. Haircutting rituals were also performed at Classical Greek festivals, especially those concerned with young men coming of age and girls about to marry.¹⁵ It was therefore proposed that Minoan and Theran male societies were separated into age grades, not unlike those of the historical period, discussed above (Koehl 1986, 103). Furthermore, the imagery on the cup was interpreted in light of the passage by Ephoros, as a depiction of the rites of incorporation for a Minoan *parastatheis* (Koehl 1986, 104–07; discussed further below).

The Palaikastro kouros and the male figures painted on the walls of Xeste 3, room 3, at Akrotiri now allow for a more complete understanding of male age grades and their characteristic hairstyles than was first suggested in 1986. A new sequence of hairstyles and their equivalent age grades is proposed below (see FIG. 11.1). Again, evidence from both Crete and Thera is taken into account. Prior to the discovery of the kouros, two hair styles were known to be used in common for the same two age grades.¹⁶ Since the kouros now provides

11 E.g. Brelich 1969, 35, 84 f., 120 ff.; Calame 1977, I, 421–7; Bremmer 1980, 283–7; Buffière 1980, 52–63; Patzer 1982, 72–84; Sergent 1984, 17 ff.; 1986, 380 ff.

12 E.g. Bremmer 1980, 283; Buffière 1980, 52–3; Patzer 1982, 73; for possible Indo-European antecedents, see Sergent 1984, 26–55; also Sergent 1986, 402, 548 ff.

13 Koehl 1986, 100–03, fig. 1; for female figures from Thera, see Davis 1986, 399–406.

14 See also Witheer 1992, 336; Morgan 1997, 39–40; discussed further below.

15 E.g. Eitrem 1915, 395–6; Nilsson 1941, 126, 143–38, 221, 356, 464; Willetts 1962, 81; Cole 1984, 234–6; Vidal-Naquet 1986, 109–17; E. Harrison 1988, 247–54.

16 See below, stages *II.b* and *II.c*; also Morgan 1988, 198, n. 95; Morgan 1997, 39. The present study does not include the evidence from bronze and terracotta figurines. These will be taken into account by the present author in a forthcoming monograph on Cretan Bronze Age social institutions. Preliminary investigations indicate, however, that the hairstyles depicted on these figurines are mostly comparable to those seen on the frescoes, ivory figurines, seals and relief stone vases. For bronzes, see now Verlinden 1984, 93–5, and Sapouna-Sakellarakis 1995, 145–7.

evidence for a third (see below, stage *II.a*), it is not unreasonable to expect that the others were also the same.

The male figure appears in Aegean art depicted in all three phases of maturation: childhood, youth, and adulthood. Based on hairstyles and anatomical renderings three subsidiary stages can be recognized within each phase, giving a total of nine stages, each with its own characteristic hairstyle. As will be proposed below, the ritual sequence which determined the change from one hairstyle to the next corresponds closely with the tripartite structure for rites of passage first identified by Gennep.

An outline of the sequence of male hairstyles is presented here with each hairstyle briefly described; comments and discussion follow. A representative example of each hairstyle is illustrated in FIG. 11.1. Reference is also made to the best preserved and most conveniently illustrated examples (for other examples, see illustrations for Chapters 8–9 above).

I. Childhood

- a. Scalp shaved: ivory figurines, Palaikastro (*PKU* pl. 27).
- b. Scalp shaved around short looping back lock, small front lock: yellow boy, Xeste 3, Akrotiri (Doumas 1992, fig. 112).
- c. Scalp shaved around long looping back and long side lock, full front and top locks: Boxing Boys, House Beta, Akrotiri (Doumas 1992, figs. 79–81).

II. Youth

- a. Scalp shaved leaving short front and top locks: Kouros, Palaikastro (PLATES 16, 17 *d*), Fisher Boys, West House, Akrotiri (Doumas 1992, figs. 22–3), tall boy with cloth, Xeste 3, Akrotiri (Doumas 1992, fig. 113).
- b. Top knot (or lock) with short hair in front, sides (possibly shaved), and back (possibly shaved): shorter figure on Chieftain Cup, Agia Triada (Marinatos and Hirmer 1976, pls. 100, 102 left); boy with cup, Xeste 3, Akrotiri (Doumas 1992, figs. 111, 115).
- c. Waist-length back, side and temple locks; full front locks; short top locks: taller figure on Chieftain Cup, Agia Triada (Marinatos and Hirmer 1976, pls. 100, 102 right); slightly simplified on Boxer Rhyton, Agia Triada (Marinatos and Hirmer 1976, pls. 106–07).

III. Adulthood

- a. Top knot, short tapering side lock, short hair in front (back missing): seated figure, Xeste 3, Akrotiri (Doumas 1992, fig. 114).
- b. Goatee, longer hair in front, back hair to nape of neck: 'chanting priest' seal, Knossos (*CMS* II.3, no. 13), 'priest' seal with animal heads, 'Anapolis' (*CMS* II.3, no. 196).

- c. Full beard, full front locks, shoulder-length back locks: seal with 'priest's' head (*CMS* IX, no. 6D, b); seal with 'priest', Malia (*CMS* II.3, no. 147); perhaps robed figure of Harvester Rhyton, Agia Triada who also has short top locks (Marinatos and Hirmer 1976, pl. 103).

Comments on the Sequence of Hairstyles and Age Grades

Before a reconstruction of Aegean tonsure rituals in Aegean age grade initiations is suggested, certain questions raised by the sequence need further explanation. In her article on youth and ageing in the Thera frescoes, Davis thought that the Fisher Boys were younger than the Boxing Boys, reasoning that the short locks of the former would grow into the waist-length locks of the latter.¹⁷

Doumas considers the Boxing Boys the youngest children portrayed on the Thera frescoes, while the two boys depicted together on the Xeste 3 paintings (Doumas 1992, figs. 112–13) and the Fisher Boys would belong to the next age grade, since they seem to have identical haircuts (Doumas 1987, 155–6; 1997, 2). Their hairstyles are not, however, the same. The hair lock on the small Xeste 3 boy begins below the crown and loops at the back (Doumas 1992, fig. 112), like the Boxing Boys', whereas the top lock of the tall boy begins at the crown and continues to the back (Doumas 1992, fig. 113), like the Fisher Boys'. Unfortunately as the front of the tall boy's head is missing, it is impossible to know whether he also had a front lock.

Morgan prefers to group the small boy of Xeste 3 with the Boxing Boys, although she believes that the yellow skin tone of the former makes him younger (Morgan 1997, 39–40). His youth may also be understood from his significantly shorter stature and by the blue stroke painted in the white of his eye, an artistic device which Davis interprets as signifying youth (Davis 1986, 401). Morgan is unsure, however, where the tall boy from Xeste 3 and the Fisher Boys fit into the sequence of age grades (Morgan 1997, 40). Withee, like the present author, believes that the more muscular bodies of the Fisher Boys indicates they are older than the Boxing Boys (Withee 1992).

The last group, comprised of men in maturity, is the most difficult to document. At Thera, only the seated male from Xeste 3 seems to evince indications of a relatively advanced age, as witnessed by the slight paunch of his belly and the red strokes in the whites of his eyes.¹⁸ The most reliable evidence for the appearance of the mature male figure in Minoan art is comprised of a

17 Davis 1986, 399–401. In discussing this question, Davis has now changed her view to that of the present author's (personal communication).

18 Doumas 1997, 2; 1992, fig. 114; on red strokes as a sign of 'old' age, see Davis 1986, 404.

CHILDHOOD (I)



YOUTH (II)



ADULTHOOD (III)



Fig. 11.1. Sequence of Minoan and Theran male hairstyles by age grade (not to scale). Drawing by R. Porter, after R. Koehl.

(I.a) Ivory figurine, child, Palaikastro (after PKU pl. 27); (I.b) wall painting, yellow boy, Xeste 3, Akrotiri (after Doulas 1992, fig. 112); (I.c) wall painting, Boxing Boy, Building Beta, Akrotiri (after Doulas 1992, fig. 80); (II.a) wall painting, Fishing Boy, West House, Akrotiri (after Doulas 1992, fig. 114); (II.b) relief stone vase, shorter male, Chieftain Cup (after Marinatos and Hirmer 1976, pl. 102 left); (II.c) relief stone vase, taller male, Chieftain Cup (after Marinatos and Hirmer, 1976, pl. 102 right); (III.a) wall painting, seated male, Xeste 3, Akrotiri (after Doulas 1992, fig. 114); (III.b) seal, Knossos, 'chanting priest' (after CMS II.3, no. 13); (III.c) seal, unknown provenance, 'priest's head' (after CMS IX, no. 6D,b).

head-shaped rhyton from Phaistos (Marinatos and Hirmer 1976, pl. 139 lower) and the figures portrayed on a group of seal stones identified by some scholars as priests.¹⁹ Unfortunately neither the goatee of stage *III.b* nor the full beard of stage *III.c* is evident on the robed figure of the Harvester Rhyton as his chin is blocked by the curved stick he carries across his shoulder (Koehl 1995, pl. XIIa; Marinatos and Hirmer 1976, pl. 103).

Male Tonsure Rituals on Crete and Thera

The pattern of Minoan and Theran tonsure rituals reconstructed here is based on cycles of shaving and/or cutting and growing. Thus the hair is cut in a ritual of separation in stage *a*. Transitional phases, stage *b*, are periods of hair growth. The hair then reaches its maximum length in the incorporative stage, *c*, at the end of which it is cut and the cycle begins again.

Childhood (I): The completely shaved scalps of the smallest children (*I.a*) may represent a tonsure ritual in which the first tufts of birth hair were shaved, perhaps when the child was old enough to survive without his mother (cf. Herdt 1984, 297–8). This initial shaving would thus symbolize a separation from the mother. At some point during childhood (*I.b*), perhaps soon after the initial shaving, a front and looping back lock were grown, while the rest of the scalp continued to be shaved. By the end of childhood (*I.c*), all four locks would have reached their maximum length.

Youth (II): Perhaps at the appearance of the first signs of puberty a child 'in the bloom of youth' was given a severe haircut for entry into the next age grade. The side and back locks were shaved, while the front and top locks were cut short (*II.a*). The hair-style of the Palaikastro kouros is the most elaborate known from this stage. Here, the scalp was shaved, leaving a row of hair down the middle. The hair may then have been divided into locks which were twisted to meet tip to tip. When the top locks grew, they may have been made into the top knots of stage *II.b* youths. During this stage, the scalp was also left to grow, although it may still have been shaved low at the sides, as seen on the boy holding the cup from Xeste 3 (Doumas 1992, fig. 111). By the time that the back, side, and temple locks grew to waist-length tresses the youth would have reached his prime (*II.c*). Interestingly, it seems that the top knot was opened, although the locks were kept short (Koehl 1986, 103).

Adulthood (III): Upon entry into adulthood the hair was cut once again. The back locks were cut above the neck, the top locks were again drawn up into a top knot, and the long side locks were cut above the ear, leaving a tapering lock to hang in front of the ear (*III.a*). Unfortunately, the only extant representation of this stage, the seated man from Xeste 3, has considerable damage at the forehead (Doumas 1992, fig. 114). During the

middle phase of adulthood the front hairs were grown into bangs over the forehead, the side lock was combed back, the back hairs were grown to the nape of the neck, and a goatee was grown under the chin (*III.b*). In the last stage, the forehead bangs were fashioned into locks, the back and side hairs reached the shoulder, and the goatee may have grown to a full beard (*III.c*) (cf. *CMS* II.3, 147). The robed figure on the Harvester Rhyton also has the short top locks (Koehl 1986, 103; Marinatos and Hirmer 1976, pl. 103).

Images of Initiation in Minoan and Theran Art

N. Marinatos has correctly observed that men and women are rarely shown intermingling in Minoan and Theran art (Marinatos 1987, 23–34; 1995, 577–85). She explains this phenomenon as a reflection of the different roles played by each in the performance of religious ritual (Marinatos 1987; 1995, 584). Yet, it is on the gold rings, perhaps the least ambiguous depictions of religious ritual in Aegean art, that the sexes most often appear together (Marinatos 1993, figs. 178, 187–9). However, gender segregation, often a concomitant of societies which practise age grade initiations, does seem apparent on Thera and Crete from a wide range of figural representations. Particularly notable are the Minoan relief carved stone vases: all sixty-two of the human figures preserved on the vases and fragments are male (*MSV* 1969, 174–81, esp. 178, n. 2).

The Chieftain Cup

As noted above, the scene carved on the Chieftain Cup has been interpreted as emblematic of the rites of incorporation for an aristocratic youth, similar to those described by Ephoros (Koehl 1986, 104–07). The scene may represent a *philetor* having just presented his *parastatheis* with military gear: a sword, perhaps a whip, and three ox skins to be fashioned into ox hide shields (for further discussion of hunter/lovers, see below). The columnar structure behind the young man might represent the *andreion*, where the youth would have offered the oxen for his first feast.

The shape of the Chieftain Cup itself, a low stemmed chalice, may also link these rites with those practised at the rustic outdoor shrine of Hermes and Aphrodite at Kato Symi Viannou. While chalices are rare generally in Minoan Crete (*MSV* 1969, 37), chalices at Symi 'occur by the thousands... in an endless variety of size and decoration' (Lebessi and Muhly 1987, 110). However, the importance of the chalice at Symi may not be its only connection with the Chieftain Cup. Other archaeological remains point to Symi as the Bronze Age and post-Bronze Age locale for the two months of hunting

19 Discussed in Koehl 1995, 28–30, pl. XIIb, d, f, g; also Marinatos 1993, figs. 88–93, 95–8.

and feasting secluded in the woods, i.e. the rites of transition described by Ephoros.²⁰ This is partly based on the discovery of abundant faunal remains, cooking pots, and drinking paraphernalia, which the excavators have convincingly interpreted as the remains of feasts (Lebessi and Muhly 1990, esp. 324–8).

Hunter/Lovers

Votives from Symi also commemorate the erotic component of the customs described by Ephoros. Among the earliest is an eighth century BC bronze figurine depicting an ithyphallic helmeted male whose hand rests on that of a shorter ithyphallic helmeted male.²¹ Of the same date is a figurine of an ithyphallic male holding a chalice, the latest manifestation of the shape at Symi (Lebessi and Muhly 1987, fig. 11).

A connection between hunting and eros is further documented at Symi by a series of seventh century BC bronze cut-out plaques which portray youths carrying bows, arrows, and *agrimia* (Lebessi 1985, esp. 236–7). On one now in the Louvre, an elder, bearded male faces a younger, beardless male.²² The younger male holds an *agrimi* across his shoulders while the older male holds his arm under the younger male's arm in a supportive gesture. The older male also places his foot on top of the younger man's foot. Their mutual gaze underscores the intimacy communicated by their gestures.

A pair of Bronze Age hunter/lovers may also be represented on a gold ring, perhaps of Minoan manufacture, which was discovered in a LH IIIA tomb at Pylos.²³ In the centre is an altar in a rocky or mountainous landscape. To one side two males of different heights stand 'saluting' each other; on the other side is an *agrimi*. Eros is manifested by the taller male's ithyphallic state, a detail visible on photographs but omitted on all published drawings.

Another pair may be depicted on a fragmentary serpentine relief carved rhyton from Knossos (*MSV*, pl. 488c). A youth, identified by his belted codpiece, drags an *agrimi*; below is a boar's tusk helmet with an *agrimi* horn crest, which probably was worn by an elder male. Warren's interpretation of the scene as a 'moment in a raid for livestock' is unlikely in view of the *agrimi*'s natural mountainous habitat (Warren 1979, 126, fig. 4).

The Wall Paintings of Xeste 3 and Marriage

In the rites of passage discussed above, the initiate is a youth in the middle stage, *II.b*. Hairstyle places the Palaikastro kouros, however, in stage *II.a*, 'the bloom of youth.' While precise parallels for his hairstyle are unknown, the hair of the tall boy holding the cloth from Xeste 3 provides a fair comparison (see outline, above). Indeed, when viewed in profile, the locks of the kouros have an undulating contour, not unlike those of the Xeste 3 boy.

The poses of both figures are also comparable insofar as both emphasize the chest and shoulders. The

kouros stands in a familiar pose, with the fists placed on or below the pectorals (see also Chapters 8–9 above). The tall boy from Xeste 3 is shown in a twisted perspective, with his upper torso frontal and his legs in profile; his right arm is bent across his body, thereby obscuring the abdominal twist (Doumas 1992, fig. 113). By contrast, the other two young males are rendered in profile, a pose which in fact de-emphasizes the breadth of the torso (*ibid.*, 1992, figs. 109, 111, 112). The torso of the seated adult male is also hidden, as his right shoulder is brought forward, thereby compressing the upper body (*ibid.*, 1992, fig. 110). The tall boy may be distinguished further from the others by the objects they carry. While the tall boy holds one or more pieces of cloth, the others carry vessels: a bowl (or incense burner [Doumas 1987, 156]), cup, and a jug.

Nearly every scholar who has discussed the Xeste 3 paintings concludes that they document an initiation, primarily on account of the variety of age grades depicted. Marinatos interprets them as a female coming of age initiation (Marinatos 1984, 61–84; 1985, 222–8; 1987, 31–2; 1993, 203–11). Previously she proposed that the girl with the wounded foot impersonated the goddess painted directly above her (Marinatos 1984, 84; 1985, 228). Marinatos later modified that view and identified the girl as the main initiate who was literally wounded in an initiation ritual held during a festival of the goddess.²⁴ Knowledge of female blood, either from menstruation or childbirth, would be revealed at this time (Marinatos 1993, 207). For Marinatos, the men in the Xeste 3 paintings are 'marginal participants,' carrying offerings to the adyton (Marinatos 1984, 61) or attending to the women, even cleaning the initiate's bloodied foot (Marinatos 1993, 210).

Doumas thinks that Xeste 3 was used for separate male and female initiation rites (Doumas 1987, 154–8; 1992, 128–30). While uncertain of their precise nature, he proposes that one of the naked men will be dressed during a coming of age ceremony conducted under the supervision of the eldest male (Doumas 1987, 157–8; 1992, 130). Morgan sees both male and female puberty initiation rites here, noting the similarity in the syntac-

20 Koehl 1986, 108; also Lebessi 1985, 188, 198, 237–7; on continuity of ritual practice at Kato Symi, see Lebessi and Muhly 1990, 327–8, 336.

21 Lebessi 1972, pl. 188d (= Lebessi 1976, fig. 4).

22 Koehl 1986, 107–08, nos. 50–1, pl. 7b; Lebessi 1985, 52–3, pl. 5; Hampe and Simon 1981, 113–14, 292, fig. 169.

23 *CMS I*, no. 292; Blegen *et al.* 1973, 105, 113, pl. 192. 9a, 9b. I am grateful to E. Davis for first bringing this ring to my attention.

24 Marinatos 1993, 206–09; on the identity of the female figure as a goddess, see e.g. Marinatos 1984, 61; 1985, 224; Davis 1986, 402; Doumas 1992, 130–1, figs. 122, 125–6; Marinatos 1993, 141, 151.

tic arrangement of the male and female figures (Morgan 1997, 41).

Davis was the first scholar to propose that these frescoes alluded to marriage (Davis 1986, 402–03). According to Davis, 'the central figure, the young woman with the wound, seems to be in the process of losing her last childhood lock as well, the backlock' (*ibid.*, 1986, 402). She interprets the wounded foot as a symbolic reference to the shedding of hymenal blood (*ibid.*, 1986, 402–03). Gesell observes her dishevelled condition: the hair-pin slipping, thereby causing her 'backlock' to come loose; the skirt straps coming undone (Gesell 1997, 11). Gesell, however, finds it difficult to decide whether the frescoes refer to puberty or marriage rites (*ibid.*, 12), a dilemma shared by Niemeier (1992, 99).

Still, the general consensus among scholars points to the wounded girl as the female protagonist/initiate. If there is an equivalent male, he is less obvious. Morgan stresses directionality as a key to identifying protagonists in these paintings, the centrally placed figures upon whom the surrounding figures converge: the goddess, wounded girl, and the eldest male (Morgan 1997, 41–2). While there is no reason to question the importance of the goddess or the wounded girl, it is difficult to imagine that the male—with his stooped posture, sagging belly, and simple hairstyle and garment—functioned on any level of equivalence to either female. Karageorghis thought he might be a priest or an officiant in a hair-cutting ritual (Karageorghis 1990, 69 ff). If these wall paintings indeed relate to initiation rites, his relatively advanced age may help to identify him as an initiator, rather than an initiate (cf. Eliade 1958, 39). Ephoros mentions that the initiator of the youths on Crete was the father of the leading boy of the *agela* (Strabo 10.4.20).

Marriage in historical Crete also functioned as a component in the cycle of age grade initiations. Ephoros states that all those who were selected out of the *agela* were forced to marry at the same time (Strabo 10.4.82). He furthermore states that the boys did not take their wives home at first, but only when they were mature enough to manage their households (*ibid.*). Until then, the men may have lived in the *andreion*, or men's house (Jeanmaire 1939, 423; Willetts 1955, 18–22).

Investigations of Aegean marriage rituals have previously focused on the very few scenes which portray men and women interacting.²⁵ The most relevant are a gold ring from Tiryns (CMS I, no. 180), and an electrum ring from Mycenae (CMS I, no. 101; Xenaki-Sakellariou 1985, 191, pl. 82 [2971]). Säflund interprets the Tiryns ring as a *hieros gamos*, or sacred marriage, composed of three sequential vignettes: a ship arrives at a harbour with the bridegroom standing at the prow; the bridegroom is greeted on shore by his bride; the bride and bridegroom enter their house (Säflund 1981, 198–200). However, the hand-raising gesture made by the couple on the shore is more likely to denote departure; likewise the gesture made by the couple in the

doorway: the female touches the male's elbow while he raises his hand toward her shoulder. Rather than depicting a sequential narrative, it is more likely that one moment is portrayed, with two couples parting as the crew waits on board.

The ring from Mycenae is perhaps the most persuasive depiction of the sacred marriage in Aegean art. What is not certain is whether the ring reflects only Mycenaean beliefs or beliefs which the Mycenaeans shared with, and perhaps borrowed from, the Minoans. However, the latter is more likely, as may be deduced from the worship of a youthful Zeus on Crete (for further discussion, see Chapter 13 below).

The divinity of the seated female is suggested by her towering scale, while the divinity of the male may be inferred from his grasping of her wrist. Their divine status might also be inferred from the matching wrist and ankle bracelets worn by both (PM III, 464). If this scene alludes to marriage, it would be that of a young god with a mature goddess, a coupling familiar from Near Eastern and Classical Greek mythology, e.g. Inanna/Dumuzi, Ishtar (Astarte)/Tammuz, Aphrodite/Adonis, Hippolytos/Artemis. In these myths, the protagonists are the 'great' fertility goddess and her young consort, an annually dying fertility god (e.g. Willetts 1962, 199–220; West 1965, 154–9; Jacobsen 1976, 32–47; Burkert 1979, 120). The youth of this god is apparent not only from his small stature, but also from his hairstyle which appears to be composed of a short braid worn down the centre of the head. Indeed, it is the hairstyle of the Kouros, stage II.a.

Evans was ambivalent about the significance of the ring. He identified the figures as a divine pair, acknowledging their age difference and the intimacy implied by the wrist-holding gesture and the short dress of the goddess (PM III, 463–4). Nonetheless for Evans, the pair signified 'rather the relationship of a son to a mother than of a husband to a wife or mistress' (PM III, 464).

Nilsson was also ambivalent about the *hieros gamos*. While he thought it likely that the Minoans believed in a 'Great Goddess' and her youthful dying consort (Nilsson 1950, 403–04), for him the ring's *sacra conversazione* was more secular than religious in tone, although what he means by that is not clear (*ibid.*, 404). When discussing the *hieros gamos* festival at Gortyn, Nilsson proposed that the spouse of the goddess was the youthful Zeus Velchanos, concluding that the 'peculiar character of the youthful Zeus and his associations make it certain that he is of Minoan origin' (*ibid.*, 552, 555). Yet for Nilsson, the '*hieros gamos*' itself was probably not Minoan (*ibid.*, 555).

25 Marinatos 1987, 31–2; 1995, 583. Gesell 1980, 197–204 (n. 204) and Säflund 1981, 198–200, have entertained the idea that the miniature fresco from the West House at Akrotiri depicts a 'sacred marriage'.

Marinatos accepts the Mycenae ring as a portrayal of a sacred marriage, noting the erotic implications of the wrist-grabbing gesture (Marinatos 1993, 190). Though for her, the magnitude of the female does not denote her greater age so much as underscore her importance in reproduction (*ibid.*).

While Marinatos may be correct in emphasizing the female role over the male in procreation, evidence suggests that the male role in fertility was not only acknowledged but worshipped on Crete. The god addressed in the Palaikastro hymn as the *megistos kouros* is a male youth whose annual return to earth brings 'fertility and prosperity' (West 1965, 157). The *megistos kouros* is exhorted to 'spring up' (θόρε) in the wine-jars, flocks, fields, towns, etc. (*ibid.*, 150-1, translation). The word θορεῖν (θρόσχω) is also used for gods being born, impregnation, and semen (*ibid.*, 157-8). Indeed, West has speculated that a sexual act may have played a part in fertility rituals connected with this hymn (*ibid.*, 158). If the Palaikastro kouros represents the Minoan equivalent of the *megistos kouros*, then he must surely be identified as the youthful, annually dying divine consort of the 'great goddess' in the Minoan sacred marriage, like the short-haired *megistos kouros* portrayed on the Mycenae ring.

Archaeological and mythological evidence appear to converge on the question of the sacred marriage with regard to the dominant gender in the asymmetrically age-ranked divine couple. In Classical mythology, the divine couple in each successive generation of the sacred marriage, be it Ge and Uranus, Rhea and Kronos, or Hera and Zeus, was composed of an elder female and younger male.

A similar iconographic interpretation should also obtain for a MM I(?) ivory hemi-cylinder seal in Oxford, Ashmolean Museum number 1938.790. Although Kenna regarded it as a forgery, Gill has argued forcefully in favour of its authenticity, and has plausibly identified it with a seal excavated at Knossos and described by MacKenzie in the Daybook of the Knossos Excavations for 1903 (Kenna 1960, 1154; Gill 1967). On one side the seal depicts a long-haired woman wearing a mid-calf length flounced dress, who grasps the wrist or hand of a naked facing male. The relative youth of this male seems apparent from his short-cropped or shaved hair, while the older age of the female is suggested by her long tresses. Evans regarded the seal as a depiction of a marriage but, while pointing to the Near Eastern parallels for the female's garment, did not take account of the difference in their ages (*PM I*, 187-98). Yet the twisted pose of the male, which emphasises his frontal chest, and the short dagger worn at his waist, clearly associate him iconographically with the age grade of the Kouros. That the dagger is for hunting, rather than military use, may be inferred from the presence of a dog, depicted just below the two figures. Indeed, a hunting scene is clearly depicted on the seal's reverse

side. In the middle, the same youth, or another with the same hairstyle, kneels while holding a bow and takes aim at an *agrimi*. A tree placed between the youth and the *agrimi* alludes to its outdoor setting; a dog stands behind the youth.

If, as stated in the introduction, the Palaikastro Kouros portrays a divinity and the terracotta figurines with the same pose and hairstyle portray his age grade mortal equivalents, it is fair to conclude that these mortal youths modelled their identities on that of the *megistos kouros*. Furthermore, if their association with the *megistos kouros* was maintained through the performance of rituals which were modelled on the mythological function of the god, it is worth investigating their possible role in Minoan (and Thera) marriage ritual.

Davis and others have surmised that the wall-paintings from the ground floor of Xeste 3 allude to marriage. If it is the standard Thera marriage, rather than a singular ceremonial occasion, evidence suggests two possible models for reconstructing the ritual. Ephoros describes a group marriage ceremony, celebrated upon graduation from the herd. Iconographic evidence and mythological parallels imply a belief in a sacred marriage.

The most likely candidate for a bride in the Xeste 3 paintings is surely the girl with the wounded foot. Indeed, Rehak has recently compared her skirt, apparently made from vertical straps of fabric, to the European 'string skirt', a type of see-through garment, which 'advertises sexual maturity' (Rehak 1999, 194). As already discussed, the bridegroom is unlikely to have been the elder male. Once he is eliminated, the remaining male and female figures appear to connect as three couples: the yellow child and the girl with the veil; the tall boy and the wounded girl; the boy holding the cup and the girl holding the necklace. If the wounded girl is the bride, then the tall boy must be the bridegroom. It is he who was linked to the statue of the *megistos kouros* from Palaikastro via hairstyle and pose. Indeed, his physique, lively gait, and prominent penis exude youthful virility.

Obviously, there is a notable difference in age between the putative bride and bridegroom; likewise the other two couples. In all three the female is one age grade or more ahead of the male. However, as noted above, iconographic and mythological evidence at least for the sacred marriage indicate that it was composed of a female dominated, asymmetrically age-ranked couple. Thus, the bridegroom belongs to stage *II.a*, whereas the girl's hairstyle makes her equivalent in age to stage *II.c* (Davis 1986, 402). After having cut the last locks of girlhood, she and the girl holding the necklace 'are now nubile, at the height of their youthful beauty' (*ibid.*). As Davis states, 'the new rite of passage implied by their haircutting was most likely one related to marriage, the most important event in the life of a young person after the onset of puberty' (*ibid.*). If the young woman is not

interpreted literally as a girl with a wounded foot, then the open skirt, dishevelled back hairlock, and bloodied foot may be understood as emblematic references to sex.

Thus the presence of female dominated, asymmetrical age-ranked couples on these paintings may mean that if they indeed allude to an actual marriage ritual, it was apparently patterned on the *hieros gamos*. For Marinatos, the idea of the *hieros gamos* with a predominant female 'subconsciously... may even be revealing a biological truth: the female must choose a powerful and young mate because it is she who has the greatest investment in the offspring; it is she who is supreme in the chain of life' (Marinatos 1993, 192). That an Aegean marriage ritual may have been modelled on a religious belief, or *vice versa*, should not surprise. It is, after all, the Xeste 3 paintings which best illustrate how the natural and supernatural worlds could intersect in Aegean religion. The more mature bride thus represents the 'great goddess', like the one painted directly above her, while the youth would be the local *megistos kouros*.

The implications of this marriage ritual are significant, particularly regarding the social structure of the Aegean family. If, as is being proposed here, the Minoan and Theran marriage ritual was modelled on the *hieros gamos*, the bride would have been significantly older than the bridegroom. Furthermore, it is suggested that this bridegroom was a youth who, based on his age as surmised from pose and hairstyle, has just entered puberty. Marriage may thus have formed the ritual of incorporation for youths of stage *II.a*, who then joined an *agela*. Odd as this sequence may seem, it is consistent with the biological explanation for the sacred marriage suggested by Marinatos (1993, 192), and with the lack of iconographic evidence for the nuclear family in the Minoan/Theran world. As noted above, the first ini-

tiation for a male may have occurred when he was separated from his mother, perhaps to spend more time in the company of men as in historical Crete. Interestingly, the only male and female shown together on the miniature fresco from the West House at Akrotiri is the large woman with the small boy in the 'arrival' town (Doumas 1992, fig. 79; Televantou 1994, pl. 67). The child's bushy hair and small frame may reveal his pre-initiatory state; thus he is still with his mother (Marinatos 1987, 28; 1995, 583). If family scenes do not exist in LMI/LCI art, the possibility that the nuclear family did not comprise the basic social unit in Minoan Crete and Thera must be given serious consideration and alternative social structures investigated.

The Xeste 3 paintings do not resolve the question of group marriages. If they existed, one might expect more people from the same age grade to have been represented. However, if the paintings are understood as emblematic narratives, as defined by Holliday (1993, xv), rather than literal depictions of Theran ritual life, they might be understood to portray a paradigmatic marriage. Certainly, the rooms of Xeste 3 could have accommodated small groups of people (Marinatos 1993, 203). With the boys and young women in separate rooms, couples could meet in front of the lustral basin and descend to consummate their union (FIG. 11.2, Room 3). The *polythyra* offered both privacy for and accessibility to the lustral basin (FIG. 11.2, Room 3a). Marinatos has drawn attention to the lamps discovered there, and to the atmosphere they would have created (Marinatos 1984, 84). The vessels held by the other Xeste 3 males could have had any number of uses in the context of sex, while the boy might have worn his cloth afterward, wrapped in a breechcloth or kilt (Rehak 1996, 39-41).

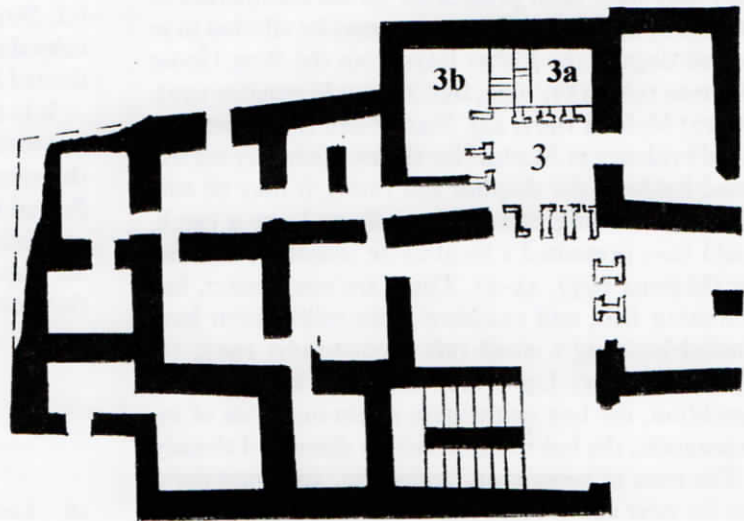


Fig. 11.2. Floor plan of Xeste 3, Akrotiri (after Marinatos 1984, fig. 51).

SUMMARY AND CONCLUSIONS

The Palaikastro Kouros and the paintings in Xeste 3 show how the natural and supernatural worlds were perceived to co-exist in Minoan and Theran culture. This congruence of spheres is most readily apparent in the rituals relating to rites of passage. Anthropological literature records that age grade rites of passage normally comprise numerous rituals, most of which would leave no traces in the archaeological record. Thus the figural representations from Crete and Thera may reveal only small components of more complex ritual systems. However, based on the preceding discussions it may be possible to begin identifying some of the ritual elements in the cycle of male age grade initiations.

The first rite of passage for a young child in stage *I.a* was probably a rite of separation, of which the shaving of the first tufts of childhood is its only detectable ritual. A transitional period, *I.b*, has been inferred from the change in hairstyle, although there is presently no evidence for rituals to associate with it. The earliest initiatory stage whose rituals may be alluded to in Aegean art is stage *I.c*, the Boxing Boys from Beta 1, Akrotiri (Doulas 1987, 157; 1992, figs. 79–81). The initiate here may be the left-hand Boxing Boy. His thicker and longer hair locks may mean that he is slightly older, while his jewellery may indicate his higher status. Yet it is he who apparently receives the blow, to judge from the tilt of his head—note how the back lock swings forward—and his upward rolling eye (*ibid.*, figs. 78, 80–1; *contra* Marinatos 1993, 212). Although this may refer to a literal defeat, his semiconscious state might also be interpreted symbolically as a death, to mark his departure from childhood.²⁶ The story of Glaukos, the Cretan prince who died as a child and was reborn as a youth, would be its mythological analogue (Willets 1959, 21–8, esp. 25–8; 1962, 62–6; Callaghan 1979, 24–6). It is now possible to associate three initiation rituals for a youth in stage *II.a*. Probably at the onset of puberty, the biological indicator of childhood's end and the beginning of youth, the locks were cut in a rite of separation. The youth may now have entered a herd, although entry may have been predicated on his completion of the rites of transition. These rites may be alluded to in the paintings of the Fisher Boys from the West House (Doulas 1987, 157; 1992, figs. 18–23; Marinatos 1993, 216–17; Mylona 1997, 42). Since there is presently no faunal evidence at Akrotiri for the two fish they are depicted holding, the dolphin and tunny, it may be surmised that fishing them, especially so large a catch, would have presented a formidable ordeal for a young boy (Mylona 1997, 44–5). These are open water, fast swimming fish, and catching them might even have entailed building a small raft (Economidis 1997, 16; Mylona 1997, 45). Upon returning from such a fishing expedition, the boy might have celebrated rites of incorporation, the marriage ceremony discussed already.

The rites of separation, transition, and incorporation for next age grade, *II.b*, were discussed above, in

the context of the Hunter/Lovers and the Chieftain Cup. What the evidence does not yet reveal is whether these rustic erotic initiation rites were celebrated by a hereditary aristocracy, the general citizen body, or specially selected individuals.

The length of time an individual remained in the incorporative stage of *II.b* may have corresponded to the amount of time it took to grow the hair to the waist length tresses of stage *II.c*. It may be useful to recall that youths in Arkadia remained as 'wolves' for nine years.

At present the most likely evidence for stage *II.c* initiation rituals are the depictions on the Boxer Rhyton from Agia Triada (Marinatos and Hirmer 1976, pls. 106–07; Säflund 1987, 212–14). The figures of victorious athletes may well signify the successful performance of initiatory ordeals (Marinatos 1993, 212–14). However, images of defeated athletes actually appear even more frequently on the vase. Besides the fallen pugilists of the lower two registers, the only extant bull-leaper, on the second register from the top, is depicted impaled on the bull's horn. On the top register, a figure has been restored crouching in an anatomically impossible position. The two lower legs which are preserved must belong to two individuals, probably a victor standing over another fallen athlete. If the images on this rhyton relate to initiation rituals, it is difficult to know whether they allude to ordeals of incorporation or transition, as emblemized by the victors, or rites of separation, as emblemized by the defeated. Rites of separation here would relate to the departure from youth, just as the rites of separation from childhood may have been emblemized by the defeated Boxing Boy.

Another tonsure ritual has been posited here as a separation rite for entry into adulthood, stage *III.a*. Unfortunately, no other evidence exists which may be associated with rites of passage for stage *III*. Most images of mature men portray them alone and inactive, only holding attributes such as axes. The Harvester Rhyton is an exception, although it is difficult to see the mature male here as the initiate, since all of the other figures are youths. Perhaps he is their leader-initiator (cf. Strabo 10.4.20). If these men are priests, as discussed above, their initiation rituals may have been conducted in secret and therefore never represented in art.

It is thus likely that there will always be gaps in our knowledge, especially of secret initiation rituals. Furthermore, the extent to which the divine world was reflected in these rituals will never be known. However, at present it may be fair to conclude that tonsure rituals played a significant role in all stages of male initiations on Crete and Thera. In this context it is interest-

26 I owe this suggestion to S. Manolakkis.

ing to note that Watrous has identified the numerous LM I razors and tweezers discovered in the Psychro Cave as votive offerings left to commemorate these rituals (Watrous 1996, 50, 89–91). Thus new interpretations of familiar artefacts and new discoveries like that of the Palaikastro kouros and the wall paintings from Akrotiri should engender optimism for continued progress in our understanding of Aegean Bronze Age rites of passage.

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Dikte

Charles Crowther

The discovery of the remarkable chryselephantine statuette during the current excavations at Palaikastro raises interesting questions about the relationship between the Minoan town at Palaikastro, its associated peak sanctuary on Petsophas, and the later sanctuary of Diktaian Zeus, traces of which were uncovered during Bosanquet's earlier excavations at the beginning of the century.

The statuette probably represents a young male deity. In the Classical period Zeus was worshipped at Palaikastro under the name of Diktaian Zeus as a young male, the μέγιστος κοῦρος. The place name Dikte is closely associated with the worship of Diktaian Zeus in literary and documentary sources from the historical period. The same combination of place name (di-ka-ta) and divine epithet (di-ka-ta-jo di-we) is attested in Linear B texts from Knossos. A similar combination of signs and sounds (A/JA-DI-KI-TE) also appears in undeciphered Linear A inscriptions from the peak sanctuary above the Minoan town.¹

In a paper drafted in 1987 (Crowther 1988), on the eve of the discovery of the statuette, I examined this nexus of associations and speculated about the name of the Minoan site at Palaikastro. Discovery and study of the statue and continuing progress in Linear A and B scholarship in the intervening 10 years require some updating and nuancing of the arguments, but no substantial revision of the conclusions, put forward then.² The evidence for associating the classical toponym Dikte with Palaikastro remains compelling. The discovery of the statuette, indeed, has given it additional significance, since it has revealed that the Bronze Age and Classical deities worshipped at Palaikastro shared a common iconographic identity.³ It seems appropriate, accordingly, in the context of a full publication of the statuette, to restate the grounds for making the identification of Palaikastro with Dikte, the birthplace of Diktaian Zeus, and at the same time to re-examine the evidence for the existence of a similar combination of toponym and divine epithet at Palaikastro in the Linear A and B epigraphical record.

The literary and epigraphical sources from the Classical through to the Roman period provide the starting point for this investigation. The very varied nature of these *testimonia* and the way in which separate traditions about the birth and upbringing of Cretan Zeus appear to have become intertwined in the course of the Classical and Hellenistic periods have discouraged Lin-

ear B scholars from identifying a single or secure location for the Classical toponym Dikte corresponding to Linear B di-ka-ta. J. K. McArthur concluded her survey of the evidence with a firm *non liquet*.⁴ The complexity of the tradition surrounding Cretan and Diktaian Zeus is examined in greater detail by S. Thorne in Chapter 13. On the question of the location of Dikte itself, however, I believe that McArthur's scepticism is unjustified. References to Dikte as a place name in documentary and literary texts of the historical period are quite sparse, but those that survive as more than isolated allusions point decisively to a location for Dikte in E Crete at the site of the sanctuary of Diktaian Zeus.⁵

In discussing a passage in Aratos' *Phainomena*, in which the birth place of Zeus, at Dikte, is located 'near Ida' (Δίκτη ἐν εὐώδει, ὄρεος σχεδὸν Ἰδαίοιο), the geographer Strabo insisted that Aratos must have been mistaken (Aratos, *Phainomena* 1.32–35; Strabo 10.4.12); for Dikte was scarcely 100 stades from Samonion and a thousand from Ida. Strabo's figures are rounded for rhetorical persuasiveness, but they are set within a framework of relative locations—Praisos was between Samonion and Chersonesos, the temple of Diktaian

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- 1 PK Za 8a; 11a–b; 12a; 15. In this sign-group (08/57-07-67-04), whose sound value is inferred from Linear B sound values, only the second sign (07) corresponds directly to the sign for the equivalent syllable in Linear B di-ka-ta.
 - 2 The arguments for the contaminated and unreliable character of the ancient tradition concerning the Diktaian cave (Crowther 1988, 39–41) remain cogent and are not repeated here.
 - 3 For the cult statue of Diktaian Zeus, cf. *Etymologikon Mega* s.v. Δίκτη: ἐνταῦθα δὲ Διὸς ἄγαλμα ἀγένειον ἵστατο.
 - 4 McArthur 1993, 133: 'The evidence is inconclusive. Dikte cannot be identified for certain with a specific site in classical times'.
 - 5 The references are collected and discussed by Guarducci, *IC* III.11 ('Dictaeum Fanum') who insists on an eastern location for Dikte, although she prefers Modhi to Petsophas: 'montem Dicten in extrema Cretae orientalis parte situm fuisse e Strabonis verbis manifeste colligitur, quibus Δίκτη in hymno commemoratum addendum est; et quidem valde veri simile videtur hunc montem in illo qui hodie appellatur Modi agnoscendum esse'. On the identification of the Diktaian Cave, to which Aratos alludes in the passage cited in the text, see my own discussion, Crowther 1988, 39–41.

Zeus was at Praisos, and Dikte was close by⁶—that corroborates their reliability. Strabo evidently had a particular location in mind for Dikte when he insisted on this correction—between 15–20 km from the NE tip of Crete.⁷ For Strabo Dikte, which he identified as a mountain,⁸ was unequivocally a place in the NE of Crete. This is our most explicit literary testimony from antiquity about the location of Dikte. The epigraphical evidence from Palaikastro itself points to a similar conclusion.

The inscribed hymn to Zeus (*IC* III.II.2) found among the remains of the temple of Diktaian Zeus at Palaikastro repeatedly summons the god to come to Dikte: Δίκτην ἐς ἐνιαυτὸν ἔρχε. The members of the hymn's chorus await and invoke him there standing at his altar wall (9–10: καὶ στάντες αἰδομεν τεὸν ἀμφὶ βωμὸν εὐερχῆ). The association of the hymn with the sanctuary of Diktaian Zeus makes it clear that the Dikte to which the god was called was the location of the sanctuary itself.

A second inscription, dating to the period in the second century BC when the sanctuary was controlled by Hierapytna records the restoration of the ancient cult-statues (τὰ ἀρχαῖα ἀγάλματα). The ἀγάλματα mentioned in the inscription have plausibly been identified by Guarducci with the gods in Dikte (θεοὶ ἐν Δίκτη) invoked alongside Diktaian Zeus in a third-century BC civic oath from Itanos (*IC* III.IV.8).⁹ The reference to the gods in Dikte is clarified by the immediately following citation in the Itanian oath of Athena Polias and all the gods to whom sacrifice is made in Athena's sanctuary (Ἀθῆνῶν Πολιάδα καὶ θεοὺς ὅσσοις ἐν Ἀθῆνῶν ἱερῶν ἅπαντα). The parallel clauses ἐν Ἀθῆνῶν ἱερῶν and ἐν Δίκτη refer to the sanctuaries where the gods were worshipped and, in the case of Diktaian Zeus, the clear implication of the formulation is that this sanctuary was located at Dikte. Since Bosanquet's excavations established that the remains of the sanctuary of Diktaian Zeus were to be found overlying Blocks Π and X of the Minoan town at Palaikastro, it follows that Dikte too is to be sought at Palaikastro.

The explicit testimony of Strabo and the epigraphical evidence cited above help to make sense of a passage in the historian Diodorus Siculus in which he reports that young Zeus was said to have founded a city at Dikte traces of whose foundations were still visible although the town had long since been abandoned.¹⁰ This description closely matches the site of Palaikastro whose ancient remains were visible over a wide area to modern travellers before systematic excavations began at Roussolakkos in 1902 (cf. Bosanquet 1902, 287–8).

The combination of this evidence indicates that Dikte was a mountain in E Crete whose location corresponds closely to the modern archaeological site at Palaikastro. This is by no means a novel conclusion. Guarducci reached a similar result after sifting through the same evidence, although she preferred to identify Dikte, following a suggestion made originally by Bosanquet (1909, 351), with the hill of Modhi, which lies c. 7 km inland from Palaikastro (*IC* III, II, cited in n. 4). Modhi, which

has a distinctive conical peak rising above 500 m, has remains of a Minoan peak sanctuary on its summit. The view inland towards Modhi, however, from much of the Minoan site at Palaikastro, including the E blocks where the temple of Diktaian Zeus was located, is blocked by the lower slopes of Petsophas. It is hard to believe that the terrace of the sanctuary of Diktaian Zeus could have been cut into a hillside from which Dikte itself was invisible. An alternative identification is required and lies ready to hand: the hill of Petsophas (c. 270 m) which rises directly above the archaeological site dominates both the Minoan town and the Classical sanctuary, and has on its summit a MM peak sanctuary whose richness and architectural elaboration outstrip those of Modhi.

If Bosanquet and subsequent commentators hesitated to locate Dikte at Palaikastro itself, it was largely because they believed that the archaeological site was known by a different name in the Classical period. A second-century BC arbitration settlement of a border dispute between Itanos and Hierapytna names the disputed land, which extended over the Palaikastro plain towards the perimeter of the sanctuary of Diktaian Zeus, as Heleia (*IC* III.IV.9.77–8).¹¹ From this text Bosanquet concluded that the ancient name for Palaikastro was

6 Strabo 10.4.12: εἴρηται δὲ ὅτι τῶν Ἐτεοκρήτων ὑπῆρχεν ἡ Πραῖσος καὶ διότι ἐνταῦθα τὸ τοῦ Δικταίου Διὸς ἱερὸν καὶ γὰρ ἡ Δίκτη πλῆσιον. As Duhoux has emphasised (Duhoux 1982, 61–2), Strabo's association of the temple of Diktaian Zeus with Praisos is explained by the fact that the temple once lay within the territory of Praisos which, as the Magnesian arbitration text indicates (*IC* III.IV.9), extended to the borders of Itanos precisely at Palaikastro.

7 According to Strabo, Praisos is 60 or 70 stades from the sea—presumably, respectively, from the N and S coastline. Palaikastro is c. 14 km in a direct line from Cape Sidheros/Samonion, or roughly 85 stades (using Strabo's estimates of the distance between Praisos and the sea as a baseline). It is perhaps worth noticing in this context a passage in Apollonios Rhodios' narrative of the Argonauts' return from Kolchis which places their landfall in Crete from Karpathos in Dikte's haven (Δικταίην ἐπιωγήν). From there on the following morning they rowed hard to round Samonion. Apollonios' collocation of Samonion and Dikte matches Strabo's. A crossing from Karpathos to the E coast of Crete would have found a natural destination in the wide bay of Palaikastro sheltered by the Grandes Islands. Karpathos itself is visible from the top of Kastri in good weather conditions.

8 Strabo 10.3.20: Δίκτη τόπος ἐν τῇ Σκηψία καὶ ὄρος ἐν Κρήτῃ. In the same passage Strabo corrects a reference to Dikte in Callimachus.

9 *IC* III.II.1 with Guarducci's commentary *ibid.*, citing *IC* III.IV.8.

10 Diod. Sic. 5.70.3: ἀνδρωθέντα δ' αὐτὸν φασὶ πρῶτον πόλιν κτίσαι περὶ τὴν Δίκτην, ὅπου καὶ τὴν γένεσιν αὐτοῦ γενέσθαι μυθολογοῦσιν ἧς ἐκλειφθείσης ἐν τοῖς ὕστερον χρόνοις διαμένειν ἔτι καὶ νῦν ἔρηματα τῶν θεμελίων.

11 The dossier of texts concerning the dispute between Itanos and Hierapytna is reprinted in S. L. Ager's recent collection of the evidence concerning international arbitration (1997, no. 158).

Heleia.¹² This conclusion, however, was based on a misunderstanding. The arbitration inscription makes it clear that the sanctuary of Zeus, which overlay much of the Minoan town, was outside the disputed territory known as Heleia.¹³ The ancient site must, therefore, have had a different name.

I conclude, accordingly, that the Classical toponym Dikte, the mountain on which Cretan Zeus was believed to have been born, corresponds to Mt. Petsophas.

The conclusion that Petsophas was Classical Dikte stands by itself. When set against the archaeological and epigraphical evidence both from Palaikastro itself and from the Knossos Linear B archives, however, it has an additional interest.

The discovery of the chryselephantine statue of a young male deity close to the site of the Archaic and Classical sanctuary of Diktaian Zeus, whose cult focused on his status as the μέγιστος κοῦρος suggests in the most striking manner that the historical cult of Diktaian Zeus had a precursor in the Bronze Age. Continuity of object and form between the two cults, however, is not matched immediately in the archaeological record. The excavators of the temple terrace noted an abrupt transition from Bronze Age to Archaic levels (*PK IV*, 298–308). The intervening period is poorly represented in the material remains from the site. It seems likely that the settlement at Palaikastro was abandoned at the end of the Bronze Age and that its occupants moved inland, taking their cults with them, perhaps in the direction of Praisos. P. J. Perlman has recently made the interesting suggestion that the re-establishment of the worship of the μέγιστος κοῦρος at Palaikastro in the 8th and 7th centuries, on the border between the territory of Dragmos and later Praisos and that of Itanos, may have affinities with the establishment of the liminal sanctuaries in the Archaic period whose significance for the process of state formation has been emphasised by de Polignac.¹⁴

An alternative line of approach to the question of continuity is offered by the appearance of Diktaian Zeus and Dikte in a number of documents from the Knossos Linear B archives. The Linear B references to Dikte take two forms: the place name itself, in an allative form (*di-ka-ta-de*), which is attested on four occasions (*KN Fp 7.2*; *F 866*; *Fh 5467a*; *G 7509.1*); and an epithet attached to Zeus (*di-ka-ta-jo di-we*), attested in a single, but relatively full context (*KN Fp 1.2*). The interpretation of this material raises a number of difficulties of methodology. The texts in which references to Dikte and a Diktaian Zeus appear present no explicit statements of geographical location. Attempts to identify them, in consequence, have relied on a variety of indirect approaches.

Recent discussions of place names in the Knossos tablets have drawn heavily on contextual clues in the tablets and the secure identifications available for a limited number of sites—for example Amnissos (*a-mi-ni-so*), which occurs on the same tablet, *KN Fp 1+31*, as *di-ka-ta-jo di-we*, and Tyliisos (*tu-ri-so*).¹⁵ One of the

more striking conclusions of this work has been that the general horizon of Knossian influence and interests extended over much of central, W-central, and W Crete, but did not reach as far as the E part of the island (Bennet 1988, 27–8). In my earlier article I cited an opinion expressed by J. T. Killen before the present consensus had been consolidated, that the only place named in the Knossian tablets which seemed likely to have an easterly location was *di-ka-ta(-de)*, ‘which is pretty certainly Dikte’ (Killen 1977). Killen has since reconsidered this apparent exception (with which, in any case, he appears to have envisaged Mt. Dikte in the Lasithi range rather than Palaikastro), and in a more recent paper has emphasised instead contextual links between *di-ka-ta* and *ma-sa* (*KN F 866*) which elsewhere appears in association with places that seem to be located in ‘the western sector of the central region’ of Crete (Killen 1987, 172–3). In this context, Killen cites the passage noticed earlier in which Strabo criticises Aratos for suggesting that Dikte was near Ida. Killen attempts to vindicate Aratos’ reliability as a source of topographical information by suggesting that there could have been two places named Dikte in the Classical and later periods. If this possibility is allowed, then Strabo’s criticism of Aratos would have been misguided, and Aratos’ Dikte close to Ida could be the same as a notional central Cretan Dikte mentioned in the Knossos tablets.

Isolated citation of a tradition which by the Hellenistic period had become contaminated through the conflation of different birth traditions about Cretan Zeus is a hazardous procedure.¹⁶ I suspect that few Linear B scholars would want to interpret their own material so selectively. Later *scholia* commenting on the disagreement between Strabo and Aratos are much less sanguine about the latter’s toponymical accuracy.¹⁷ Without direct support from Classical sources, however, as Killen himself acknowledges, the Linear B contextual argument for a central location for *di-ka-ta* is at best inconclusive, when locations as distinct as Tyliisos (*tu-ri-so*) and Kydonia (*ku-do-ni-ja*) (*KN Ce 59.3b*) can be found conjoined in other tablets.

12 Bosanquet 1938, 149. More recently G. L. Huxley has identified Diodorus’ ruined city at Dikte with Zakro rather than Palaikastro for the same reason (Huxley 1967, 85–7).

13 *IC III.IV.9.67–71*; there is a fuller discussion of this question in my earlier article, Crowther 1988, 44–5.

14 Perlman 1995, 164–5; de Polignac 1995. Cf. also the interesting discussion of A. Chaniotis of the sanctuary’s place between the three cities of E Crete: Chaniotis 1988, 26–8.

15 A full survey of the issues is given in McArthur 1993.

16 See my earlier discussion, Crowther 1988, 38–41, and the careful study of S. Thorne in Chapter 13 below.

17 *Scholia in Aratum*, *Scholion 34*: σχεδὸν Ἰδαίσιο: εἰ ἡ Δίκητι πλέον ἢ χιλίους σταδίουσ ἀπέχει τῆς Ἰδης, ἀμαρτάνεται τῷ Ἀράτῳ γράφοντι ταῦτα.

The most recent discussion of the Linear A and B evidence concerning Dikte has, nevertheless, insisted on the importance of treating the Bronze Age epigraphical evidence in isolation (Owens 1993, 156–61). On the basis of the present consensus about the location of place names in the Knossos tablets, and the occurrence in the same tablet as di-ka-ta-jo di-we (KN Fp 1+31) five lines later of Amnissos (a-mi-ni-so), G. A. Owens has concluded that ‘Mycenaean di-ka-ta can be identified as a religious sanctuary at which oil was given to Zeus, and which was in the vicinity of Knossos’ (Owens 1993, 157). If Linear B di-ka-ta is identified with Palaikastro, it would, indeed, be an exception to the patterns that have so far been traced of regional contacts in the Knossian archives. Until more of the problems of toponym identification in the tablets are resolved, however, an argument for its impossibility cannot be based merely on the limited sample of place names that have so far been securely identified and the assertion that no Linear B toponym can be placed E of Lasithi, when there are strong grounds for locating Classical Dikte in E Crete. The importance of the Minoan settlement at Palaikastro and its associated cult centres might suggest that, even if it was over the immediate epigraphical horizon of Knossos, it was not so far out of sight that offerings could not be sent to the deity whom the discovery of the statuette now suggests was honoured there.¹⁸

Since there are no compelling internal arguments in the Linear B epigraphical evidence for a different location, I conclude that di-ka-ta and di-ka-ta-jo di-we in the Knossian tablets are likely to refer to the same location and the same deity as Classical Δίκη and Ζεύς Δικταῖος.

I turn finally to the evidence of the Linear A inscriptions. Interpretation of this material is hazardous when scholars are still some distance from a satisfactory identification of the language of the texts.¹⁹ My suggestion that the occurrence in the so-called ‘Minoan Libation Formula’ in four Linear A inscriptions from the peak sanctuary of Petsophas of the sign group 57/08-07-67-04, which can be transcribed using Linear B sound values as JA/A-DI-KI-TE, might be linked with the name of the Minoan site at Palaikastro was speculative and is open to criticism on a number of grounds (cf. Owens 1993, 157–60). The correspondence between Linear A JA/A-DI-KI-TE and I-DA, which also occurs in a number of inscriptions again in the context of the ‘Minoan Libation Formula’, and the classical toponyms Dikte and Ida had already been noticed by Karetsou, Godard and Oliver (Karetsou *et al.* 1985, 128–31), but this correspondence may reflect generic rather than specific oronyms, since neither sign group is limited to a single location: JA-DI-KI-TU appears on an inscription from Iouktas, the local peak sanctuary of Knossos, and I-DA is attested at Iouktas, Kophinas, Symi, Nerokourou, Arkalochori, as well as at Palaikastro itself. The identification of the Minoan town at

Palaikastro as Dikte is also problematic. Although JA/A-DI-KI-TE occurs on the inscriptions from Petsophas, it is not attested in any of the five Linear A texts found in the town itself. This is not in itself a serious objection, since none of the five inscriptions preserves the full context in which JA-DI-KI-TE is attested in other texts.²⁰ Nevertheless, my earlier discussion elided the difference between peak sanctuary and city. The evidence, I believe, indicates very strongly that the Minoan town of Palaikastro was located at Dikte, which I have identified with Petsophas, but it is a nice point whether the town was itself called Dikte.

The significance of the correspondence between Linear A JA-DI-KI-TE and Linear B di-ka-ta is likely to remain elusive so long as the language of the inscriptions is unidentified. But recent discoveries have offered tantalising glimpses of progress. The occurrence in the same position in the Libation Formula of the sign-groups I-DA and JA-DI-KI-TE may indicate that a toponym—more specifically, an oronym—is in question in both cases. The possible identification in a new Linear A inscription from Kythera of Demeter suggests that it may not be too adventurous to pursue this interpretation further and equate I-DA with Ida and JA-DI-KI-TE with Dikte.²¹ If this step is taken—and it may be a step too far²²—the identification of Classical Dikte with Petsophas and Palaikastro and the likelihood that Linear B di-ka-ta is the same place would provide a compelling context for the identification of Dikte in the Linear A inscriptions from Petsophas itself.

18 Imported Knossian stirrup jars have in fact been found in the LM IIIB shrine in Building 1, which is adjacent to the find spot of the Kouros, and may quite possibly be a successor to the cult place with which he is associated (PK 1986, 147–8 and pl. 23 a, b).

19 A recent suggestion, based on the view that the language of the Linear A tablets was related to Luwian, that Palaikastro might have been ‘Old Itanos’ (unidentified Istanuwa in a number of Hittite texts) has little to recommend it in the Greek archaeological and historical record (Brown 1991, 225–37).

20 According to Owens (1993, 159), it is interesting that ‘the stone libation table from Palaikastro itself, Pk Za 4, makes no mention of di-ka-ta’. This omission has no significance, however, since the inscription (on a fragment of a steatite conical cup, rather than a libation table) is incomplete and the one sign-group which it preserves (08-31-31-60[: A-SA-SA-RA]) belongs, in any case, to a later part of the Libation Formula; cf. e.g., PK Za 11 (from Petsophas): A-TA-I-PE-ME-JA . A-DI-KI-TE-TE[.] -DA . PI-TE-RI . A-KO-A-NE . A-SA-SARA-ME . U-NA-RU-KA-NA-TI . I-PI-NA-MI . [.] SI-RU[.] . I-NA-JA-PA-QA.

21 The recent publication of a stone vase from Kythera, Sakellarakis and Olivier 1994, 343–51, has yielded an inscription in Linear A with what its editors have described as having every chance of being the name of a Minoan deity (*ibid.*, 351): da-ma-te (= Classical Demeter).

22 Duhoux 1994–5 is sceptical about the identification of Demeter in the new Kythera text.

Diktaian Zeus in later Greek tradition

Stuart Thorne

DIKTAIAN ZEUS

Long after the statuette had been lost and buried in the destruction of the Late Minoan IB city at Roussolakkos, long after the final abandonment of the town, traces of activity can again be found in the area. A sanctuary is established in the ruins of the Minoan city, a sanctuary that blossoms in the 8th and 7th centuries BC and remains active for a thousand years.¹

In 1837, the British traveller Robert Pashley reported an ancient inscription detailing the arbitration of a territorial dispute between two of the cities prominent in E Crete during the second century BC, Hierapytna and Itanos. Found in the ruins of the town of Itanos, an ancient port some 7 kilometres N of the sanctuary at Palaikastro, the inscription had been carried to the monastery of Toplou where it was first recorded by the British traveller. The Toplou inscription describes a complex dispute of over a century in duration and mentions a sanctuary of Diktaian Zeus close by the area under contention (*IC* III.IV; Pashley 1837, 290). The discovery at Palaikastro in 1904 of an inscribed hymn dedicated to the son of Kronos, entreating his 'return to Dikte', confirmed suspicions that the long-lived Greek sanctuary built in the battered but still impressive ruins of the Bronze Age town was this disputed sanctuary, sacred to Zeus of Dikte.²

The epithet refers to the mountain of Dikte. Zeus of Dikte earns his name by right of birth and early childhood, the child Zeus being born and raised in a great cave on the slopes of that mountain. Appropriately enough Zeus is here worshipped as a youth, reference in the *Etymologikon Mega* to an 'ἄγαλμα ἀγένειον' at Dikte being directly confirmed by the invocation of the god in the Hymn as 'μέγιστε κοῦρε'.³

The Toplou inscription makes clear the association of the Palaikastro sanctuary with the inland city of Praisos (*IC* III.IV, 68 ff). Architectural terracotta fragments and similarities in votive assemblages common to both sites confirm this association (*PK* IV, 304–06). It is Homer who first tells us of the 'true Cretans', Eteocretans, one of the five peoples living on the island.⁴ Herodotus mentions the city of Praisos and refers to traditions from that city in examining the troubled period that followed the collapse of the Minoan state, the period of the Trojan War and the dark age in Crete.⁵ Strabo, not without confusion, but using Staphylus of Naukratis (*FGH* Hist. 269 F12) and Ephoros

of Kyme among his sources, places the Eteocretans at Praisos, 'where there is a temple of Diktaian Zeus' (Strabo 10.4.12; Pashley 1837, 290 and n. 15). The discovery at Praisos of fragments of inscriptions written in Greek letters but in a language as yet undeciphered is seen as confirmation that these early and persistent traditions were accurate and that in the mountains of E Crete communities of indigenous Cretans lived on among those that had occupied the island after them.⁶

It is my thesis that a study of the *distribution* of myth in the surviving literature of the ancient Greek world places the traditional story of the birth of Zeus squarely in the Bronze Age, and shows clearly that the beardless statue of the *Etymologikon Mega* and the *megistos kouros* of the *Hymn to Diktaian Zeus* are direct descendants of the Palaikastro Kouros. The bulk of this study is inevi-

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- 1 *PK* II 274–387; *PK* IV 258–308, pl. X; Bosanquet 1940, 66–8. For a review of the Post-Minoan material see Prent and Thorne forthcoming.
 - 2 *IC* III.II.2; Bosanquet 1909, 339–56; Murray 1909, 356–65; West 1965, 149–59. The Hymn and its religious implications have been discussed repeatedly since discovery and publication, the identification of the sanctuary has not been questioned; see Guarducci 1978, 11, 34–5; Verbruggen 1981, 101–11 and *passim*. For further references: Willetts 1962, 211.
 - 3 *Etymologikon Mega* s.v. Δικτη. For the 'beardless' cult statue of the *Etymologikon* as representation of a 'youth' or 'young man', see *IC* III.II.2.
 - 4 With Pelasgians, Achaeans, Kydonians and Dorians: Homer *Od.* 19.176.
 - 5 *Hdt.* 7.170–1. According to Herodotus the people of Praisos maintained that only they and the people of Polichna had remained on the island when other cities sailed to avenge the death of Minos in Sicily. That expedition met disaster, leaving the island depopulated and open to settlement by 'men of various nationalities, but especially Greeks.' Further devastation occurred three generations later, Herodotus reports the Praisians saying, when the Cretan heroes returned from the Trojan War. The question as to whether these traditions have any historical reality is here less relevant than Herodotus' use of them as source material.
 - 6 *IC* III.VI.1–34. Halbherr 1894, 539–44; Conway 1902, 125–56. For a fuller discussion of the language of these inscriptions: Y. Duhoux 1982. See also Coldstream 1977a, 10.

tably concerned with the later Iron Age for it is only by a careful study of Diktaian Zeus in later Greek tradition that we can follow his story back to the Bronze Age city at Palaikastro, where the shattered chryselephantine statuette lay hidden until 1987.

A word of caution may be necessary here. It is iconographic and mythological continuity, not continuity of religious import that forms the basis of this study. In 1857, even before the 'discovery' of the 'Minoans', Welcker suggested that the 'Youthful God' of Crete was adopted by 'Greek' settlers and identified with their Indo-European 'Zeus' (Welcker 1857, 218; and cf. n. 14 below). The Kouros, then, to Welcker and Nilsson and other early students of Minoan religion, would represent a pre-Greek god of vegetation and rebirth, consort of the Great Goddess, along the lines the Near Eastern model presented in Kybele and Attis, Ishtar and Tammuz, or Isis and Osiris. This male figure is then co-opted and syncretised with the predominant male principal of the Mycenaean pantheon in the last centuries of the Bronze Age. As such he survives the end of the Bronze Age and lives on, in various corners of the island, as the 'Cretan Zeus'. (Before the discovery of the Sanctuary at Palaikastro Farnell was able to disagree, calling the Cretan Zeus a late construct and a 'product of the Hellenistic Age', when material and, as we shall see, literary testimony for him is well preserved.) This basic syncretism between two cultures, Minoan and Mycenaean, implies two differing religious interpretations of the *same iconography*. A closer reading reveals a succession of such differing religious interpretations. The gifts of arms and armour dedicated with tripods at the Sanctuary of Diktaian Zeus at Palaikastro in the 8th and 7th centuries displays the devotion of an aristocratic warrior society. The Hymn to Diktaian Zeus shows an interest in agriculture and trade, as well as in the organisation of both *polis* and of a federation of *poleis*. As society changes, the religious import of the young Zeus changes with it. Indeed, at any one time the religious import will be different to different sections of the society involved, for example to farmers or sailors, and to the different ethnic groups which may form parts of its congregation. What stays the same is the *iconography* of the Youthful God himself. That remains, and is able to support the divergent religious needs and conceptions of the evolving societies that preserve it. There is another constant. As with the associated iconography, the mythology is subject to differing interpretations and reinterpretations that make it relevant to the needs of its successive users. While a story can never be as simple as a single image, nor as easily preserved, we find the bloodthirsty tale of the birth of Zeus repeated and retold for over a thousand years—despite the best efforts of philosophers and Euhemerists and others to whom it had outlived its usefulness (see n. 13). During all this time the story remains firmly associated with its equally tenacious iconography. I here examine this durable story without

concern for its varying theological applications during the vast societal changes through which it was preserved.

Diktaian Zeus is a familiar figure in ancient literature. Apollodorus, in the second century AD, tells the story succinctly. Kronos was the son of Ouranos and Ge, the youngest of a monstrous brood of Titans, Cyclopes and the three great giants with a hundred hands. At the urging of his mother Earth, Kronos rebels, castrates his despotic and abusive father Sky and usurps his rule. Kronos then marries his sister Rhea and, warned by both Sky and Earth—if not by his own less than filial behaviour—of dangers that may be posed by ambitious off-spring, he makes a practice of swallowing his own children as they are born. Three new-born girls, Hestia, Demeter and Hera, are disposed of in this way, and after them two boys, Pluto and Poseidon. Fed up with this, as her time approached in the next, her sixth pregnancy, mother Rhea crept off to Crete under the cover of night and bore a child secretly in a cave on the mountain of Dikte. The young Zeus, future king of gods and men, was there raised by two nymphs, Adrasteia and Ida, the daughters of one Melissus. These fed him on milk from the goat Amaltheia. To keep the cries of the infant Zeus from alerting father Kronos to the deception, a troop of beings called the Kouretes danced a noisy war dance around the cave, clashing their weapons on their shields and drowning out the noise of the howling infant. Further to deceive her unsuspecting husband, Rhea then wrapped a stone in swaddling clothes and passed it off to Kronos as the new-born child, duly to be swallowed as had been the older brothers and sisters. When the child Zeus had grown to a young man an emetic was administered to father Kronos, who disgorged the first five children—and with them even the rock that had been substituted for Zeus. Liberated, the reborn children then joined their younger brother and, in a great battle, were able to overcome Kronos and his allies, apportioning among themselves the divine control seized from the older generation (Apollodorus I.5–II.1).

THE NATURE OF THE EVIDENCE

Many other authors provide glimpses of the birth of Zeus. While the stories may retain a common core, they can also vary widely as to the location, action and characters involved. This has led to considerable confusion both in antiquity and in modern scholarship. Diodorus Siculus in the first century BC complained that 'concerning the birth of Zeus and how he came to be King, there is no agreement' (Diod.Sic. 5.70.1). Pausanias, two hundred years later, said simply that it 'would be impossible, even for a man who had the appetite, to number all the people who insist that Zeus was born

and raised in their countries'.⁷ Ancient literary tradition, like any other vehicle of preservation, is clearly not without its pitfalls, and the nature of the evidence requires brief preliminary consideration.

Literary references come from a body of material produced over the period of a thousand years. What remains can fill the shelves of a small library but represents only a minute fraction of the original material. Most has been lost. The histories of the great state libraries of the Hellenistic period indicate the vast amounts of literary material that existed, not only in Alexandria but at Antioch, Pergamum, Rhodes, Smyrna, Kos, Rome and other cities, Babylon and the Assyrian cities with perhaps the oldest libraries of all.⁸

The literary components of our material are not all that must be considered. A thriving oral tradition preceded the literature of Archaic, Classical and Hellenistic Greece. The earliest written sources are *end products* of this evolving tradition, whose influences are multifarious and mixed. Local tradition, folklore, foreign influences and Bronze Age artefact, among innumerable other factors—some perhaps best viewed from an anthropological perspective—will all have played a part.⁹ The encapsulation of earlier material in an evidentiary form that could be preserved was a long and complex process. We must postulate with Snodgrass:

a great web of unsystematic, orally-transmitted mythology, which existed all through early Greek history without ever being enshrined in verse form. Some of it can be assumed to have been of great antiquity, old enough at least to have been known to the eighth century artists, some doubtless consisted of later vernacular variants, or even personal versions of an individual artist. Not all of these variants came to be recorded in a written source at any time during the next thousand years of Greek and Latin literature.¹⁰

Whatever was recorded, of course, at whatever stage of its career, from oral poet in the 8th century BC to mythographer, geographer or historian in the 2nd, became subject to the vagaries of preservation or loss.

Such is the physical state of preservation of the material under consideration, a picture puzzle that misses most of its pieces. There is another aspect to be considered. The preserved fragments of the oral and literary output of antiquity come from a multitude of different historical and social contexts. They reflect over a thousand years of vast social, economic, cultural, political, intellectual and religious changes. They were produced by authors of profoundly differing insight and ability. Adaptation and reinterpretation of preexisting material to fit changing historical realities and purposes is standard.¹¹ The result is the proliferation of variants, variations of a story developed in, or tailored to, the specific place and purpose of rendition. Once born, each new variant has subsequently a life of its own, simultaneously becoming the embryo, or ovum, of another tradition and subject to retelling or reinterpretation in its

own right. *Different traditions, even variants of the same tradition, come into contact and cross-fertilization, if not synthesis, can occur.* None of this in any way implies the death of ageing predecessors, who may be called back into service at any point. For while it is often possible to speculate on the birth of a particular variant, we cannot, for lack of evidence, assume that one has died.¹² Writing (lost to us), widespread popularity, or local usage can guarantee survival and subsequent reappearance in the literary record. The same myths ridiculed by Xenophanes in the 6th century BC, softened by Pindar and expressly rejected by Plato in the 5th, live on quite happily in Apollodorus in the 2nd century AD.¹³ Writing, of course, as literacy spreads and the volume of recorded literature grows, exacerbates the problem of variants, making available to the scholar, both an-

- 7 Paus. 4.33.1. Bosanquet echoed the complaints of his predecessors, suggesting that 'the number of mountains whereon 'Zeus was born' almost rivals that of the houses wherein Queen Elizabeth stayed'; see Bosanquet 1940, 62. Pausanias may have been proven wrong by, among others, Cook 1914, 148–55, with ancient literary and epigraphic references and valuable numismatic evidence throughout. See also Nilsson 1950, 464, 534–6 (for refs.), 545. Robertson 1996, 239–304, though interested primarily in the female principle, also provides a conscientious list of references.
- 8 The library at Alexandria by the 1st century BC had grown to perhaps 700,000 volumes; see Tarn 1974, 269–94, esp. 269–74. On Sargon II and the 8th-century library at Nineveh: Lord 1960, 156–7. Assurbanipal's 7th-century collection of the libraries at Uruk, Babylon, and Nippur: Sandars 1972, 7–8. Strabo's (13.1.54) heartbreaking story about the loss of the library of Aristotle describes events which will have been repeated many times on a much larger scale. Burkert considers this problem from a wider perspective in discussing the extant material from the Aegean and E Mediterranean: Burkert 1987, 13. For immediately relevant examples, see *CHCL* 1993, 1. 4, 10, 13 14; F. A. Wright 1932, 89–90; also n. 36 below.
- 9 See J. Harrison 1909, 308–38; *ead.*, 1912/27; Burkert 1985, 52–3; Powell 1997, 174–86; Koehl in Chapter 11 above. The literature on the formation and function of myth in general is of such an extent as to make bibliography virtually impossible, for preliminary discussion and references, see Kirk 1980, 38–94.
- 10 Snodgrass 1980, 73; see also Huxley 1969, 69.
- 11 Huxley 1969, 61; Osborne 1996, 5, 10–12. For the explicit creation of a foundation myth: Plato, *Republic*, 414–15; and for the ramifications: Paus. 8.53.5, 9.16.4. For Diktaian Zeus see p. 150.
- 12 On the birth of variants see Huxley 1969, 72–3; Neils 1987, 145–7; Connor 1970, 156–7. On the no doubt equally important birth of variants by default and incompetence, see Lord 1960, 112–14; Strabo 13.1.54.
- 13 Xenophanes B 15–16; Pindar *First Olympian*, 45–59; Plato *Republic*, 378: '... the foul story about Ouranos and the things Hesiod says he did, and the revenge Kronos took on him... what Kronos did, and what he suffered at the hands of his son is not fit to be lightly repeated to the young and foolish, even if it were true; it would be best to say nothing about it...'; Apollodorus I.5–II.1.

cient and modern, renditions of the story from many different social and historical milieux (e.g. see West 1965, 155 nn. 9–23; Diod.Sic. 5.70.1 ff). The few pieces of the picture puzzle that remain to us are, in effect, from many different, if similar, puzzles, all of which have been mixed in the single box of preserved literary material.

Here the intention is to trace a traditional narrative sequence and the mechanisms of its transmission, *not* interpretations of it or its place and meaning in any of the matrices which make up Greek history and thought.¹⁴ If it be Diktaian we do not care in which box it may have belonged, nor, indeed what the particular puzzle may have looked like. The readily identifiable series of motifs which make up the story of the birth of Zeus allow it to be traced through various cultural, social, religious and historical incarnations, without reference to the specific relevance of those motifs in the societies that have adopted and preserved them. The extraordinary longevity of the tale and its reappearance and reuse in so many different social and literary contexts, from the EIA through the Classical, Hellenistic and Roman Imperial periods, assures a multiplicity of ancient (and indeed modern) interpretations (see n. 14). MacGillivray (Chapter 10 above) has tied the iconography of the youthful god to Minoan Crete and to the Egyptian Osiris, his ritual to the demands of the harvest and agrarian life, the basis of dying and reborn gods throughout the ancient Near East. Koehl's more anthropological approach (Chapter 11) examines rites of passage seen in the social organisation of the Aegean basin during the LBA—rites of vital importance in any hierarchical society, from the complex society which produced and worshipped the chryselephantine Kouros to the aristocratic warrior society which gifted the EIA sanctuary at Palaikastro with arms and armour. No further exegesis is planned here. We are dealing only with the bare bones of the myth, or traditional story, attached, in the Aegean, to the birth of Zeus, bypassing any attempts at placing it in the theological context in which it was seen by the successive stages of the evolving society that adapted and preserved it. Some kind of framework, however, is useful.

THE HISTORICAL BACKGROUND: FRAGMENTATION AND RECONSTRUCTION, RECOMBINATION

The collapse of the great palace centres of the LBA was accompanied by the demise of the integrated economic, social and religious systems which had evolved with them. The Mycenaean world failed and fragmented. Local cultural independence emerges in place of the great city centres, international trade and such hints of Pan-Achaean enterprise as are echoed in Homer's catalogue of ships.¹⁵ The growth of regional pottery styles gives some indication of the contraction of horizons in the late 12th and 11th centuries. Pottery

may continue shapes and motifs from earlier periods but these develop locally and the federal homogeneity of the LBA disintegrates (Desborough 1964, 9–14, 20–1; Osborne 1996, 23). There are signs of decreased population by the end of the 12th and the beginning of the 11th centuries, with small communities increasingly cut off from their neighbours and from the outside world. Pastoral and agricultural subsistence concentrated attention on the community. Fragmentation was complete (Snodgrass 1980, 27; 1971, 367, 385; Donlan 1989, 19–20).

With Athenian Protogeometric pottery in the middle of the 11th century signs of communication and interaction begin to reappear. The style is traded and imitated in other areas of Greece, but regional styles remain distinct. By 900 BC Lefkandi is in full contact with the East. Population increases, villages become towns. With the beginning of the 8th century 'contacts between different parts of the mainland increase in strength and frequency, and contacts between Greece and the East seem to be established on a regular though not necessarily frequent basis' (Osborne 1996, 51). Gradually Greece emerges from 300 years of parochialism.

One enduring legacy of this period is the city state. By 700 BC the Greek world was divided into several hundred autonomous states, each with their own spe-

14 The material has been sorted and explored extensively and the bibliography on Cretan Zeus is lengthy. In 1857 F. G. Welcker emphasised the difference, in the monuments and literature of the historical period, between Cretan Zeus and the more paternal god of the Mainland, suggesting that the Cretan Zeus had been the god of the pre-Greek Eteocretans (Welcker 1857, 218). Nilsson (1950), after the discoveries of Sir Arthur Evans and R. C. Bosanquet (1902, 1909, 1940), and after 50 years of excavation and exploration on Crete called this hypothesis a 'striking anticipation of modern views' (1950, 534). Nilsson's discussion is extensive, his references inclusive (1950, especially 533–83). Nilsson emphasises the influence of the Minoan on the Mycenaean and a revival of the older religious concepts in the Iron Age. The subject has been treated at length by Farnell (1896, 125), who disagreed, by Cook (1914), Harrison (1909, 1927), Willets, Guthrie (1950), Webster (1977), Dietrich, Walcot, West, Burkert and others; Verbruggen (1981) provides an excellent bibliography. See also MacGillivray and Koehl in this volume.

Ancient references to Diktaian Zeus, literary and epigraphic, are collected by Cook (1914 vol. II, 925–31) and by Verbruggen (1979 and 1981, 249–63).

Much of this lies outside the scope of the present paper which seeks only to provide context for the examination of the ancient *testimonia* about the birth of Zeus.

15 *CAH* II.2 Cambridge 1980, 658–69, 831, 835; Burkert 1985, 22; Osborne 1996, 22–4. See also: Hope Simpson and Lazenby 1970, 153–8, 163, 169–70. Hägg (1996, 599–612) provides a good summary of some of the geographical and historical variations which might be expected in the religious systems of the Mycenaean period.

cific identities and traditions about the centuries which gave them birth. Intercity and interregional rivalries shift the focus from local to regional. A regional perspective, in many ways the legacy of migrations during the Dark Age, surfaces with the aid of common dialect and defining geophysical features.¹⁶ The Panionium, Pan-Achaean Demeter, the Pambœotia and the Amphiktion of N Greek tribes at Anthela are among many examples of this regional coalescence.¹⁷ At the same time the growth of the great Pan-Hellenic sanctuaries at Delphi, Olympia, Isthmia and elsewhere suggest the beginnings of a feeling of national identity in the deeply rooted and fiercely independent traditions of the preceding centuries. With trade and colonization the nebulous identity of the 'Hellene' is further strengthened, contact with 'Barbarians' reinforces the bonds of language and religion, which, however tenuously, were common to the people who are increasingly identified, not as Athenian or Spartan, Boeotian or Arkadian, Ionian or Dorian, but as 'Greek'. The external threat provided by the Persian Wars did much to encourage this growing identification, however temporarily, among the always contentious Greek city states. In the spring of 479 BC the Persians, facing a coalition of Greek states, offered a favourable separate peace to Athens, under the principle of divide and conquer. The Athenians refused and Herodotus reports their stated reasons for so doing as 'the kinship of all Greeks in blood and speech, and the shrines of the gods and the sacrifices that we have in common, and the likeness of our ways of life, to which it would ill become Athenians to be false' (Hdt. 8.144.2-3). A national identity, extremely federal at best, was being forged in the crucible of international conflict and is here expressed for the first time (Roebuck 1966, 217). Racial, social, linguistic and religious factors are now explicitly stated as the ties binding the many *poleis* into a nation.

Herodotus also recognized the importance of the Homeric and Hesiodic poems in the religious aspect of this process of cohesion. In discussing the gods 'of the Greeks' he points out that:

it was only—if I may so put it—the day before yesterday that the Greeks came to know the origin and form of the various gods, and whether or not all of them had always existed, for Homer and Hesiod are the poets who composed our theogonies and described the gods for us, giving them all their appropriate titles, offices, and powers, and these poets lived, as I believe, not more than 400 years before my time (Hdt. 2.54).

Products of the long period of coalescence, Homer and Hesiod and the oral traditions which preceded them naturally reflected the mechanisms and processes involved in this coalescence. Prominent among these is the de-emphasis and rejection, both implicit and explicit, of *specific local associations* and the substitution of those more inclusive and more broadly acceptable. Nagy points out that 'perhaps the clearest example is

the Homeric concept of the Olympian gods, which incorporates yet goes beyond the localized religious traditions of each polis' (Nagy 1990, 10). Likewise 'the many local theogonies of various city states are to be superseded by one grand Olympian scheme... As in any political process, the evolution of the pan-Hellenic poems would afford some victories and many concessions on the part of each region: some one salient local feature of a god may become accepted by all audiences, while countless other features that happen to contradict the traditions of other cities will remain unspoken' (*ibid.*, 46). Hesiod's story of the birth of Zeus is brief and vague; West, commenting on line 481, points out that the poet is 'curiously non-committal' about where, in fact, the birth actually occurred. *This is a careful and intentional lack of commitment.* An important story with many vibrant and diverse local associations throughout the Greek world (see below) is implicitly and explicitly stripped of those associations. Hesiod, a Boeotian poet of the 8th century BC, in the penultimate stages of the development of the *pan-hellenic* oral epic, avoids mentioning locations with conflicting claims of their own to place the birth of Zeus on 'the Aigaion Mountain', a neutral spot never again independently referred to. The Zeus born here is an *Olympian Zeus*, a Zeus for all the Greeks.

The process reflected by Homer and Hesiod on a 'national' level was, of course, paralleled by a similar process on the regional level, resulting in regionally relevant gods and myths syncretized from the individual towns and city states that were to comprise those regions. If every Greek *polis* was 'among other things a religious association, its citizens accepted in a community of cult, with a patron deity presiding over each state' (Snodgrass 1980, 33), so too was the new community, the nation of Greeks, and so was each region or state which was to make it up.

But, of course, local traditions remain important. The Pan-Hellenic tendency encouraged by centuries of increasing communication, both internal and external, ran counter to another process clearly visible in an author like Pausanias. This was the persistence of local traditions. In the 2nd century AD, some 900 years after Hesiod and Homer's Pan-Hellenic epic and 600 years after Herodotus' 'nation of Greeks', Pausanias produced a guide book to many of the sites and cities of what was already in his time 'ancient Greece'. His intensive city by city approach is designed, quite unintentionally, to showcase local rather than ecumenical traditions. Much of what he records stems from locally evolved variants of specifically local or regional relevance and impor-

16 See Donlan 1989, 21 and n. 49. But see also Snodgrass 1980, 385: 'lack of communication did much to sharpen and perpetuate diversities of dialect'.

17 Hammond 1959, 97-8. See n. 52 below for the parallel regional role of Diktaian Zeus in E. Crete.

tance. The survival of this material in the face of panregional and Pan-Hellenic influence is marked. The fluid coexistence of these traditions, Pan-Hellenic, regional and local is a tribute to both the flexibility of Greek polytheism and the fierce tenacity of local traditions. Broadly varying manifestations of each god lived on quite happily together, each serving a local, regional or national purpose of its own (see for an example Villing 1997, 81–100, esp. 94–5).

THE BIRTHS OF ZEUS. LOCAL AND REGIONAL TRADITIONS IN THE PELOPONNESE

Pausanias, on his tour of mainland Greece, records just some of the extant traditions about the birth of Zeus. In so doing he also illustrates the processes of regional religious consolidation by exposing the artefacts that have been left behind. 'It would be impossible,' he says—in contrast to his more selective predecessor, Hesiod—'even for a man who had the appetite, to number all the people who insist that Zeus was born and reared in their countries'. The Messenians, 'like the others', say that the god was raised in their country, and that the two nymphs that cared for him, Ithome and Neda, gave their names to the mountain and the river respectively. Above the agora of ancient Messene, whose walls encircle much of Mount Ithome, is a spring which was used to wash the newborn child. Here he was also taken in charge by the Kouretes, 'for fear of his father' (Paus. 4.33.1). The temple of Zeus Ithomatas, the local Zeus figure for those living around the mountain, crowned its crest. A cult statue by Ageladas, the late Archaic teacher of Pheidias, Myron and Polykleitos, would date to the end of the 6th or the beginning of the 5th century BC. H. Brunn, on the basis of other work by the same sculptor (see below), but without numismatic evidence, suggests that this cult statue may have been a kouros.¹⁸ This local god is attested by Eumelos in the late 8th century BC, about the time of Hesiod's *Theogony*.

The Achaeans, on the other hand, maintain their own regional variant of the story. According to them, Zeus was nursed by a she-goat at Aigion (Strabo 8.7.5). While Pausanias omits mention of the tradition recorded by Strabo, he did find at Aigion two bronze statues of a youthful, beardless Zeus (Paus. 7.23.7, 7.24.2). The second statue, like that of the Messenians, was by Ageladas of Argos, dating also to the late 6th or early part of the 5th century BC. Zeus as a child being suckled by a goat appears on the coins of Aigion, a city whose name might be connected with that wetnurse of the father of the gods.¹⁹ These coins bear the motto ΑΙΓΙΕΩΝ ΠΑΙΣ, child of the people of Aigion (Frazer 1898, 163–4, with refs.). Between Aigion and Argyra is Cape Drepanon, or 'sickle', a headland sticking out into the sea; there is a legend that it was here Kronos threw the reaping hook into the sea after mutilating his father Ouranos, so they

call this headland 'the hook' (Paus. 7.23.4). This admittedly easy aetiology further localizes aspects of the birth story. Aigion was the seat of the Achaean league, a regional centre of some antiquity and perhaps, as in Arkadia,²⁰ the beneficiary of other, more local stories from different parts of what eventually became Achaea.²¹

Arkadia, like its neighbours Messenia and Achaea, preserved its own regional tradition about the birth of Zeus. Pausanias found this tradition centred at Mount Lykaion, which looms over Megalopolis, the heart of an Arkadia consolidated by Epaminondas to serve as a barrier to Spartan aggression only in the 4th century BC.²² Here Zeus was born and washed in the springs of the Neda, created by Rhea for that very purpose (Paus. 8.38.2; Kallimachos *Hymn to Zeus*, lines 29–43; Strabo 8.3.22). This is the regional tradition from Arkadia, but fading traditions recorded elsewhere hint at more local versions of the story, local polis-centred variants, antecedents of the Lykaian myth, syncretized for the 'community of Arkadia' as Hesiod's tale was for the 'community of Greeks'. In NW Arkadia, in what is now the eparchy of Gortyna, the springs of the river Gortys were also said to have been used to bathe the newborn Zeus, but only, Pausanias specifies, by those who live around its springs, who call the river there 'Lousios' from its use as a wash-place ('Loutra') (Paus. 8.28.2). Mount Thaumasio above the city of Methydrium in N Arkadia had a 'cave of Rhea' and although the Methydrians, to quote Pausanias, 'admit that she gave birth in some part of Lykaion, they say that it was here that she tricked Kronos by the legendary substitution of the stone' (Paus. 8.36.2). Their 'admission' reveals some dissension. As in the growth of the Hesiodic, Pan-Hellenic tradition, concessions between two rival local traditions

18 Quoted in discussion by Frazer 1898, 438–41.

19 Fowler 1988, 95–133. Farnell 1896, 38 suggests that the name of the mountain might have acquired for it the birth story from Hesiod's Crete. It is in fact equally possible that Hesiod used the name Aigaion in Crete as a concession to Achaea.

20 See discussion on Arkadia below. Strabo's reference (8.7.5) again represents syncretism of two local traditions into a regional one.

21 In Pausanias' time priests of Zeus Pais were elected yearly as were those of Zeus Ithomatas (Paus. 4.33.1). In an earlier period the boy with the most beauty was picked to be the priest of Zeus, but when the hair began to grow on his face the priesthood, 'the privilege of beauty' passed to another boy (Paus. 7.24.2). The association of youth mortal and divine is here, as in the Palaikastro Hymn, unavoidable. See Koehl in Chapter 11 above.

22 Dissension continues about the date of the foundation of the Great City, opinions differ between 371 BC and 367 BC; see Hornblower 1990, 71–7. In either case the late date may account for the marked survival of traces of local stories in Arkadia.

are here implied (Nagy 1990, 46; Roebuck 1966, 217; Hdt. 2.54). Mantinea's mountain, Alesion, was also said to have been visited, indeed named for, Rhea 'in her wanderings', suggesting travels like those of Leto before the birth of Artemis and Apollo (Paus. 8.10.1). The *Etymologikon Mega* records the name 'Geraistion', reported as 'a place in Arkadia where Zeus was swaddled'. This also implies a localised version of the birth story, not fully eclipsed by the new regional variant.

The multiplicity of attendant nymphs in the Arkadian birth stories also suggest the remnants of local traditions. On Mount Lykaion Pausanias records Theisoa, Neda and Hagno at the birth.²³ Theisoa was that town at the springs of the Gortys river, whose inhabitants called it the Lousios and claimed that the child Zeus had there been washed at birth (Paus. 8.28.2–3). At Tegea, the front of the altar of Athena Alea, made by Melampous the son of Amythaon, shows Rhea and the nymph Oinoe with the baby Zeus, the sides showing respectively Glauke, Neda, Theisoa, Anthrakia on one, and Ide, Hagno, Alkinoe and Phrixa on the other (Paus. 8.47.2). In Megalopolis a table carving shows Neda and Hagno and Anthrakia again, joined by Anchiroe and Myrtossa (Paus. 8.31.4). The Nymphs from the temple of Apollo at Bassae are nameless (Frazer 1898, IV, 403). The importance of this variety is the variety itself, which, within the confines of Arkadia, is striking. The number of actors, here rather actresses, suggests a variety of different sources, local variants, stories eventually incorporated or syncretized into a regional version (Nagy 1990, 10, 46).

Kouretes, though they do appear in Pausanias' travels in Arkadia, are not explicitly associated with the birth of Zeus. No Amaltheia is in evidence. These absences speak clearly for the separate nature of the Arkadian and Cretan traditions represented in these periods. Arkadia instead provides an additional motif to the story. Rhea's tactics here are somewhat more aggressive than in Crete. She seems to have enlisted the aid of a troop of giants under one Hopladamos to protect her in case her husband should pursue. In fact the Methydrians say that it was during her stay on their Mount Thaumasio—presumably prior to their deceiving Kronos with the rock—that this recruitment was undertaken. Pausanias actually saw the huge bones of one of this group dedicated at the sanctuary of the child Aesculapius behind the stadium at Megalopolis.²⁴ Frazer suggests these may have been the fossilized bones of a woolly mammoth, adding that 'many such bones are still found by peasants in the area' (Frazer 1898, IV, 315). Whatever the case may be, the story of Hopladamos and his crew of giants prepared to defend the young Zeus after birth is not found elsewhere and represents a peculiar Arkadian variation to the motif of the Kouretes.

By recording these traditions Pausanias provides glimpses of the remnants of local birth stories within a specific region. At the same time, he provides also what

can be considered the concurrent regional tradition of the birth of Zeus on Mount Lykaion. This regional syncretism is the product of the forces of political and social synoecism, the story for the new 'community of Arkadia', which includes but does not necessarily eclipse the stories of the smaller, individual communities which were to make it up.²⁵ This landscape of concurrent mythological variants, local and regional, extends throughout Greece.

Ithome and Aigion supply the parallel regional traditions from Messenia and Achaea, though local traditions there, if any existed, have been lost to us.²⁶ Other regions are also connected with the story. In Boeotia the crag above Chaironeia, called Petrachos, was also considered to be the spot where Kronos was deceived into swallowing the stone as a substitute for Zeus (Paus. 9.41.6). Hesiod, in the 8th century BC, assures us that this stone was placed on display in Delphi (Hesiod *Theogony*, 499). Pausanias saw it himself some 900 years later (Paus. 10.24.5). At the same time Thebes boasted a place called 'Dios Gonai' (Schol. II. XIII 1; Aristod. Theb. *FGrHist*, 383, 7), where, aside from the obvious implications of the place name, we are told, in a *hapax legomenon* from Lykophron 'the obscure', that Rhea wrestled with her predecessor and on

the plain of Zeus' nativity, having cast into Tartarus the former queen, delivered her of him in secret birth, escaping the child-devouring unholy feast of her spouse, and he [Kronos] fattened not his belly with food, but swallowed instead the stone, wrapped in limb-fitting swaddling clothes, the savage centaur, tomb of his own offspring.²⁷

The evidence, scanty as it may be, reveals a locally attested variant distinguished by a ladies' wrestling match prior to the birth, as the Arkadian stories are so distinguished by their posse of protective giants after it. The temple of Hera at Plataea, also in Boeotia, had a representation of Rhea bringing the rock to Kronos (Paus. 9.2.7). This should date to 427 BC or just after the city was destroyed and the temple rebuilt by the Thebans.²⁸

23 Paus. 8.38.2. For a list of nymphs attendant in Arkadia and elsewhere: Verbruggen 1981, 39–46.

24 Dedicated bones: Paus. 8.32.5. Recruitment of Hopladamos: Paus. 8.36.2–3. See also Vian 1952, 239–40; Jost 1985, 245.

25 For the rebirth of the Lykaion sanctuary as a symbol of Pan-Arkadian aspirations after the establishment of Megalopolis, see: Jost 1994, 227.

26 An exception may be the suggestion of a sub-Achaean variant localised at the city of Olenos, see *Phaenomena* 162 ff; n. 34 below.

27 Lykophron *Alexandra*, lines 1193 ff. Suggestions, perhaps, of woman to woman conflict as well as man to man in Apollonios 1.506.

28 Frazer 1898, V, 18; Paus. 9.2.7.

In the Argolid, at the Heraion, Pausanias also reported seeing scenes from the birth of Zeus.²⁹

We are a long way from Crete, but the similarities are clear and the processes there are much the same. The regional Messenian, Arkadian and Achaean traditions recorded by Pausanias are paralleled by regional traditions mentioned in E and Central Crete. The mountains of Ithome and Lykaion on which some of the mainland stories focus are paralleled by the mountains of Ida and Dikte. As in Arkadia remnants of the more local and often less visible traditions peculiar to different *poleis* and subregional units are occasionally discernible.³⁰

The geographical extent of the two prominent regional traditions about the birth of Zeus in Crete in the 3rd and 2nd centuries BC has been established by the use of oath formulae from associated *poleis* (Bosanquet 1909, 348–51; Willets, 1962, 206–09). This is essentially a snapshot of regional boundaries in the dynamic process of change.³¹ As on the mainland these regional cults remain strong while the poetic and political synthesis of the divine continues around them. In Crete the local and regional strength of each tradition is attested archaeologically by the end of the 8th and early 7th century BC.³² In Crete also the subsequent intermingling of the two separate regional traditions in poetry and the emergence of a separate Pan-Cretan consensus is remarkably clear.

SOME LITERARY TESTIMONY FOR DIKTAIAN ZEUS

Aratos of Soli (born in 315 BC) wrote in Athens and in the Macedonian court of Antigonos Gonatas at the beginning of the third century BC. His *Phaenomena* is a literary star map in 1154 lines following in the tradition of Eudoxus of Cnidus (390–337 BC). It presents a businesslike map of the constellations with associated navigational, agricultural and meteorological information. Aratos was a Stoic, as indeed was his patron Antigonos, and the *Phaenomena* is a practical, not a mythological poem (*CHCL* 1993, 59–60). Discussion of the stars, however, then as now, carries with it some mythological baggage. This was duly, if briefly, dealt with. When speaking of Ursa Minor and Ursa Major Aratos writes:

If indeed the tale be true, from Crete they by the will of mighty Zeus entered up into heaven, for that when in olden days he played as a child in fragrant Dikton, near the hill of Ida, they set him in a cave and nurtured him for the space of a year, what time the Dictaeon Kuretes were deceiving Kronos. (*Phaenomena* 30–5).

Here fragments of different traditions were freely mixed. The child Zeus we find playing in a place called 'Dikta', but Dikta is on Ida—two separate traditions are indicated and have been merged. Moreover, although

Zeus is protected by the Kouretes, and indeed, by 'Diktaian Kouretes', he is raised by bears.³³ Bears aside, the more traditional nursemaid is not entirely forgotten. Over the left shoulder of the constellation of Auriga, the charioteer, is set 'the holy goat, that as legend tells us gave the breast to Zeus' (*Phaenomena*, 162 ff). Interestingly enough this goat, Aratos tells us, 'the interpreters call the Olenian goat' (*Phaenomena*, 164). While the reference must remain uncertain in this broad mix of allusion to variant tales, Olenus was an Achaean city close to the Pan-Achaean centre at Aigion, where Zeus was also nursed by a goat.³⁴ At the same time Aratos uses the epithet 'Diktaia' at the beginning of his poem (*Phaenomena*, 33) bringing us back to Crete and to the Diktaian tradition. This conflation of local and regional traditions quite follows on the Hesiodic tradition. The style continues without the *raison d'être*. Aratos has no need, in Alexander's world, of a Pan-Hellenic subtext. He comes with the comfortable patronage of a Hellenistic king and a publishing industry that assures an audience without having to avoid possibly contentious religious conceptions.³⁵ Aratos uses the material available to him in the erudite manner which accompanied the growth of the great libraries of the Hellenistic period. The appearance of fragments of different local, regional and Pan-Hellenic variants in his work attests both the presence of those stories in his literary sources and their persistence, despite homogenization. While the two traditions had already been conflated into a Pan-Cretan story when Aratos took them up, the Idaean tradition

- 29 Paus. 2.17.3; Frazer 1898, III, 182. Whether this was a representation of Pan-Hellenic or regional tradition we cannot be sure, having no other hints preserved from antiquity; see Verbruggen 1981, 35.30 For Welchanos at Phaistos: Bosanquet 1909, 349–50; Willets 1962, 250–1; at Agia Triada: Nilsson 1950, 464, 550.
- 31 Strabo 10.4.6. The Magnesians Arbitration (*IC* III.IV; Pashley 1837, 290) gives a more diachronic view of the processes of regional political coalescence.
- 32 For metalwork at Palaikastro, see Bosanquet 1940, 93 and 56–7; for that at Ida see Snodgrass 1980, 341.
- 33 While bears as nurses might remind one of Arkadia, Willets suggested that they may also have played a part in local traditions from around Khania in W Crete, centering on the cave of Arkoudia, the she-bear on Akrotiri. Willets 1962, 275–7; 1977, 122. Willets (1977, 198–9) also suggests that Arkadia's bears and those of Crete might be related. In this case, the product of the transfer of concepts or people could be indicated by coin types common to Arkadia, Knossos and Apera and by the appearance in both Arkadia and Cretan Gortyn of Zeus Hekatombios. For more about bears, see Robertson 1996, 267–8.
- 34 Strabo (8.7.5) quotes Aratos to associate the Olenian goat with the Achaean town of Olenos and the young Zeus at Aigaion.
- 35 *CHCL* I.4.59. For publishing see Kenyon 1932, 82; Martial i.66.4.



had by no means eclipsed the Diktaian, and different sources have retained references to both.

Apollonios Rhodios was a member of the group of scholar poets that assembled under the Ptolemies in Alexandria. His epic *Argonautica* tells the story of Jason's voyage to Kolchis in search of the Golden Fleece and of his return to Iolkos, and preserves a valuable version of this ancient story.³⁶ References in Apollonios' poem to the birth of Zeus preserve both Diktaian and Idaean traditions, their interchangeability again speaking both for the presence of these separate ecotypal³⁷ traditions and for their conflation.

On the eve of the departure of the *Argo* on her quest, sacrifice on the beach of Pagasae leads to a party, the party to wine and the wine to dispute. The 'impious Idas', son of Amphiaros, threatens the kindly Idmon and a fight is only avoided by the presence of the singer Orpheus, who strikes his calming lyre and sings a tale to soothe these inauspicious beginnings. He sings of Ophion and Eurynome 'the first rulers of Olympus' and how they were supplanted by Kronos and Rhea all at a time when 'Zeus in his Diktaian Cave was still a child, with childish thoughts, before the earthborn Cyclopes had given him the bolt, the thunder and lightning that forms his glorious armament today'.³⁸ Here, in a typically Hellenistic mixture of available motifs, Zeus' birth and youth in the Diktaian Cave is attested.

When the argonauts, after many adventures, arrive in Kolchis, they find hidden anchorage to rest the night and to consider further action. Hera and Athena, both hoping for the success of the venture, conspire with Aphrodite to have her son Eros cause Medea to fall in love with Jason so as to gain her help in acquiring the object of the quest, the Golden Fleece. Aphrodite promises her help and sets out to find her troublesome son to use his arrows on Medea. She finds Eros cheating Ganymede at a game of knucklebones and bribes him to do as Athena and Hera wish. The bribe she offers is 'one of Zeus' lovely toys, the one his fond nurse Adresteia made for him in the Idaean Cave when he was a child and liked to play' (*Argonautica* 3, 129-43).

Apollonios, then, uses Idaean and Diktaian as interchangeable epithets for the cave where Zeus spent his youth. The two different names, devoid of geographical significance, remain as indications of two separate local traditions, now conjoined, but originally based on the two different settings.

Another mention of the Diktaian Cave appears in the context which illustrates the importance of Dikte as a mythological concept and its concurrent loss of geographical reference. In Book 1, 1125-41, Apollonios describes events following the unfortunate night battle of the Argonauts with their erstwhile hosts the Doliones, and Jason's unknowing slaughter of their king, Cyzicus. Mopsos sees in a dream those rites necessary for absolution from this crime, rites devoted to the local Mother Goddess, Dindymia, or Rhea. An altar and wooden image are erected at the top of the mountain. A sacrifice

of oxen is conducted for Rhea and her companions Titias and Cyllenus, the Idaean Dactyls of Crete, whom the nymph Anchiale bore in the Diktaian Cave, as she grasped with both hands the land of Oaxos' (*Argonautica* 1, 1126 ff). Oaxos is of course the city close to the Idaean cave. Apollonios calls the cave Diktaian and sees it as a suitable setting for mythological events, even the birth place of the Daktyls of Ida! Again two separate traditions become mixed.

With these three casual and non-thematic references Apollonios mirrors the syncretized nature of the Idaean and Diktaian traditions also reflected in his contemporaries Aratos and Kallimachos (see below). Apollonios' subject matter, however, also requires the appearance of Dikte in a different context. Heading home after their adventures in the West and setting off from Drepane (Kerkyra) the heroes are blown off course to Libya. After a difficult time there they are given instructions by the god Triton as to the way home. Following these seamanlike directions (*Argonautica* 4, 1570 ff) they sail NE below the eastern edge of Crete and 'still far from land the high rocks of Karpathos saluted them' (*Argonautica* 4, 1635). Then, passing between that island and Crete, 'the greatest island in the sea', they seek shelter in the 'haven of Dikte' (*Argonautica* 4, 1641). 'Dikte' here must be regarded as a harbour or safe anchorage and located, without its mythological baggage, at the E extremity of the island. Dikte at this point is simply a stop on a mariner's map, its position confirmed by the route taken by the *Argo* on the following day when she is rowed past Cape Samonion³⁹ to beach that

36 Huxley 1969, 60-79, lists some of the versions which have been lost.

37 C. W. von Sydow first presented the concept of oicotypes, or ecotypes, in his studies on the mechanics of folklore transmission (von Sydow 1948, 206-10). The term is borrowed from the science of botany and defined as follows: 'Ecotype: a recognizable geographic variety ... of a widespread species that is equivalent to a taxonomic subspecies. Typically ecotypes are restricted to one habitat and are recognized by distinctive characteristics resulting from adaptations to local selective processes and isolation. For example, a population or ecotype of a species found at the foot of a mountain may differ widely in size, colour or physiology from a different ecotype (of the same plant) living at higher altitudes, thus reflecting a sharp change in local selective pressures. Members of an ecotype are capable of interbreeding with other ecotypes within the same species without loss of fertility or vigour', Cunningham *et al.* 1998, 319. In our case (to anticipate somewhat) a widely dispersed story which has been adapted locally, due again to 'different selective processes and isolation', can likewise be termed an ecotype. For 'interbreeding' see my discussion of local, regional and Pan Hellenic variants above.

38 *Argonautica* 1, 506-11. Orphion and Eurynome here replace Ouranos and Ge. They originate in the Orphic tradition; see Kirk 1966, 65-70.

39 'αρκης Σαλωνιδος' in *Argonautica* 4, 1693.

night with the help of Apollo at the island of Anaphe to the N (*Argonautica* 4, 1705–17). In whatever tradition Apollonios is here following, and it may be simply a nautical one, Dikte was a place securely associated with E Crete.⁴⁰

Kallimachos of Cyrene (310–235 BC) was also active in the Egyptian court of Ptolemy Philadelphos. His catalogue of the growing library at Alexandria, the *Pinakes*, divided the material by subject matter and genre, listed each author alphabetically and itself ran into 120 ‘books’ (*CHCL* 1993, 1. 4, 10). His *Aetia* in four books of Elegaic verse, each over 1000 lines long, concerned legends and stories about the origins of customs, ritual and historical events (*CHCL* 1993, 1. 13–14; F. A. Wright 1932, 89–90). Works on *Local Nomenclature* and a *Collection of Marvels in All the Earth According to Location* were among the 800 books credited to him by the Suda. Although only fragments of his work have survived, it shows deep knowledge of the traditional material then extant.

Kallimachos’ *Hymn to Zeus* is preserved in its entirety. In it he follows, quite consciously, the technique of his predecessors, redoing the work that had been done by Hesiod and then undone by history. The poem is written as a forceful amalgamation of two different regional traditions about the birth of Zeus, Cretan and Arkadian. The motivation for such wholesale and freehanded editing, quite in the tradition of the oral poets, may well have had to do with Egypt’s often contentious neighbours at Libyan Cyrene, the birthplace of Kallimachos (Strabo 17.3.32). In N Africa, Cretan and Peloponnesian settlers mixed (Hdt. 4.161 ff; Boardman 1980, 158; Osborne 1996, 15–16. See also West 1965, 155 n. 12) bringing their separate regional traditions into conflict. Cyrene’s closest neighbour to the N is Crete. At the same time the Cyrenaicans possessed a temple of Lykaian Zeus (Hdt. 4.203). The *Hymn to Zeus* stitches together two regional variants of the birth tale, Peloponnesian and Cretan, that have been transplanted and forcefully juxtaposed by emigration and colonization. It does so in such a way as to satisfy the adherents of both, with concessions demanded on either side. Nagy’s description of Hesiod’s technique also applies to Kallimachos’ consciously Hesiodic approach: ‘As in the Homeric Hymn I to Dionysus, the mutually incompatible traditions of various locales are rejected as falsehoods, in favour of one single tradition that can be acceptable to all’ (Nagy 1990, 46). Hesiod and his predecessors in the oral tradition had already sought for a ‘tradition acceptable to all’. Along with the Pan-Hellenic Olympian Zeus so created, however, local and regional traditions, as shown by Pausanias and countless others, continued to thrive. Here, in N Africa, those local traditions were transplanted by Cretan and Peloponnesian settlers and once more came into conflict. Kallimachos’ technique is straightforwardly Hesiodic (*CHCL* 1993, 1. 4, 11 and 13; Hdt. 2.54; Nagy 1990, 10). Like Hesiod Kallimachos deals briskly with his fellow singers, both past and present. ‘The ancient

poets spoke not altogether truly’ he says, and then corrects them. Briefly, Zeus is *born* in Arkadia and *raised* in Crete. This is conscious syncretism and cleverly done.⁴¹ As the Lykaian tradition is the regional tradition of the Peloponnesian settlers, so the Cretan tradition with which it is here married is the regional tradition of Crete. Dikte and Ida are, as in Aratos and Apollonios, already syncretized in Kallimachos.

The young god is referred to by his cult name ‘Diktaios’ in line 4, marking the presence of the tradition associating Zeus with the mountain of Dikte. Immediately following, however, as in Aratos, Dikte is conflated with Ida, Diktaian Zeus with the Idaean, for ‘Zeus Diktaios’ is, in the tradition quoted, ‘born on the hills of Ida’. There follows (lines 10–35) the Arkadian birth story of Zeus at Mount Lykaion. Neda the Arkadian and Messenian nymph, acts once more as a combining element by carrying the child off to a secret place in Crete there to be raised.⁴² From here on Kallimachos draws from the Cretan stories of the birth of Zeus, that centering on Dikte having again been almost but not entirely subsumed by that based on ‘the hill of Ida’. Neda brings the child to Crete, indeed to Knossos (line 42 ff), where he is taken by the Korybantēs⁴³ and the ash-tree Nymphs that Kallimachos calls the ‘Diktaian Meliai’. He is entrusted to the nurse Adresteia for care with the help of our old friend Amaltheia, the nanny goat. The ‘Panacrian bees’ contribute honey and, Korybantēs aside, it is the Kouretes who dance noisily around the infant to hide his cries.

What is pertinent here is that, although Kallimachos concentrates on the *conscious* amalgamation of two regional traditions, Cretan and Peloponnesian, he reveals at the same time, as Pausanias does in Arkadia, both the amount of syncretism that has preceded him in Crete and the persistence of the separate components which ‘make up’ the tradition with which he deals.

The presence and indeed the strength of the Diktaian tradition as it is revealed in the literature of the Hellenistic period does much to explain its vibrancy in the Roman period. It is clear that the East Cretan regional tradition retained enough mythological and literary currency to remain a distinct part of the traditions associated with Crete. Testified to in the Hellenistic period

40 Crowther, in Chapter 12 above. The association of a watered landfall with a mountain or some other feature visible from afar is indeed characteristic of a navigator’s tradition.

41 Kallimachos 10–53: ‘Some say you were born on Crete, Oh Lord’, Kallimachos writes, ‘others claim that you were born in Arkadia; who lies, Oh Lord?’ Zeus, of course, replies, ‘all Cretans are liars’.

42 Neda’s presence in both Arkadian and Messenian traditions makes her a perfect candidate for this role.

43 Not the Kouretes: Strabo 10.4; Guthrie 1950, 44.

largely by artefact in the (visible) process of syncretism, its existence and preservation as a parallel, uncontaminated, though less visible tradition is assured by its surfacing again fully armed, so to speak, in the work of Roman authors.⁴⁴

Lucretius was a philosopher. *De Rerum Naturae* is a sophisticated philosophical exposition of Epicurean thought, an interpretation of the ideas of Leucippus as recorded by Democritus and Epicurus. It is in discussing the multiplicity of forms and causes that he diverges, perhaps for a little dramatic relief, into a thrilling description of the Phrygian rites of Cybele. It is as an allusion that he points out that the armed dances of her worshippers recall 'the Diktaian Kouretes who are said once upon a time to have concealed the infant wailing of the child Jupiter in Crete' (Lucretius *De Rerum Naturae* 2.632). Preserved in this casual reference we find Dikte, the Kouretes, Crete and the infant Zeus.⁴⁵

Vergil (70–19 BC) from the beginning of his career seems partial to Dikte and the Diktaian tradition. Dikte appears at the expense of Ida in both the *Eclogues* and the *Georgics*, long before the wanderings of Aeneas and Mount Ida in the Troad might have contributed to any preference (*Eclogue* 6.56; *Georgics* 2.536). Speaking of bees in the *Georgics*, Vergil shows acquaintance with the story complex, ascribing the qualities of bees to a reward given by Jove himself: 'for which they followed the tuneful sounds and clashing bronzes of the Kouretes and fed the King of Heaven within the cave of Dikte' (*Georgics* 4.150 ff). Here, in an aside in what turns out to be a very serious and technical discussion on bees and apiculture, we have the Kouretes dancing noisily to deceive Kronos, or Saturn in this case, and the young king of heaven within the 'cave of Dikte'.⁴⁶ In the *Aeneid* too the use of Dikte is recurrent.⁴⁷

Dionysios of Halicarnassus published, in 7 AD, his *Early History of Rome*, or *Roman Antiquities*, covering Rome from legendary times to the beginning of the First Punic War. It was a work of 20 books, of which volumes one to ten and a large part of eleven have been preserved along with fragments of the other nine. Speaking of Numa, who claimed the authority of the goddess Egeria for his laws, Dionysios suggests that he may have been emulating Minos, an earlier law giver, who would go 'frequently to the Diktaian mountain, in which Cretan legends say that the new-born Zeus was brought up by the Kouretes, where he would descend into the holy cave and then produce his laws saying that he had received them from Zeus' (Dionysios, *Roman Antiquities* 2.61.2). Here, in an allusive aside, Dionysios brings us the elements of Dikte, the young Zeus, the cave and the Kouretes. His reference to 'Cretan legends' speaks of a local currency belied by his subsequent implicit treatment when discussing the rites of the Salii in Rome, ecstatic dancers that he considers the equivalent of the Kouretes. Here he writes 'I need not mention the legend concerning them (the Kouretes) since almost everyone is acquainted with it' (*ibid.*, 2.70–71), the allusion explicitly suggesting broad recogni-

tion of the story. This is not entirely inconsistent. He is, in fact, implying the widespread knowledge of his 'Cretan legends'.

Diodorus Siculus, also in the first century BC, composed a universal history of the world entitled the *Library of History*, in 40 books.⁴⁸ The first part of this work dealt with the mythical history of Greek and Barbarian peoples and was cast in a broadly euhemeristic mode fashionable at the time (F. A. Wright 1932, 173–5). As with Pausanias his format in many cases enforced the compilation of traditions from different regions, with which, however, he seems even less at ease than his successor. Crete was understandably a problem for him in this way. He begins discussion of it as follows: 'and since the greatest number of writers who have written about Crete disagree among themselves, there should be no occasion for surprise if what we report should not agree with every one of them'. Then follows a partial list of sources, Epimenides, Dosiades, Sosicrates and Laosthenidas, to whom we may add Ephoros, Aratos and Poseidonius among others.⁴⁹ As with Pausanias, in discussing the birth of Zeus Diodorus is encumbered by the wealth of his material and begins with the disclaimer that 'concerning the birth of Zeus and the manner in which he came to be king, there is no agreement' (Diod.Sic. 5.70.1).

The newborn Zeus is hidden in a cave on Ida out of fear of his father. He is entrusted to the Kouretes who hide his cries by the noise of clashing weapons in a war dance. He is nurtured by the nymphs on milk and honey and suckled by the goat Amaltheia (Diod.Sic. 5.65.4, 5.70.2–3). Bypassing the version represented by Vergil's Diktaian Cave, Diodorus instead follows Aratos and others to Ida, recording that the cave and the area about them had subsequently been made sacred to him (Diod.Sic. 5.70.4). Nevertheless he ends his account with his own peculiar testimony for the survival of the Eastern regional tradition:

44 See discussion on the 'Nature of the Evidence' above, with nn. 10–13.

45 Here 'Jupiter'; his story the product of further racial and linguistic syncretism and borrowing. See discussion below on 'Bronze Age parallels in Crete and beyond' for similar transpositions and borrowings in the Bronze Age. Also *CANE* ii, 1246; West 1997, 103; Weis 1984, 292–3; n. 55.

46 As to Kronos and Saturn, see *Georgics* 4.150 ff.

47 *Aeneid* 3.125, 171; 4.74. Here the Diktaian mountains are described as celebrated hunting grounds, just the kind of terrain appropriate for the rites of passage discussed in Chapter 11 above.

48 Of this ambitious undertaking Books I–V and XI–XX have been preserved along with fragments from the remaining 25, which are otherwise lost.

49 Diod. Sic. 5.80.2. Only fragments of these sources have been preserved—the loss of the Cretan historiographers and mythographers and any more extensive remnants of Cretan oral tradition is especially grievous; see n. 7 above. For the preserved fragments see *FGrHist.* IIIb, 457–63.

When [Zeus] had attained to manhood he founded first a city in Dikta, where indeed the myth states that he was born, in later times this city was abandoned, but some stone blocks of its foundation are still preserved (Diod.Sic. 5.70.6).

Euhemerous and aitiology aside, Diodorus here tells us that the myth states that Zeus was born in Dikta, emphasizing once more and clearly the continued strength of the Diktaian story.

DICHOTOMY BETWEEN MYTH AND CULT

The widespread association of the young Zeus with Dikte in later Greek and Roman literature is in sharp contrast to the archaeological evidence for his cult. Only the sanctuary at Palaikastro can be certainly identified, though a good case can be made for the Altar Hill at Praisos. The cave at Psychro, Hogarth's 'Diktaian Cave', is less certain.⁵⁰ Despite the history, size, and importance of Praisos in the historic period and despite the regional function of the Palaikastro sanctuary,⁵¹ remains in both places were less than monumental. Epigraphic evidence in the historical period indicates a limited area of worship, confined to E Crete.⁵² Ignored by Hesiod, the story's currency as witnessed in later literature is all the more surprising. Neither in cult nor in preserved epic do we find any reason for the vitality of the story. How then did it gain currency?

BRONZE AGE PARALLELS IN CRETE AND BEYOND

The appearance of Diktaian Zeus in the Linear B tablets at Knossos and the dedication of oil to him places him firmly in a Bronze Age cultic context.⁵³ The controversy about the identification of Dikte, well treated by Crowther in Chapter 12 above, need not concern us here. What is important is that there was then a Zeus of Dikte and that, wherever he may have been, he was recognized and supplied with offerings from Central Crete, far outside the confines of the area to which he was later restricted. The tenacity of the later tradition is thereby more likely to rest on distribution in the Bronze Age than on traditions stemming from E Crete in the Iron Age.

The decipherment of the Hurro-Hittite myths of divine succession revealed a long-lived and adaptable mythological complex riddled with parallels to the poetry of both Homer and Hesiod (Dornseiff 1934, 397-415; 1937, 231-58; Barnett 1945, 100-01; Güterbock 1946; 1948, 123-34). It is the story of Anu, Kumarbi and Teshub that directly concerns us here. These three generations of supreme gods provide a violent line of succession closely parallel to the Greek version of the gruesome overthrow of Ouranos by Kronos and of Kronos, subsequently, by Zeus. These parallels were noted immediately on the decipherment of the text from

Hattusas and have been the object of considerable discussion since.⁵⁴ The common appearance of the complex themes of castration, cannibalism, deception by the use of a stone, subsequent use of that stone as a cult object, as well as the rebellion of Typhoios/Illukandas, make the association of the two mythological matrices unavoidable. M. L. West, who began to explore the subject 30 years ago, brings the existing parallels up-to-date in his recent work, *The East Face of Helicon* (1997, 278-95, 586-98, esp. 589).

Hurrians first appear in the hills to the N of Mesopotamia in the second half of the 3rd millennium BC, spreading to the S and W toward the beginning of the 2nd. They control the city of Urkish (Tell Amuda) in the time of the Akkadian kings and gradually extend control into N Syria and Mesopotamia. At first a string of city states, they form a regional power about the city of Mitanni by the 16th century BC. There were Hurrians among the Hyksos during the Hyksos rule in Egypt and the term 'Hurru', used by the Egyptians to describe parts of Syria and Palestine during Middle Bronze II, suggests both an established presence and considerable familiarity between the two peoples at that period. 'By the 16th century BC there were considerable numbers of Hurrian-speakers as far W as the Mediterranean coast. They spread to Cilicia no later than the 15th century BC and perhaps to Cyprus in the 14th century BC'.⁵⁵

We are indebted to the texts from Hattusas for the preservation of the 'Song of [?Kumarbi]' (Güterbock 1946, 6-9, 34-41, 86-8). The translation into Hittite does not attempt to disguise the Hurrian origin of the story (Güterbock 1946, 3, 94-100; Webster 1977, 77; West 1997, 102). Fragments of the text in Hurrian were also found and the language in them is 'markedly archaic and close to that of the earliest (known) Hurrian text, the inscription of Tish-Atal of Urkish, which is

- 50 Nilsson 1950, 458-534, n. 3; Willetts 1962, 216-17, nn. 104-05 (for refs.); Crowther 1988, 39-41; Verbruggen 1981, 75-99.
- 51 Skylax 48, διήκει ἀμφοτέρωθεν; Bosanquet 1902, 231-70; Spyridakis 1970, 27-32, *passim*; Whitley, 1995, 405-28.
- 52 Spyridakis 1970, 23-5; Van Effenterre 1948, 126-7. Both Spyridakis and Van Effenterre refer to a confederacy of Eteo-Cretan cities, see also *IC III. II. 2*, 29. See also Bosanquet 1909, 348-51; Willetts 1962, 206-09; n. 31 above.
- 53 For a summary of the relevant material in both Linear A and Linear B, for references and for the ongoing discussion about the location of the specific sanctuary mentioned in KN Fp 1.2: see Crowther in Chapter 12 above.
- 54 Walcot 1966, 1-26; West 1966, 19 ff, 106 ff; Lesky 1950, 137-60; 1955, 379-400; Kirk 1970, 213-26; 1974, 44-52, 113-20, 256-8, *passim*; J. Duchemin 1979, 51-67; Mondri 1984, 342 ff; 1990, 151 ff; West 1985, 174-5; Solmsen 1989, 413-22; Burkert 1987, 13; 1992, 4-7.
- 55 West 1997, 102; *CAH II.1*, 1980, 22-4, 29-41, 417-23, 450-60. Hurrians, Hyksos and Hurru, Snell 1997, 62-3. For the Hurrians in general: Wilhelm 1989.

probably dated to the 21st century BC' (*CANE* ii, 1246; West 1997, 103). Similarly the tablets, both Hittite and Hurrian, make no mention of Indo-Aryan gods introduced by the ruling dynasty at Mittani in the 14th century BC. West points out that 'this archaism suggests a conservative poetic tradition with a long history' (West 1997, 108). Hurrian-speakers are common in Ugarit, as tablets in the Hurrian language indicate and Hurrian names in other tablets confirm. In view of the Hittite absorption of Hurrian mythology it is perhaps not surprising to find the story of Kumarbi also recorded in Ugaritic (*Ugaritica* V, 1968, 222).

The extent of commercial and cultural intercourse between the peoples, cities and cultures E and W of the Aegean becomes increasingly apparent. Attention has recently been focused on the resurgence of contact and interaction after the 'upheaval and devastation which prevailed from Greece through Anatolia to Syria and Palestine around 1200 BC' (Burkert 1992, 9; Langdon 1997) and which signalled the collapse of the great Bronze Age civilizations of the E Mediterranean. At the same time new discoveries constantly re-emphasize that this explosion of E-W exchange in the EIA represents but an energetic rebirth of long-lived interaction during the mature Bronze Age.⁵⁶ Already at the end of the 17th century BC an old Babylonian tablet from Mari records consignments of tin sent to a Cretan and to the interpreter of the chief Cretan merchant in Ugarit (Dossin 1970, 98, 281; Astour 1973, 21; E. Cline 1994, 126 [Text D2]). The fall of Crete and the growing Mycenaean hegemony in the LBA only intensifies Aegean contact with the East. In the 14th century BC LH IIIA/B pottery floods the Levant, reaching inland as far as Carchemish, Damascus and Amman (West 1997, 6; Sherratt 1980, 177-80). In Ugarit it is 'often difficult to determine whether Mycenaean pottery was imported or produced in Ugarit by Mycenaean potters' (Weis 1985, 292-3). Cypro-Minoan marks incised on local pottery after it was fired at Tiryns, accompanied by non-luxury Cypriote goods speak of an established Cypriot presence (Cline 1994, 319; Hirschfeld 1996, 296-7, n. 29). The interchange of motifs and design in the decorative arts is a widespread and natural outgrowth of the easy permeability of cultural boundaries at that period (Crowley 1989, 42-6, 62-8, and *passim*). It is indicative of a different kind of interaction taking place alongside mercantile and technological exchange, the exchange of ideas.

The polylinguism of the Near East in the Middle and Late Bronze Age is made clear by the preservation of records and mythology in different archives throughout the area extending from Sumer to the destruction of Hattusas in about 1180 BC. The tablets from Ugarit with parallel vocabularies in four languages are but one isolated example (*Ugaritica* V (1968), 230-51). While this multiplicity of literary linguistic competence was no doubt limited to a professional scribal class, the personal names recorded show such an intermingling of

race and language that bi- and tri-lingualism on a broad scale is often implied.⁵⁷ The suggestion that the West participated to some extent is unavoidable. That some Minoans and Mycenaeans were at least bilingual on a similar scale is indicated by the very existence of Linear B. Here also the presence of a scribal class is clear but names recorded in the Linear B tablets tell a similar story. Baumbach found non-Greek names at Knossos outnumbering the Greek three to one, some of them showing similarities with Linear A and some with Eastern languages, including Hittite (Baumbach 1983, 3-10). At Knossos not only does Aigyptios appear but *mi-sa-ra-yo*, the Semitic for Aigyptios. Tyrians appear in both Knossos and Pylos, which even boasts an Ethiopian in its tablets (West 1997, 621).

Repeated long-term exposure to Near Eastern material from multiple sources, then, is assured by the LBA. Whether, as at Hattusas and Ugarit and elsewhere, these stories then took root remains a matter of some debate.⁵⁸ That the West had then a tradition capable of receiving such material is not in doubt. 'Peculiar word forms and metrical assumptions present in the Homeric and Hesiodic poems reveal that these poems are only the end products of a poetic tradition which certainly stretches back continuously to a stage of linguistic usage earlier than the Linear B tablets that survive from the last century of Mycenaean Greece' (Osborne 1996, 137; Webster 1977, 91-135 [with refs.]). Some would find indications of further antiquity and of considerable foreign influence in the very bones of epic, the dactylic hexameter (Ruijgh 1985, 143-90).

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- 56 Ulü Bürün shipwreck (14th century BC): Bass 1986, 269-96; 1987, 693-733; Pulak 1988, 1-37; Bass *et al.* 1989, 1-29. Cape Gelidonya wreck (12th century BC): Bass 1967. Minoan frescoes at Tell Kabri and Tell el Daba'a: Niemeier 1991, 189-201; 1993, 332-3. Also a Mycenaean sword with inscription in Akkadian (*KUB* XXIII.13) dedicated at Hattusas by Tuthaliyas II (second half of the 15th century BC) to 'the Storm God His Lord', see: Güterbock 1992, 236, 242-3, and Cline 1996, 140. For general studies: Lambrou-Philippson 1990 and Cline 1994.
- 57 A study of the personal names reveals that a good part, perhaps as much as half, of the population of Ugarit was Hurrian or Mitannian: Walcot 1966, 20.
- 58 Fontenrose 1959, 212-16; Webster 1977, 82-90, with n. 124; Burkert 1985, 121; Huxley 1969, 29. See also West 1965, 155 nn. 9-23; Diod.Sic. 5.70.1 ff; Dornseiff 1934, 397-415; 1937, 231-58; Barnett 1945, 100-01; Güterbock 1946; 1948, 123-34 and my n. 54 for a limited bibliography. In 1966 Cyrus Gordon suggested the presence of Hurrian names in the Linear A tablets from Agia Triada, and thus anticipated the conclusions of this paper by using the (perceived) physical evidence of Bronze Age transmission, as opposed to the distribution of the presumed artefacts or descendants (ecotypes) of this putative transmission as they appear in the Iron Age (Gordon 1966, 34-9). The concept of Hurrians in Minoan Crete has recently been revived, or discovered again (there are no references to Gordon) by Peter G. Soesbergen (Soesbergen 1996, 493-8).

CONCLUSIONS AND IMPLICATIONS

In the historical period the story of Diktaian Zeus appears as one of many localised versions of the Hurro-Hittite myth of divine succession. Localisations of the same thematic complex are found elsewhere, those of Achaea and Arkadia firmly associated with areas of conservative linguistic tradition, as also in E Crete. Variations in local and regional renditions are significant, but equally significant is the widespread appearance of motifs associating these regional variations with the story told and recorded in many different languages throughout the E Mediterranean in the MBA and LBA. Bronze Age importation and distribution of the eastern myth of divine succession during the Mycenaean-Minoan *koine*, with subsequent differentiation and localization during the EIA, could explain this configuration of tales. Diktaian Zeus, with Mycenaean name and local affiliations, despite the increasing marginalisation of his cult, remains firmly retained by a tradition which must reach back to the Knossian tablets. The persistence of this tradition in the face of increasing literary, social and political irrelevance, and the existence of widespread but easily identifiable local variations of the same peculiar tale in areas isolated by the disintegration of the Mycenaean states, provides the best witness for a root system established in the Bronze Age.

The birth story of Zeus allows a diachronic glimpse of the mechanisms and processes of the transmission of myth (traditional stories) in the E Mediterranean. I have suggested that some of the motifs of Near Eastern mythology were encountered, adapted, incorporated and diffused in the Aegean repertoire during the long period of widespread communication and internationalism of the MBA and LBA. The prolonged existence of a number of strong, interrelated states, both in the Aegean and in the Near East, provided the basis for the diffusion witnessed also in the material remains.

The breakdown in communication, local differentiation and the vastly reduced horizons of the Dark Age then allowed, even demanded, the elaboration of these once common themes and motifs into ecotypal, locally relevant variants, marked and encouraged by those intensely local factors which, once again, are clearly reflected in the material remains of the centuries of disruption. With the subsequent expansion of the isolated sociopolitical entities of this period and the increasing communication between them, locally incubated, sometimes almost unrecognizable variants start to collide and become part of the process of social, cultural and political synoecism and homogenization. The Gods, like the Greeks, emerge from the regionalism of the Dark

Age to discover the scrambled remnants of a common heritage.

This is a complex process, its complexity assured by the persistence—as we have seen in Arkadia, Crete and elsewhere—of variants locally and regionally relevant and by their continual syncretism and cross breeding. It is also a 'global' process. 'Kronos' and 'Kumarbi' meeting at a festival in 8th century Al Mina would tell each other a sometimes vaguely, sometimes strikingly similar story about ungrateful offspring. Each could, no doubt, refine the tale of his companion in some way. Zeus would, and did, feel very much at home with Teshub, El or Adad—past acquaintances long forgotten aiding their easy compatibility.

The mechanics involved remain fairly straightforward. They are in constant operation. First, syncretic exchange of motif and motifeme will follow the increased interaction and communication which accompanies the genesis and growth of intra- and inter-regional systems. Second, local differentiation and the elaboration of ecotypal variants can be expected as these systems collapse. Third, the syncretism of these local and regional variants marks the reintegration or regrowth of the larger network, as in Hesiod and Kallimachos. We have concentrated on the Aegean basin and the fragmentation, reconstruction and recombination that occurred in that area at the end of the Bronze and the beginning of the Iron Ages. Neither geographically nor chronologically, however, does this represent a closed system. Similar processes of state and systems formation, dominance, disintegration and reintegration are well documented in Egypt and the Near East, dating back to Narmer and Sumer at the end of the fourth millennium BC. At various times, as pointed out above and by MacGillivray in Chapter 10, these inter-regional systems have included the Aegean. The corresponding processes of development, dispersal, adaptation and elaboration of myth and iconography will have accompanied these social and political changes.

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The Palaikastro Kouros: the Cretan god as a young man

Alexander MacGillivray and Hugh Sackett

Ten years have passed since a photograph of the statuette was first available, following the discovery of the lower limbs and the completion of the initial conservation process. When John Boardman saw the photograph, he admired the youthful figure but expressed the opinion that we would never fully understand him, unless (or until) we could tell how and with whom he was displayed. Much thought has since been given to answering these and related questions, and although an answer to the second question remains elusive, we can now summarise what is known about the Kouros, and what we have been able to reconstruct with the help of the specialist contributions in the papers offered above.

In this concluding Chapter we review the descriptive sections of Parts I–II, which tell what kind of figure this is, how it was made, where it was found and how and when it got there. We can then proceed to discuss its original architectural and historical contexts, in an effort to understand what the sculptor's purpose was, and how his creation may have fitted into a social or religious setting. The numerous clues provided by the contributors to Part III enable us to review different facets of our figure's pedigree, examining parallels over time, and tracing possible associations in social history and the evolution of myth. So we may come to paint a portrait of the Kouros in terms of the god as a young man.

The Kouros has been well analysed by Moak as a composite figure made from precious materials probably imported from Egypt (the gold and the hippopotamus tusks) for the use of a local master craftsman. We know that ivory tusks were imported into the local area, from Platon's remarkable finds in the palace at Zakro (Platon 1971, 116). The other materials used—serpentine, crystal and wood—were locally available, as was the expertise in the art of ivory carving. Ivories found at Palaikastro, and referred to by Hemingway in his study in this volume, include works of a sufficiently fine quality that we are not obliged to assume that such a masterpiece could only have been made in the great workshops of Knossos.¹ Although we do not find good evidence for an ivory workshop in the very building where the Kouros was found, there is evidence enough to sug-

gest the presence of ivory workers in the locality (see discussion by Evelyn in Chapter 1 above).

Moak gives us a full discussion of the techniques used by the craftsman, including the nature of the tools and the working area, the economic use of raw materials, the application of a design, and the roughing out, carving and finishing of individual pieces. This is all the more convincing since it is backed up by his practical experience, in a workshop, of creating a replica. This analysis of the artist's processes is carried one stage further by Weingarten's explanation of how an artist may have used and adapted a traditional grid to get the proportions right for his figure. This takes us back to Egypt as the source of the design, and indeed of the use of the grid system. Weingarten's suggestion that the Cretan craftsman did not simply copy but used and *adapted* the Egyptian canon points both to a fundamental debt and to the sculptor's independent creative genius.² A similar assessment can be made for objects in other media,³ and in other, more abstract (or projective), areas of human activity, which are directly relevant to an interpretation of the Palaikastro Kouros—areas such as religion and mythology,⁴ to which we shall return.

1 Since the best parallels for the fine modelling, especially of the hands and feet, are found at Knossos, it has been suggested that we should look for Knossian manufacture in this piece also (Rehak and Younger 1998b, 239).

2 We might suggest that this piece is a telling example of both the importance and the limits of 'Afroasiatic' influence, an issue so provocatively raised by M. Bernal in 'Black Athena' (Rutgers 1987), and one to which much scholarly attention has since been devoted. For ivory the Bronze Age evidence is now fully surveyed in Rehak and Younger 1998b. The notion that the Palaikastro Kouros was originally and deliberately coloured black by the craftsman (a 'Black Zeus!') is discussed and dismissed by Paul Harrison in Chapter 4a above (p. 59).

3 A wide range of relevant topics was discussed at the 1997 Cincinnati Symposium 'The Aegean and the Orient' (*Aegaeum* 18).

4 Treated in Chapter 12 by Thorne, for whom M. L. West's recent study, *The East Face of Helicon* proved especially useful, as it traces some of the eastern origins and connections of Greek myth.

First we summarise the evidence for our figure's stratigraphic context, as described in Chapter 1, and his architectural context, described by Driessen in Chapter 2 and more fully interpreted by him in Chapter 6 above. The find context in a dramatic burnt destruction of the LM IB period satisfies our requirements for a *primary* deposit, that is one which has resulted from a single episode representing a brief moment, and one which was left undisturbed until our intervention. It can also be described as an *accidental* deposit—one created by a violent event—and not an intentional deposit.⁵

The discovery of the torso, arms, feet and other fragments in the Plateia, separated from the legs in Room 2 of Building 5 by more than 10 m, was at first a surprise. But further study of this area from the architectural point of view, detailed by Driessen above, brings the double context together. The function of Room 2 (with the associated Rooms 1 and 13) can be identified as that of a 'town shrine' marked by double-axe 'mason's marks', with the Plateia as its approach or outside 'temenos'. Furthermore, to judge by the telling use of fine, *ammouda*-built ashlar façades, a well-dated sequence of constructional changes shows a purposeful unification of the Plateia with these rooms of Building 5, at the precise time when the Kouros was in use and presumably displayed. These ashlar renovations in the LM IB period involve the S façade of Building 1 at its western Annexe, and the northern approaches to Building 3, now blocked off and replaced by a finely built bench, as well as the N and NW façades of Building 5. These constructional changes identify and display the Plateia area in a special way and unify it with the northern rooms of Building 5. Furthermore Driessen has been able to reconstruct a plausible ritual use of these spaces (see Chapter 6 above). If Room 2 was used for the storage and display of the statuette, and perhaps for an associated indoor ritual, the Plateia would have seen the approach and assembly of those involved, and possibly the enactment of an outdoor ritual.

It is possible that the stone-lined and covered pit or cist found in a near-central position beneath the floor of Room 2 served for the storage of the statuette, which could have been displayed only occasionally. We cannot be certain where or how it was displayed. A first hypothesis, enshrined in the watercolour reconstruction at PLATE N b, gave especial significance to the raised and plastered platform, where the statuette could have stood, at the S corner of the paved Room 1. On this hypothesis the statuette would only have been visible to one who had already entered Room 1, not to a crowd of devotees standing outside in the Plateia. A later hypothesis, shown in the drawing at FIG. 6.1, rejects this and gives greater significance to architectural sign-posts such as the axis of these rooms and their unusually wide entrance. On this hypothesis the statuette would have been seen by those directly outside the door in the Plateia. A third hypothesis has been suggested, based on the principle of the 'bent-axis', according to which

the statuette could have been more securely and privately displayed on a bench set back in Room 1c (plan at FIG. 1.10) and thus could not have been seen from the entrance, but only by an adorant who had been led in and round through two unaligned spaces.⁶

The total lack of evidence for other associated figures, especially in this kind of sealed destruction deposit, suggests that the Kouros was displayed alone.

Thus a number of factors tend to support its identification as a cult figure rather than a votive. We have noted the focusing of attention by the architectural environment. This is supported by the use of luxury materials, the great care devoted to the figure's manufacture and the extraordinary quality of the finished object. There is also the attractive hypothesis that the associated fragments of a gold-spangled blue object (PLATE J) formed a base representing the starry sky on which he walked.⁷

The amphora and conical cup found in association with the statuette fragments in Room 2 could have served for ritual libation. But some significance must also be given to the boulder of green serpentine found at one side of the paved cist (FIG. 1.5: 7b; PLATE B c). The material is special and the position is central. If it can be interpreted as a baetyl, its polished upper surface—possibly smoothed by the frequent touching of human hands—brings to mind the detailed ritual described by Warren, based on his observation and interpretation of LM gold rings and sealstones or their impressions, all however relating to the cult of a goddess.⁸ The adorant 'approaches a baetyl, perhaps having already deposited... a votive offering...', he or she 'kneels and touches the baetyl and summons the divinity to the stone by gestures... the participant finally embraces and kisses the boulder in communion with it and the divinity.' The central importance of these boulders or baetyls in such ritual scenes is striking. In Building 5 Room 2 the boulder is not only near the central paved cist but stands alone—the *only* furnishing found in a space interpreted as a shrine complex; if it can be related to this type of scene, it extends the wild (outdoor or cave) setting to one in a town shrine and the cult of a female to one of a young male. It could also be relevant to the problem of identifying our figure.⁹

5 For a fuller identification of the types of contexts we encounter and the relative importance we give them, see *PK LM II–III Pottery*, 194.

6 Suggested by P. Betancourt during a visit to these rooms in August 1998, and based on Near Eastern parallels; not adopted by Driessen who was not persuaded on the chronological validity of the parallels.

7 This interpretation already occurred to the photographer (LHS) of find nos. 70 and 76 *in situ*, seeing the glint of gold spangles on a bright blue ground. It jibes well with the connection to Orion suggested in Chapter 10.

8 Warren 1986, 16, on Baetyllic Rituals.

9 Clearly a stone plays a key role in the birth story of Diktaian Zeus, an association discussed below.

The studies of Koehl, Crowther, MacGillivray and Thorne each make their contributions to a discussion of the problem of identity.

In his analysis Koehl starts from the careful observation of the tonsured head of the Kouros, one of the most remarkable and characteristic features of this figure. Taking account of studies in comparative anthropology and in particular parallel representations in Aegean art, he is able to place the Kouros in the context of the ritual stages of a boy's growth to manhood, and to give us some idea of what these would have been like in human life. The Theran parallel of a tall youth of marriageable age, and the 'hunter-lover' of nearby Kato Symi are vivid images which connect with the Kouros and could well relate to a facet or facets of his ritual function. The surrounds of Palaikastro, as 'Dictaeos montes,' were famous as hunting grounds. In the Palaikastro Hymn to the Kouros are calls for fertility and harvest. These aspects also fit well with the Egyptian origin suggested by MacGillivray and the linking of the Kouros with the great hunter, Orion. Koehl's discussion brings the connection forward in time, too, and makes pertinent comparisons with Dorians and with Greeks of other areas, as does Thorne.

Crowther presents the case for 'Dikte' as the ancient oronym for modern Mount Petsophas at Palaikastro, most convincingly during the Neopalatial period, when stone tables inscribed with JA-DI-KI-TA were dedicated there. A continuity as DI-KA-TA in Mycenaean Greek would mean that during the LM IIIA₂ or LM IIIB periods, in whichever one places the Knossos Linear B tablet 'KN Fp 1.2', there was a temple dedicated to Diktaian Zeus at Dikte, to which the administration at Knossos sent oil. The structure cleared by Myres on Petsophas awaits full exploration and excavation, as does the remainder of that peak and its now blocked cave, known locally as 'Anemospiliara'.¹⁰ However, we have found plenty of evidence for cult activity in the town at the base of the mountain. It is unusual for a town to carry the name of a mountain, since mountains may be labelled to recall some topographical feature, and towns are rarely placed on peaks. The town at Roussolakkos, then, may not have been Dikte, but it seems quite likely that Petsophas was.

We suggest, then, that Mt. Dikte is the likely ancient name of Mt. Petsophas, and not of the Bronze Age predecessor to Roussolakkos, but that it may lend itself to the nearby district. Thus Dikte's fair haven, where the Argonauts sought refuge, as Thorne reminds us, is certainly on Crete's eastern shore to the S of Cape Samonion—modern Cape Sidero.

What we have found at Roussolakkos in this late period includes an area of Building 1, which almost certainly represents a shrine complex, containing stirrup-jars and deep bowls in central Cretan fabric, along with seashells and a female figurine with headdress adorned with 'horns of consecration'.¹¹ Thus oil probably was sent here from Knossos at this time, and was perhaps intended for cult use. This is also the period for which

we have a commission for a bronze tripod, as suggested by Hemingway (*BSA* 91, 213–52).¹²

The earlier town shrine with which we are concerned here belongs in the LM IB period. Its *construction*, or rather the extensive modifications to Building 5, the blocking walls which isolate Rooms 1, 2 and 13 from the rest of the building, and the ashlar façades of these rooms and of the other Plateia surrounds, follow after the LM IA period, which is represented by earlier levels stratified below the LM IB floors of the building. Its *destruction* comes at the end of the LM IB period, which in eastern Crete, is probably the equivalent of LM IB–LM II at Knossos, and in Egypt the reign of Tuthmosis III, at a date in the first half of the 15th century (c. 1475 BC). Thus we are concerned with a period of use within the LM IB period, and there is a chronological gap of some 300 years between the two successive town shrines in this vicinity. Although continuity of cult cannot therefore be established, it nonetheless is a hypothesis worth considering seriously. Further light on this question may be shed by the ongoing final study of Building 1 which, though badly eroded, had a long and sometimes violent history extending over a wider time span—all through the Neopalatial and Postpalatial periods (from late MM III to LM IIIB).¹³

Thorne carefully traces the development of the stories of Diktaian Zeus, who originates at Dikte in Crete and is celebrated in the Palaikastro Hymn, but who is also known through widespread versions of the myth in other areas of Greece. It is clear that the Early Iron Age inhabitants of the Palaikastro area knew and told the Zeus story, as no doubt did those of East Crete generally.¹⁴ Thorne's examination of the local variants of the birth story, as preserved in later Greek literature, makes clear the antiquity of this story of divine succession. Locally evolved variations suggest that the story was in widespread use at least by the end of the Bronze Age. The story told by Apollodorus in the 2nd century AD, in other words, is descended from one told of the Diktaian Zeus about whom we read in the Knossos tablets; while Hesiod and others passed over the old tradi-

10 Noted by Dawkins in 1904; see plan at *BSA* 60, pl. 64.

11 *PK* 1986, 143–8.

12 Catling (1997, 51) questions the suggested chronology, but does not seem to allow for contemporary parallels such as that from the Cape Gelidonya shipwreck.

13 The LM IIIB shrine here lies over special constructions of earlier date, a rectangular platform built in gypsum in LM IIIA and the foundations of a semicircular platform of LM I date.

14 Current research is beginning to tell us much more about the region. The work of N. Papadakis, of the French and Greek teams at Itanos and that of James Whitley and Krzysztof Novicki at Praisos and elsewhere deserve special mention.

Year	Egyptian King	Keftiu in Egypt	Historical Events	Knossos Periods	
1430	Tuthmosis III	Menkheperresend Rekhmire tomb	Battle of Megiddo First Mycenaean destruction at Knossos	LM III A1	
1435					
1440					
1445					
1450					
1455					
1460					
1465					
1470					
1475					
1480					
1485					
1490				Useramon tomb Senmut tomb	Mycenaean at Knossos Upheavals in Crete
1495					
1500	Tuthmosis II				
1505	Tuthmosis I				
1510	Amenophis I				
1515	Ahmose	Thera eruption	LM IB		
1520					
1525					
1530					
1535					
1540					
1545					
1550			Avaris destroyed		

Fig. 14.1. Egypt and Crete in the early XVIIIth Dynasty. Absolute years based on Kitchen's middle chronology (JAM)

tion in favour of a more ecumenical version which suited them, traces of that tradition were too well formed to be forgotten and they surfaced again and again in the work of later authors. The vast time span between the references in the Linear B tablets and the lettering of the extant Palaikastro Hymn to the Kouros (well over a millennium) can be bridged by the traditional stories.¹⁵ It is intriguing also that the changes which are observed in the patterns of myth-making correspond to the social evolution suggested by the archaeological evidence. Starting from the environment of a settled Late Bronze Age *koine*, the story in its variants enters a long period of local evolution, showing strength and continuity in precisely those areas, like Arkadia and Achaea, where Mycenaean culture persisted most strongly. Its later re-consolidation comes with the dawn of the Greek period where again LPG to Geometric society becomes more settled, and where the term *koine* has again been applied (e.g. Coldstream 1977, 102). The hypothesis of continuity over the three centuries separating our Late Neopalatial shrine from that of the later postpalatial one in the neighbouring building seems correspond-

ingly more probable, in spite of the negative nature of current archaeological evidence.

The Kouros, with his forward stride, bent arms, and fists clenched at his chest, was most likely the same figure who was portrayed in the earlier terracotta figurines from Petsophas and the later terracotta figurines from Roussolakkos and elsewhere. MacGillivray associates this figure with the constellation Orion who, like the Diktaian Zeus of the Archaic Hymn to the Great Kouros, arrived to herald the Harvest and thus marked the end of the year. Given the Egyptian influence on the Kouros itself, seen in the choice of materials and the application of the canon of proportions, argued by Weingarten, and the strong Egyptian impact on Cretan art, architecture and funerary rites during the late

15 Most of this time span can already be bridged by the period from the first use of the Temple itself to the date of the surviving text of the hymn (the 8th century BC to the 2nd century AD).

Neopalatial period, the association with Osiris, himself often doubled as Orion, may also be proposed. The Kouros as Diktaian Zeus was, therefore, a god, but perhaps not an immortal one. Because of his descent into the underworld, probably at the heliacal setting of Orion, he gained the reputation of one who died and was re-born on a yearly basis. The 'repository' in the floor of Building 5, Room 2, may have been where the figure was stored 'out of sight' during those months when he was literally 'out of sight' in Hades.

The heliacal rising and setting of Orion would have been part of the seasonal calendar, which probably existed in Crete at least as early as the foundation of the first palaces, when the Petsophas figurines were made. Ancient calendars were often the responsibility of local 'magi' whose task was to observe and note the pattern of the heavens from a prominent high place with an unobstructed view to E and W. Those in the centre of Crete would have relied upon familiar topographical landmarks to record their sightings. The observers on Petsophas watched their celestial bodies rise from the broad eastern horizon of the sea and so would have required the 'horns of consecration' or 'twin peaks' device, described by MacGillivray in Chapter 10, to chart their progress. Mt. Dikte, if Crowther is correct, was the first location in Crete to observe the arrival of each new month, and so may have set the standard, when a standard calendar was desired.

The observation of the seasonal procession of the constellations may be much older than the representations in Crete, but without the associated figural art we cannot say. We certainly have two well-documented stages: the Old Palace period and the later part of the New Palace period, when figural art abounds in concert with extremely close Egyptian ties, especially during the latter, which coincides with the Egyptian XVIIIth Dynasty and perhaps even Egyptian political domination of Crete and the Aegean. The Palaikastro Kouros belongs to the early years of the Egyptian XVIIIth Dynasty and so may have symbolized the new regime in Crete, hence, its wanton destruction, perhaps at the hands of those who feared representing their gods as sacral images and respected the ban of the previous two hundred years. This theory of iconoclasm could be

extended to other well-known examples of representational art, such as the steatite bovine heads and stone vases, which Rehak suggests were 'ritually smashed' (Rehak 1997, 53-4), in the climate of strong reaction to the imposition of new ideas and values.

CONCLUSION

The Palaikastro Kouros was probably made in Crete, perhaps at Palaikastro, but in a cultural environment that was discovering new forms of representation to suit changing beliefs and artistic styles under the strong, if not oppressive, cultural influence of the leading society of the time, XVIIIth Dynasty Egypt. The component materials are Egyptian in origin, as is the canon of proportions employed to give the figure his 'perfect' proportions. Who then was this figure worthy of such lavish attention at the time of his creation and such fierce hatred at the time of his wilful destruction? We propose that he was the personification of the youthful male god who arrived from the underworld to herald the beginning of the Harvest: Diktaian Zeus, associated with Egyptian Osiris and immortalized as Orion.

The final days of the LM IB period at Palaikastro may have been during the month of Orion, when Hesiod later advised his Boiotians to 'set your slaves to winnowing Demeter's holy grain... then store it, measured, in the jars' (Hesiod *Works and Days*, 598-602). The storeroom adjacent to where we found the Kouros was filled with Demeter's holy grain, and plentiful it was in the jars. Perhaps the Kouros, as Orion, was displayed during his ascendancy, while the harvest was gathered, and then remained visible until 'the Pleiades and Hyades and great Orion are setting', signalling the time to plough, 'and the full year will duly go beneath the earth' (Hesiod *Works and Days*, 618-20), when he was returned to the repository. But one year he wasn't hidden from view in the respected manner. Instead, he was smashed and dismembered, like Osiris and Adonis, then burnt by the falling debris from his small shrine as it was destroyed. Then, he lay in Hades for three-thousand five hundred years until excavation restored him to the light on the eve of a new dawn in Aegean studies.

References

ABBREVIATIONS

- AA *Archäologischer Anzeiger.*
 AC Dornseiff, F. *Antike und Alter Orient* (2nd ed.). Leipzig 1959.
Ant. Cretesi *Antichità Cretesi. Studi in onore di Doro Levi.* 2 vols. (*Cronache di archeologia* 12–13, 1973–4), Catania 1977–78.
 ADelt *Αρχαιολογικὸν Δελτίον.*
 AE *Αρχαιολογική Ἐφημερίς.*
 AJA *American Journal of Archaeology.*
 AntK *Antike Kunst.*
 AR *Archaeological Reports.*
 BAR *British Archaeological Reports.*
 BCH *Bulletin de Correspondance Hellénique.*
 BICS *Bulletin of the Institute of Classical Studies of the University of London.*
 BSA *Annual of the British School at Athens.*
 CAH *Cambridge Ancient History.*
 CANE Sasson, J. M. (ed.), 1995. *Civilisations of the Ancient Near East.* New York.
 CHCL *Cambridge History of Classical Literature.*
 CMS *Corpus der minoischen und mykenischen Siegel.*
 Congresso Micenologia 2 E. de Miro, L. Godart and A. Sacconi (eds.), *Atti e Memorie del Secondo Congresso Internazionale di Micenologia (Incunabula Graeca 98).* Rome 1996.
 Cretological 1 Proceedings of the First International Cretological Congress. 2 vols. Herakleion 1962.
 Cretological 2 Proceedings of the Second International Cretological Congress. 2 vols. Athens 1968.
 Cretological 3 Proceedings of the Third International Cretological Congress. 3 vols. Athens 1973.
 Cretological 4 Proceedings of the Fourth International Cretological Congress. 4 vols. Athens 1980.
 Cretological 5 Proceedings of the Fifth International Cretological Congress. 3 vols. Herakleion 1985.
 Cretological 6 Proceedings of the Sixth International Cretological Congress. 3 vols. Chania 1991.
 Cretological 7 Proceedings of the Seventh International Cretological Congress. 3 vols. Rethymnon 1995.
 Cretological 8 Proceedings of the Eighth International Cretological Congress in Herakleion 1996, in press.
 Diod.Sic. Diodorus Siculus.
- East Crete
 Eilapini *Ειλαπίνη. Τόμος τιμητικός για τον Καθηγητή Νικόλαο Πλάτωνα.* 2 vols. Herakleion 1987.
 Festos II Pernier, L. and L. Banti. *Il Palazzo minoico di Festòs, II. Il secondo palazzo.* Rome, 1951.
 FGrHist Jacoby, F. *Die Fragmente der griechische Historiker,* Leiden 1923–1958 (repr. 1957).
 Function-Villa R. Hägg (ed.), *The Function of the 'Minoan Villa', (Skrifter Utgivna av Svenska Institut I Athen 46, Volume II).* Stockholm 1997.
 GRBS *Greek, Roman and Byzantine Studies.* Duke University, Durham, North Carolina.
 IC Guarducci, M. *Inscriptiones Creticae, I–IV.* Rome 1939–50.
 IG *Inscriptiones Graecae.*
 JEA *Journal of Egyptian Archaeology.*
 JMA *Journal of Mediterranean Archaeology.*
 JNES *Journal of Near Eastern Studies.*
 KUB *Keilschrifturkunden aus Boghazköi.*
 M & H 1960 Marinatos, Sp. and M. Hirmer, *Crete and Mycenae.* London.
 MAMAT Shaw, J. W. *Minoan Architecture: Materials and Techniques.* Rome, 1971.
 MDAIK *Mitteilungen der Deutsche Akademie in Kairo.*
 Measure for Measure Weingarten, J. 'Measure for Measure: What the Palaikastro Kouros can tell us about Minoan Society', *Politeia: State and Society in the Aegean Bronze Age (Aegaeum 12)*, 249–64. Liège, 1995.
 MSV Warren, P. M. *Minoan Stone Vases.* Cambridge, 1969.
 Od. Homer, *The Odyssey.*
 Op.Ath *Opuscula Atheniensia*
 OS Amundsen, L., Ø. Anderson, T. Hägg, K. Kleve, E. Kraggerund, H. Mørland, *Symbolae osloenses.* Norwegian University Press.
 PK I–VII 'Excavations at Palaikastro I' to 'VII', in *BSA* 8 (1901–2), 286–316; 9 (1902–3), 274–387; 10 (1903–4), 192–321; 11 (1904–5), 258–308; 12 (1905–6), 1–8; 60 (1965), 248–315; and 65 (1970), 203–

- 42, respectively.
 PK 1986-1988, 1990-1991, 1994/96 'Excavations at Palaikastro, 1986' to '1988', in *BSA* 82 (1987), 135-54; 83 (1988), 259-82; 84 (1989), 417-45; and '1990' to '1991' in *BSA* 86 (1991), 121-47; 87 (1992), 121-52; and 1994/96 in *BSA* 93 (1998), 221-68, respectively.
- PK LM II-III Pottery MacGillivray, J. A. 'Late Minoan II and III Pottery and Chronology at Palaikastro: an Introduction' in E. and B. P. Hallager, *Late Minoan III Pottery*, Athens 1997: 193-207.
- PK Settlement MacGillivray, J. A. and J. M. Driessen, 'Minoan settlement at Palaikastro' in P. Darceque and R. Treuil (eds.), *L'Habitat égéen préhistorique (BCH Suppl. 19, Paris, 1990)*, 395-412.
- PK Survey 'An archaeological survey of the Roussolakos area at Palaikastro', *BSA* 79 (1984), 129-59.
- PKU Bosanquet, R. C. and R. M. Dawkins, 1923. *The Unpublished Objects from the Palaikastro Excavations 1902-1906*, Part I, BSA supplementary paper 1. London.
- PKU II 'Unpublished objects from Palaikastro and Praios', *BSA* 40 (1939-40), 38-59.
- PM I-IV Arthur Evans, *The Palace of Minos* Vols. I-IV, London 1921-1935.
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- Pseira II Betancourt, P. P. and C. Davaris (eds.), *Pseira II. Building AC (the 'Shrine') and Other Buildings in Area A*. University Museum, Philadelphia, Pennsylvania. 1998.
- RhM Rheinisches Museum für Philologie
 Sanctuaries and Hägg, R. and N. Marinatos (eds.), *Sanctuaries and Cults in the Aegean Bronze Age. Proceedings of the First International Symposium at the Swedish Institute in Athens, 12-13 May 1980*. Stockholm, 1981.
- SIMA Studies in Mediterranean Archaeology, Göteborg.
- TAPA *Transactions of the American Philological Association*
- TAPS *Transactions of the American Philosophical Society*
- Techne Laffineur R. and P. P. Betancourt (eds.), *TEXNH Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age (Aegaeum 16)*. Liège 1997.
- Troubled Island Driessen, J. and C. F. Macdonald, *The Troubled Island. Minoan Crete before and after the Santorini Eruption (Aegaeum 17)*. Liège and Austin, 1997.
- TUAS Temple University. Aegean Symposium.
- Zakros Platon, N. *Zakros*. New York, 1971.
- ZPE *Zeitschrift für Papyrologie und Epigraphik*.

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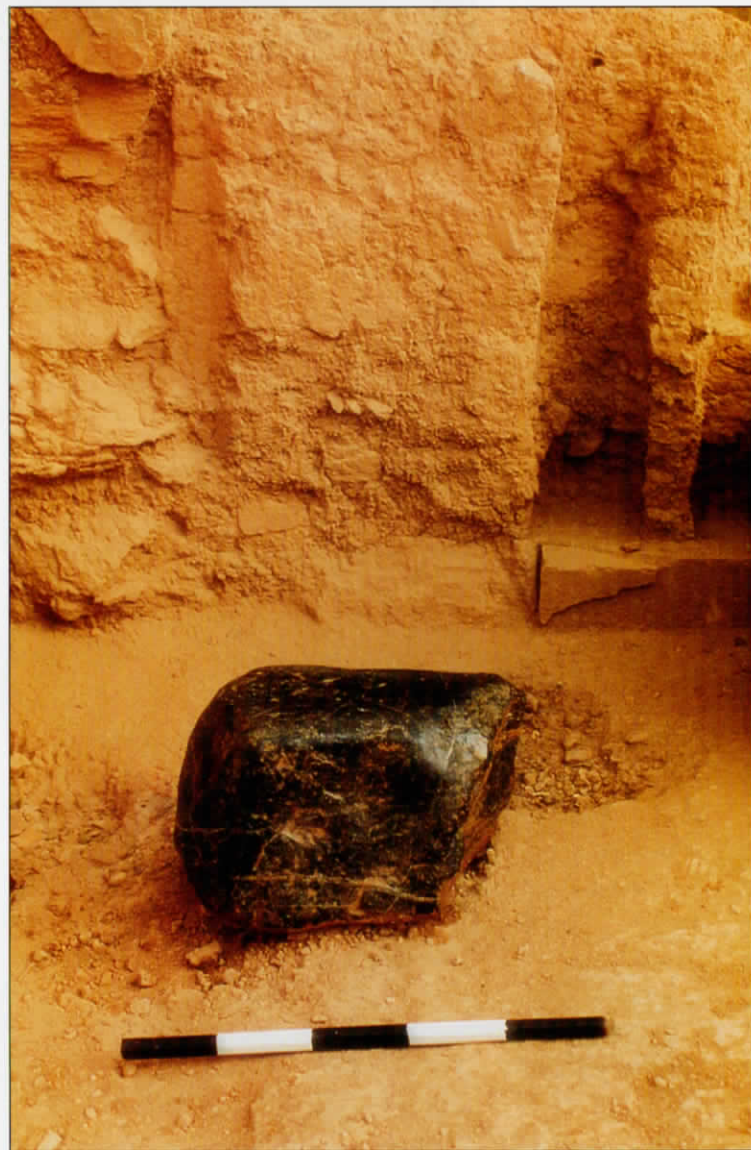
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a



b



c

(a) Palaikastro, view over the Roussolakkos site from Petsophas; (b) Building 5 from the w; (c) green serpentine stone in Building 5 Room 2 (baetyl?).



Aerial view of the excavated area (Building 5 roofed for protection).



a



b

The arms of the Kouros: (a) lateral view; (b) detail of the left arm.

PLATE E



a



b



c



d



e



f



g



h

Detailed views of the legs: (a) right ventral; (b) right lateral; (c) right medial; (d) right dorsal; (e) left ventral; (f) left lateral; (g) left medial; (h) left dorsal.



a



b



c



d



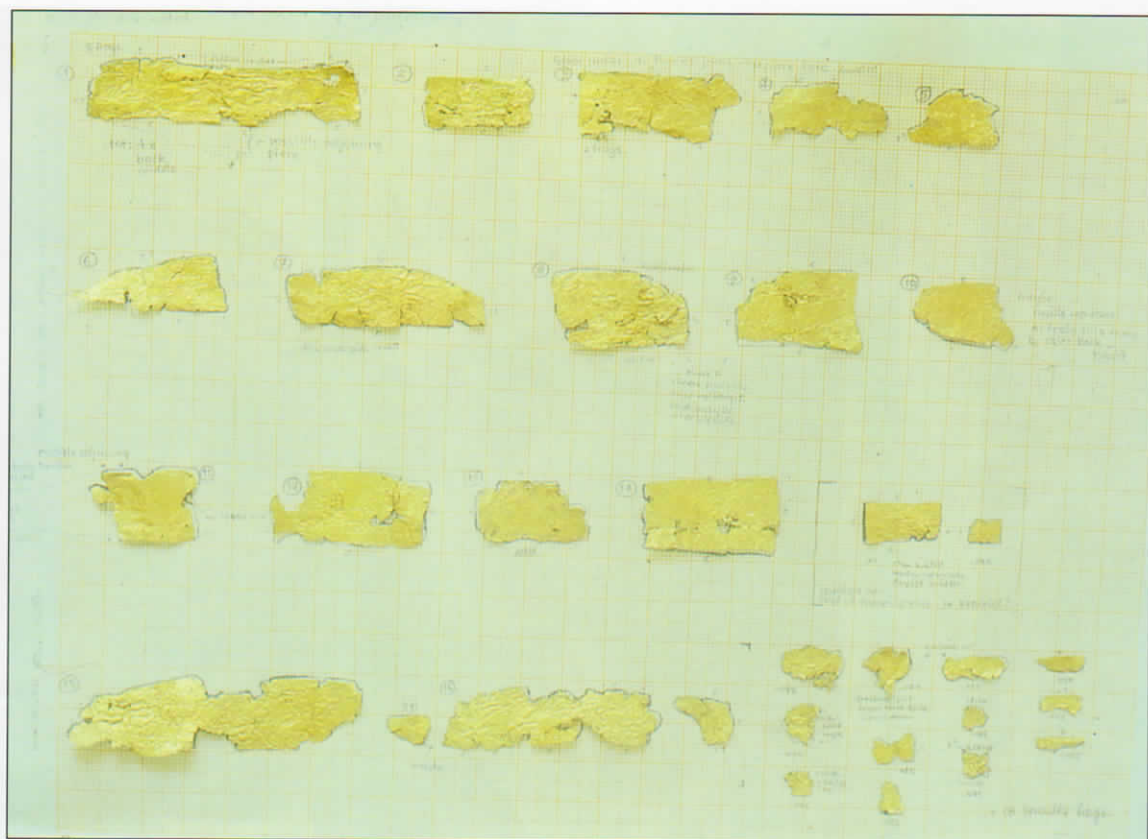
e



f

Detailed views of ankles and base pegs: (a) right frontal; (b) right lateral; (c) right medial; (d) left frontal; (e) left lateral; (f) left medial.

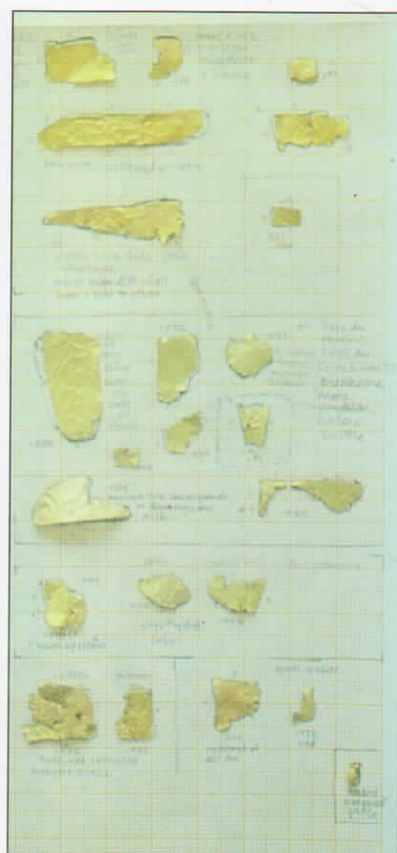
PLATE G



a

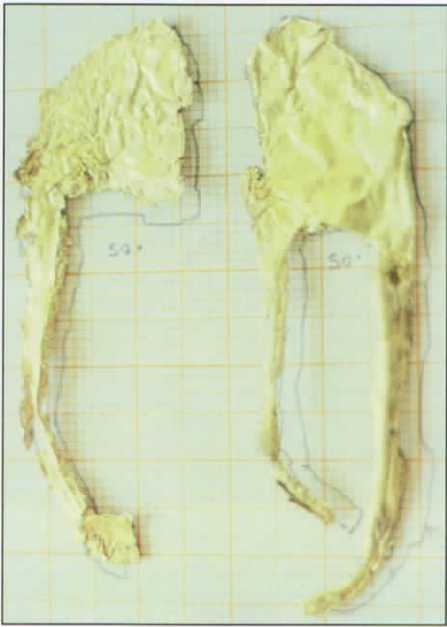


b



c

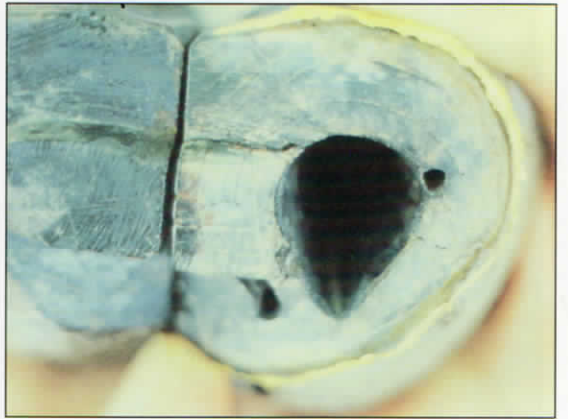
Assemblage of all the gold fragments (Th. in millimetres: (a) all except one 0.025–0.035; (b) wire frs. 0.075–0.125, sandals 0.05, rest 0.025–0.035; (c) 0.01–0.35).



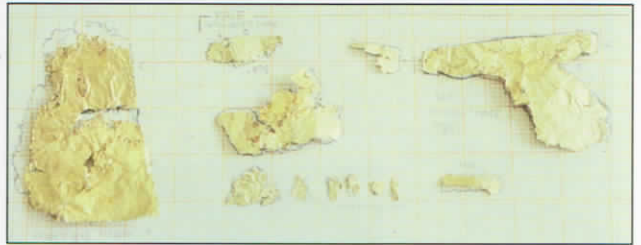
a



c



d



f



b



e



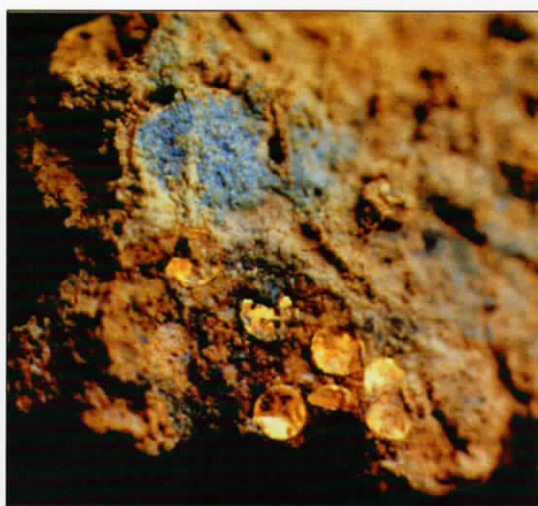
g

Gold fragments which can be replaced: (a) the sandals; (b) a sandal strap fragment, showing veining; (c)–(d) the wire borders of the kilt; (c) on lower torso; (d) on hips; (e) the bracelet fragments; (f) the kilt fragments; (g) possible placement of the kilt fragments.

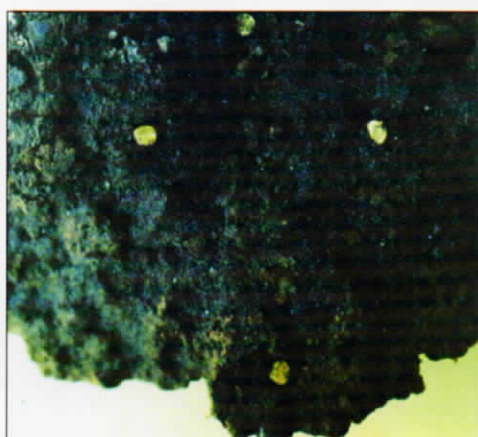
PLATE J



a



b



c



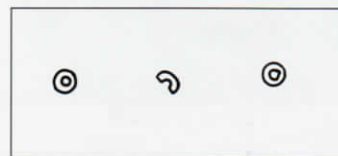
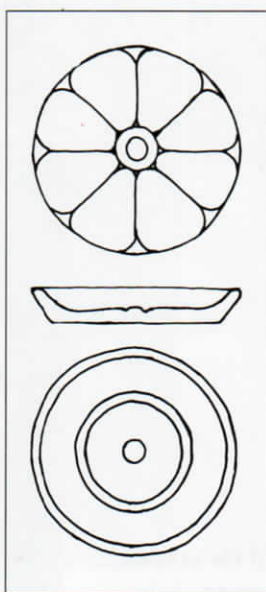
d



e

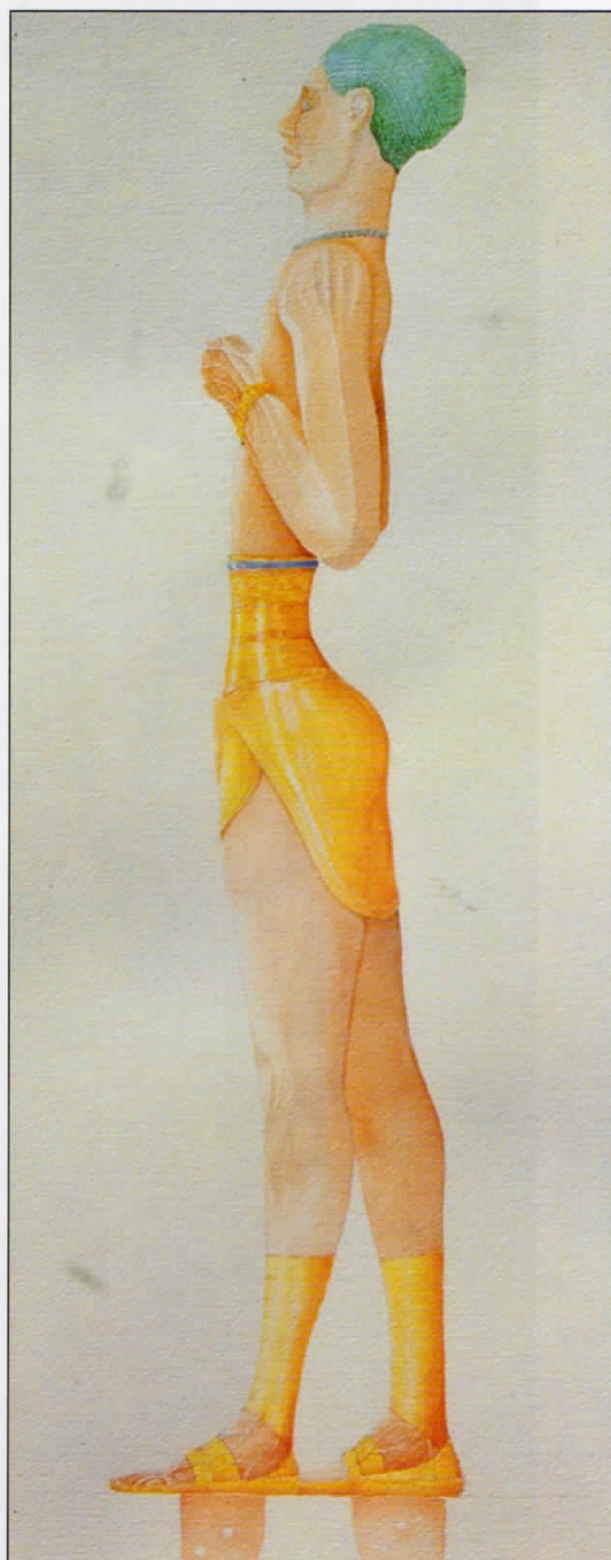
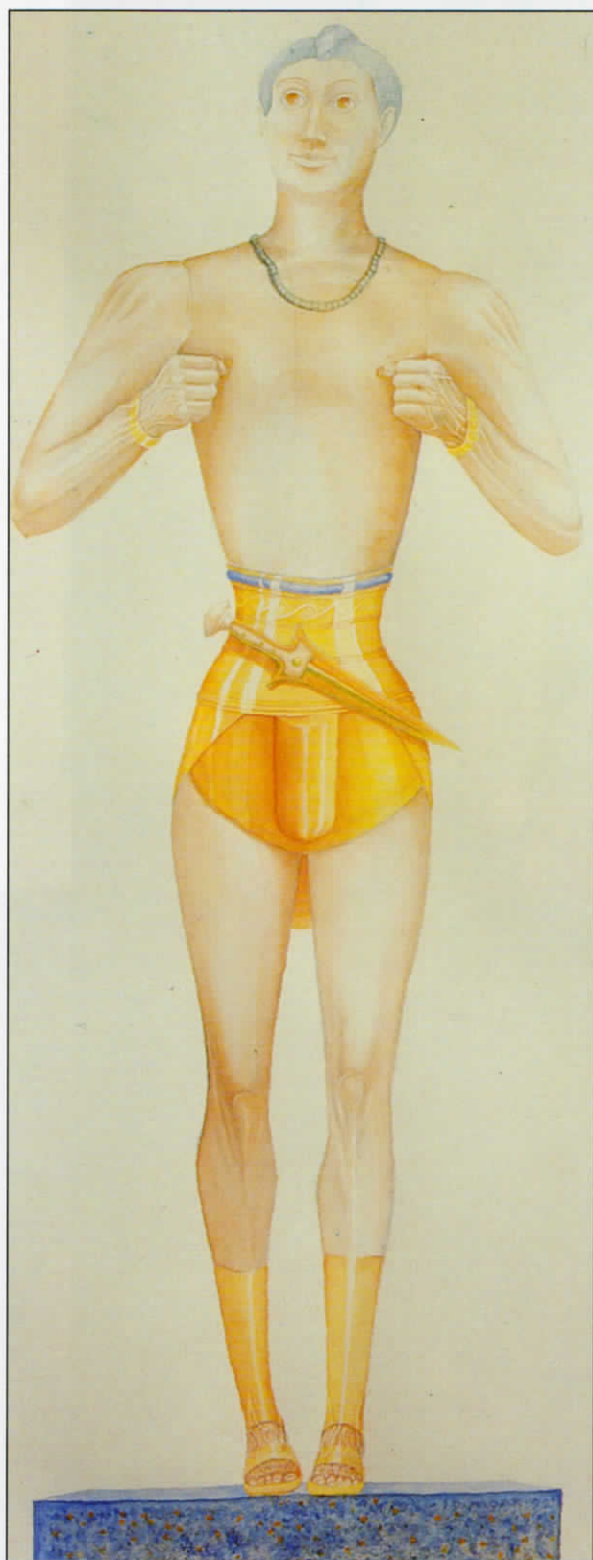


f



g

Some finds associated with the Kouros: (a)–(d) Egyptian blue with miniature gold discs; (e) possible ivory pommel; (f) ivory rosette; (g) beads of white frit. Drawings at scale 1:1



Conjectural reconstruction of the Kouros before destruction, watercolour by M. S. Moak.



Chryselephantine snake goddess, unprovenanced, H. 16.1 cms. Courtesy of Museum of Fine Arts, Boston; no. 14.863, gift of Mrs W. Scott Fitz.

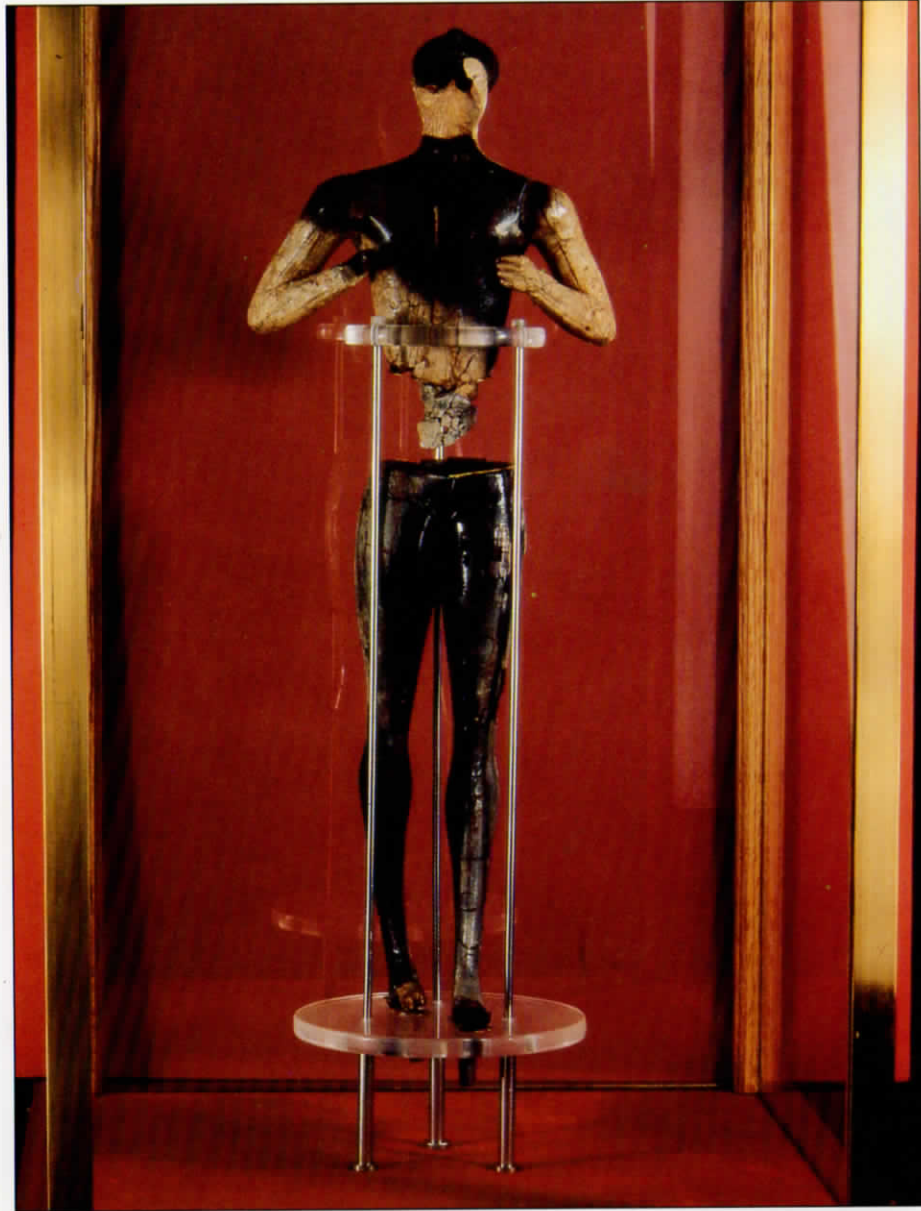


a

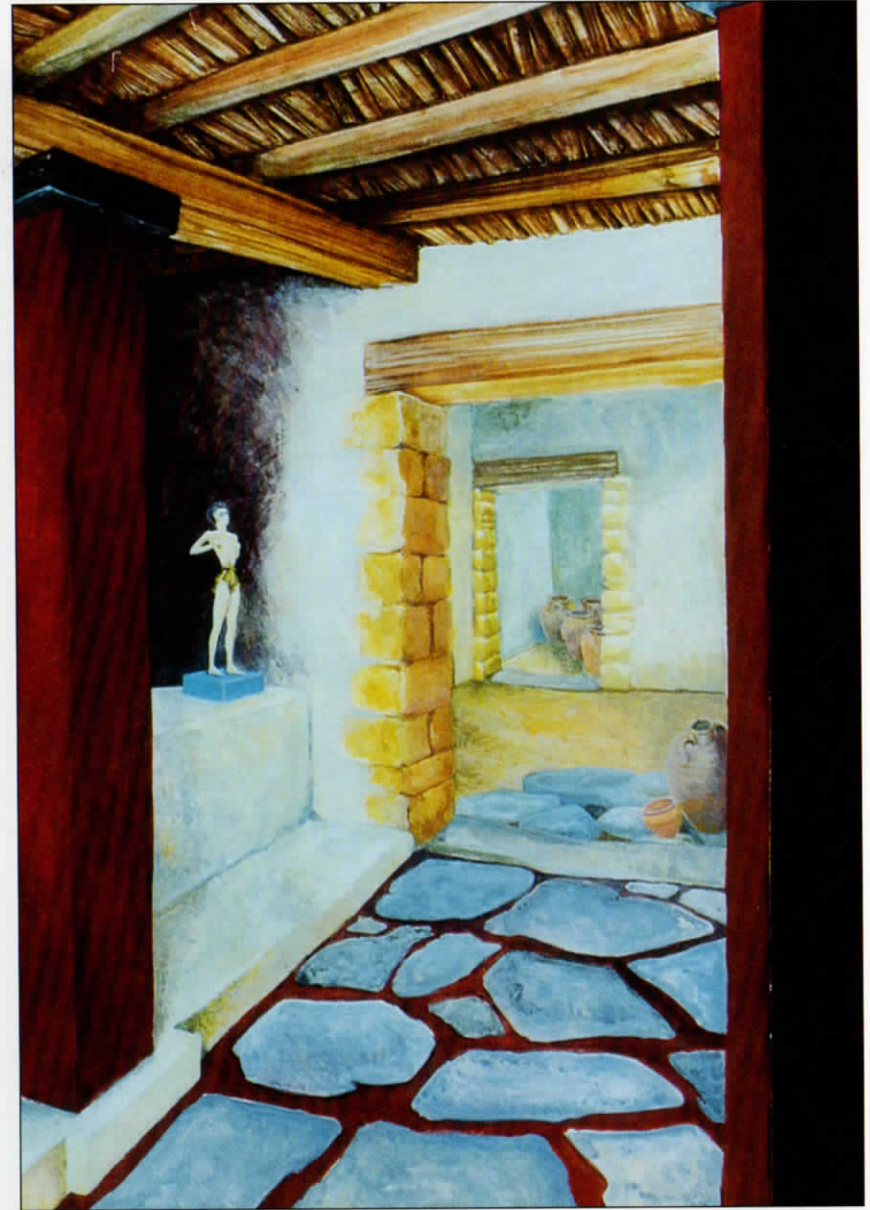


b

Terracotta kouroi from Petsophas: (a) figurine, H. 17.5 cms (PK II, pl. 10.1); (b) watercolour by R. M. Dawkins (PK III, pl. 9), scale approx. 1:1.



a



b

(a) *The Kouros as displayed in the Siteia Museum (photograph by G. Papadaki Ploumidi); (b) A hypothetical reconstruction of the original display in Building 5 (watercolour by Romaine Dawnay).*

*a**b**c*

(a) Building 5 with NW façade restored and Alley 5/6; viewed from N; (b) Harbour Road from W, with destruction fill in situ at Sector 4/5; cleared further E; (c) Harbour Road at Sector 4/5, with LM IB ashlar fall from Building 5 NW façade.



a



b



c



d

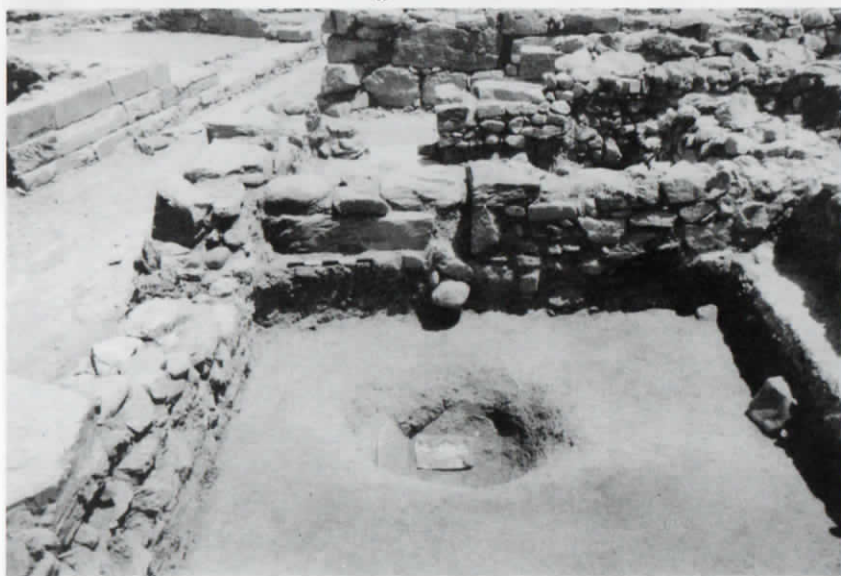
(a) Find spot of the torso: Trench ER92 (1987) at Building 1 s façade, showing LM IB destruction debris on Plateia floor; (b) ivory torso and left arm, in situ on Plateia floor; (c) Building 5 from NE, view from Plateia into Rooms 1 and 2; (d) the Plateia during the 1988 excavation; LM IB destruction debris at w and at s (find place of Kouros head, right arm and other frs). View from NE.



a



c



b



d

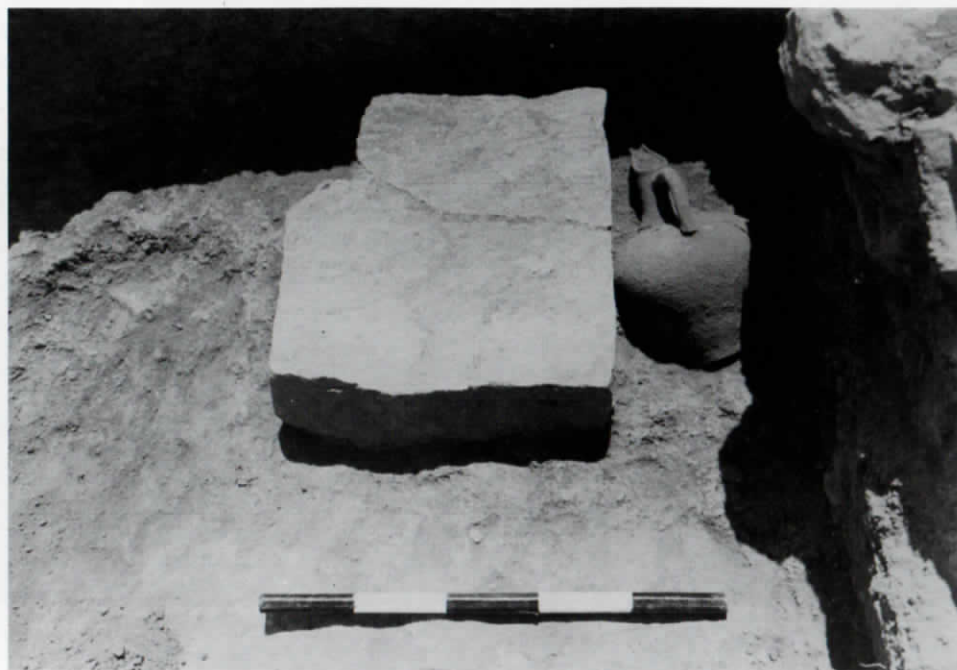


e

Building 5 Room 2, (a-c) views from w: (a) late re-occupation floor, with door to Room 1 blocked; (b) LM IB floor with 'libation' pit or repository partially cleared; (c) pit with collapsed cover slabs; amphora frs. (14) at left; (d)-(e) ivory legs (19, 20) in situ.



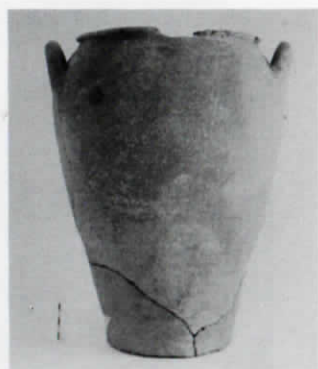
a



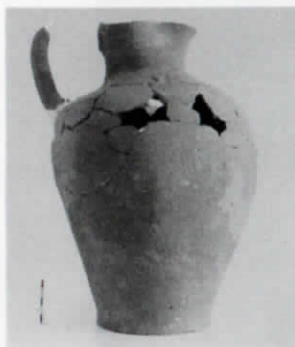
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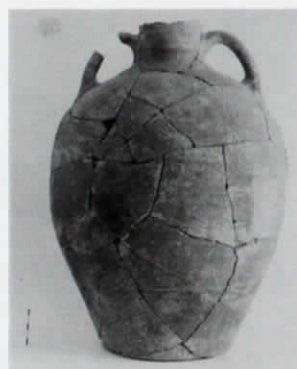
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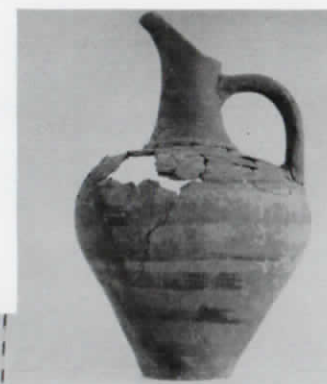
d



e



f



g

Building 5, Room 13: (a) storage vessels in situ at NE (403-10 and 413); (b) fine jug (469) beside stone block at SW corner; (c) 'bag' of bone and ivory pieces in NW corner (432); (d-g) storage and pouring vessels (404-6, 469).



a



b

(a) View of the Plateia from the N, showing stepped entrances to Buildings 3 and 5; (b) view of the Plateia and the entrance to Building 5 from the E, the find-places of the Kouros.



a



b



c

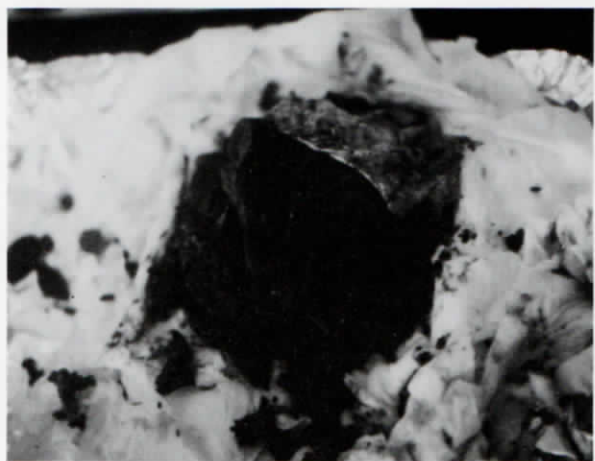


d



e

(a)–(b) Building 5, Room 1: (a) view of w corner showing surviving plaster on the floor (red between paving stones), and the wall (red, blue and yellow); (b) floor paving slabs, with stone ?door-jamb base and cuttings for wooden posts; (c)–(e) Room 2: (c) detail of late blocking wall; (d) late blocking removed to early re-occupation floor; (e) view from NW of earth section in Building 5, Room 2, showing re-occupation floors over the LM IB mud-brick and ash deposit (provenance of gold and ivory statuette fragments); at centre: a green serpentine block on LM IB floor.



a



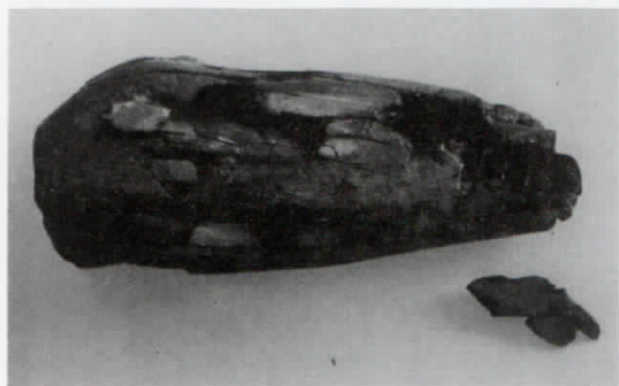
b



c



d

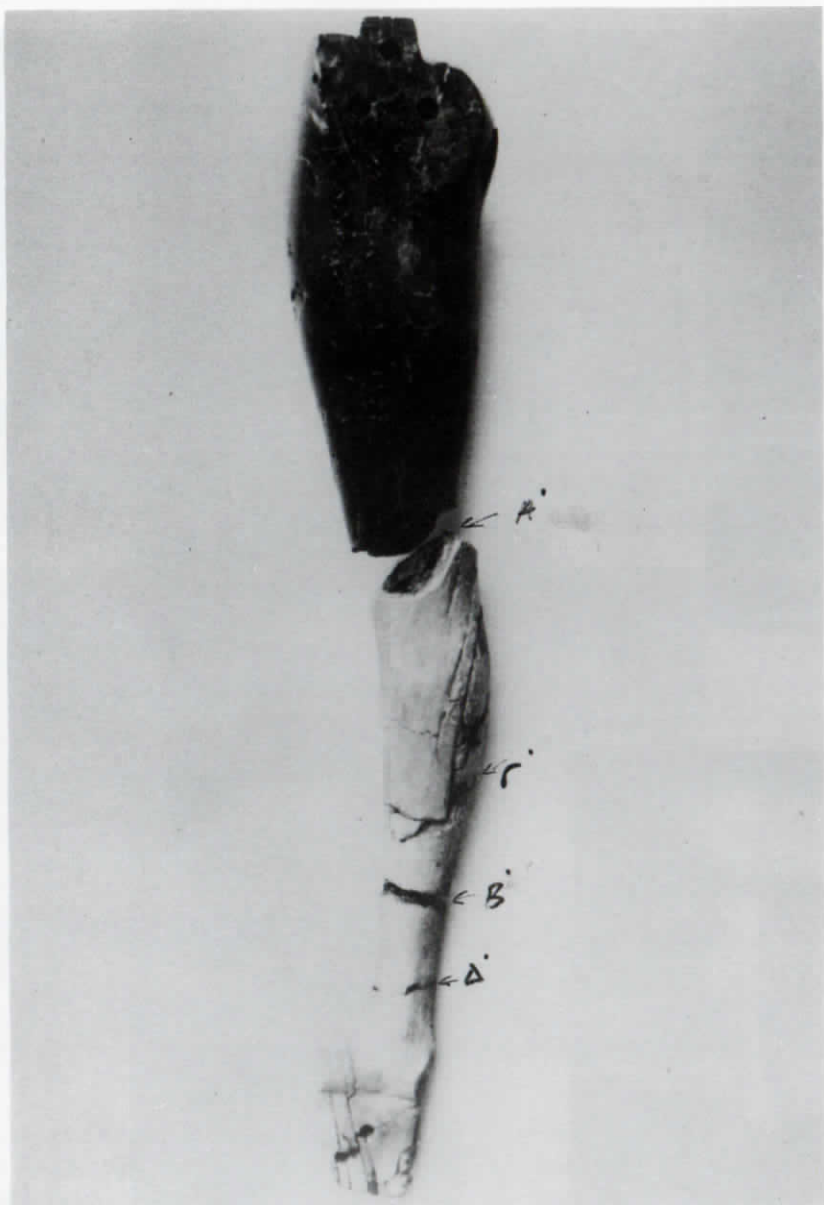


e



f

(a) The removal of the synthetic covering, which had been placed for consolidation at the excavation. (AM); (b) the torso in its plaster cast and the remaining fragments in their styrofoam cutouts. (AM); (c)–(d) back and side view of the torso after conservation, as first displayed in the Siteia Museum. (AM); (e)–(f) smaller leg fragments before final conservation: (e) left thigh, (f) left leg. (AN)



a



b

(a)–(b) The right and left legs of the Kouros before final conservation in 1991; letters show unglued or insecure joins. (AN)



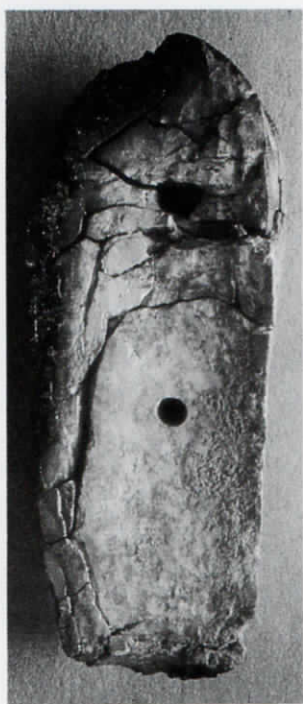
a



b



c



d



e

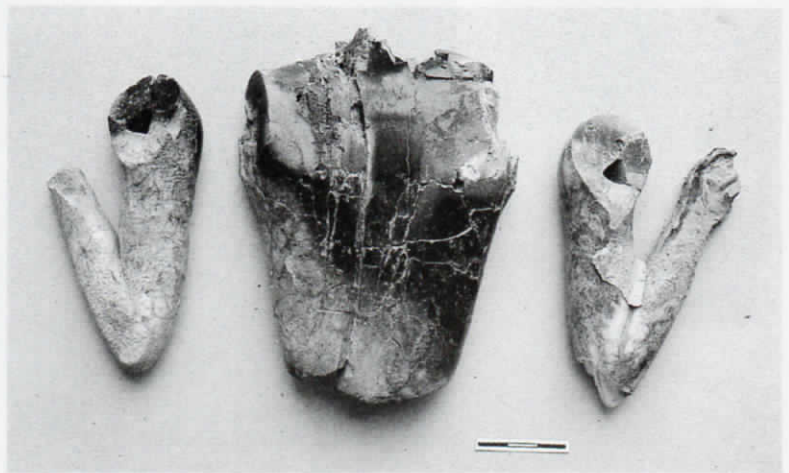
The torso during conservation: (a) front; (b) back; (c) left interior section; (d) right interior section; (e) lamellae and commissure in shoulder.



a

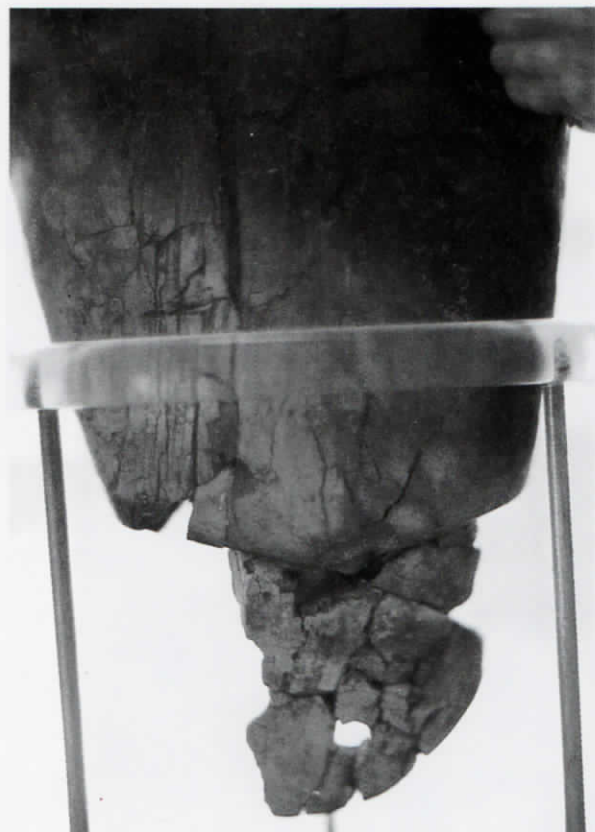


b



c

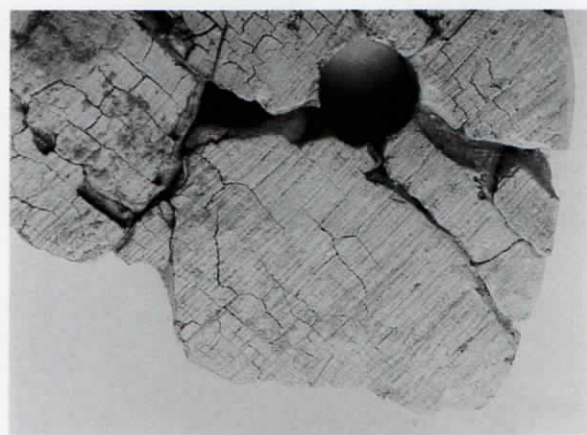
(a) The arms, showing dowel holes at joints; (b) torso, left fragment showing dowel holes for joints at shoulders; (c) torso with arms, before joining.



a



b



c

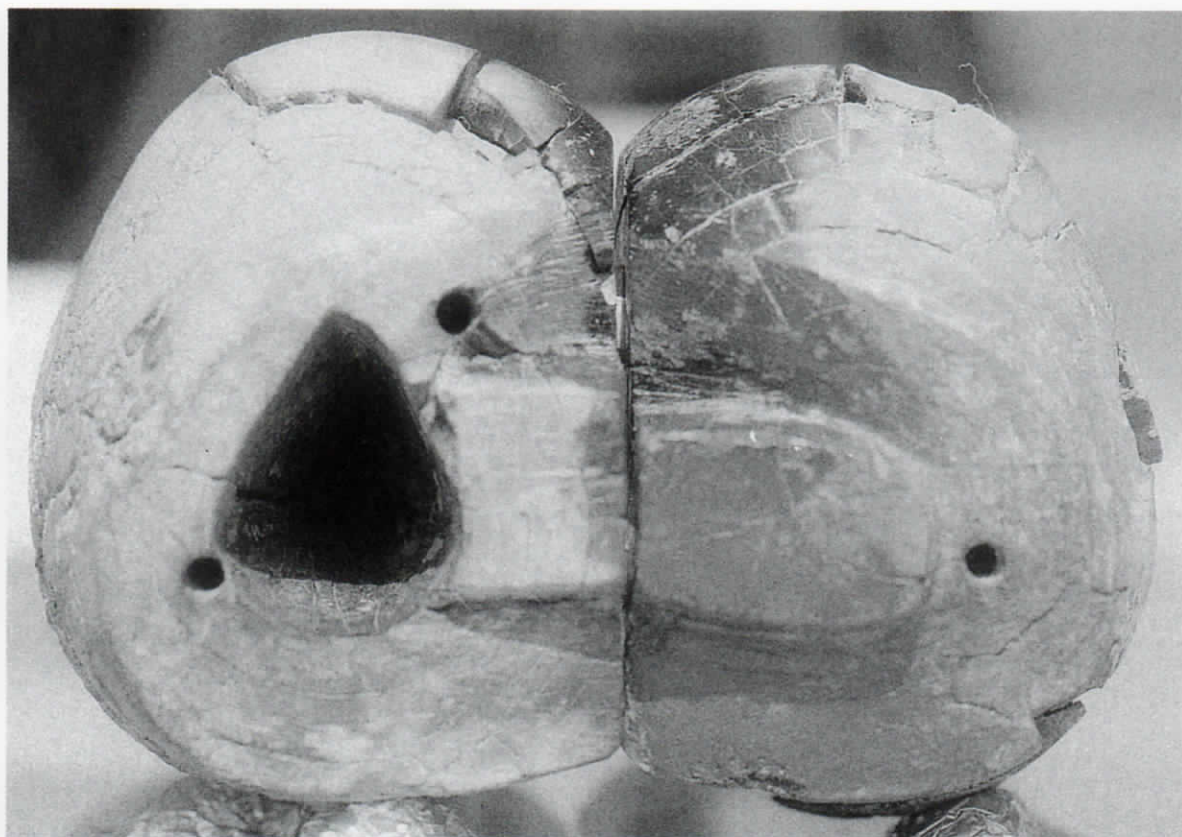


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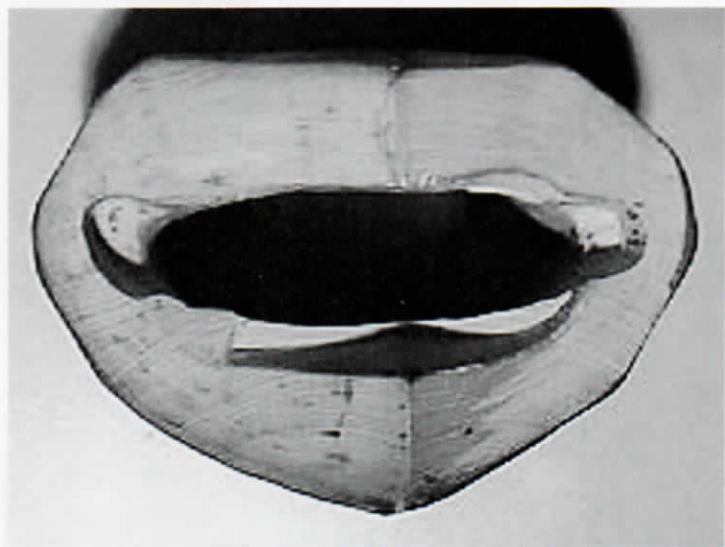


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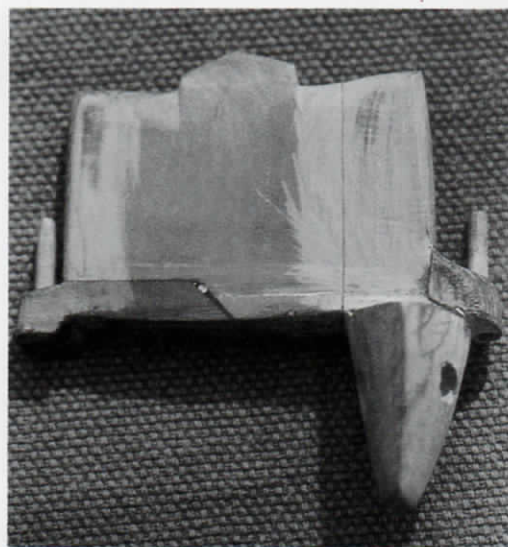
The joints at the waist: (a)–(b) frontal and profile views of the tab which connected torso to waist; (c) tab showing commissure; (d) bottom of torso; (e) reconstruction of waist-to-leg join.



a

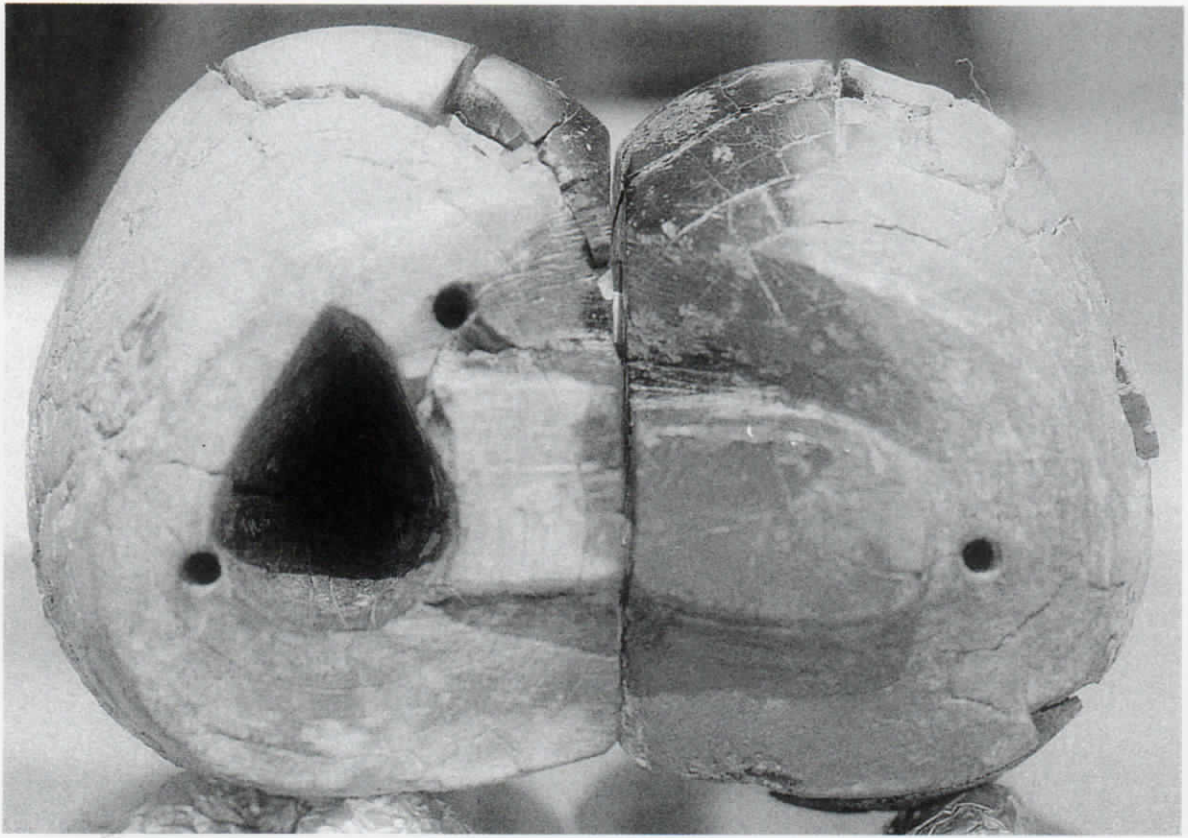


b

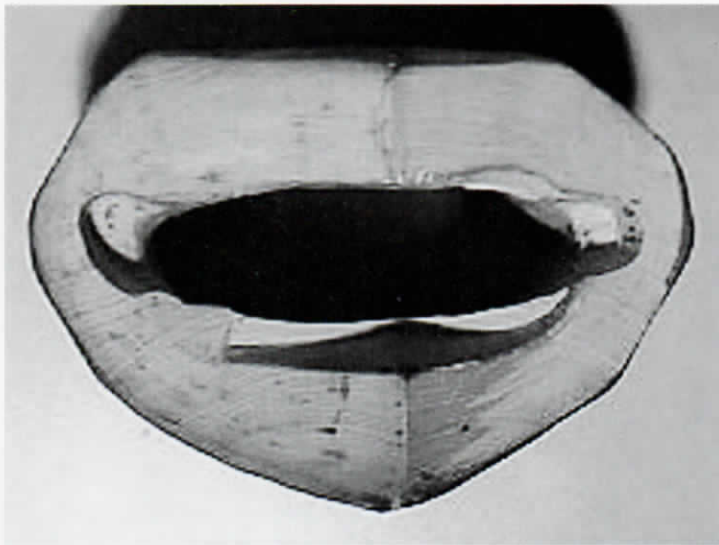


c

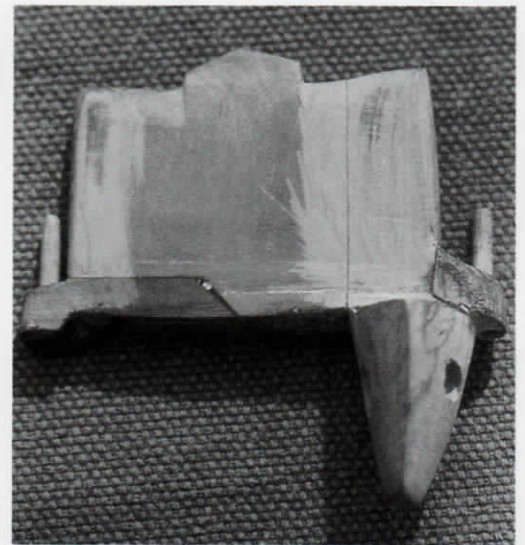
The joins at the waist: (a) the top of the hips; (b) the bottom of the waist (replica in wood); (c) the waist joining mechanism (hypothetical reconstruction in wood).



a

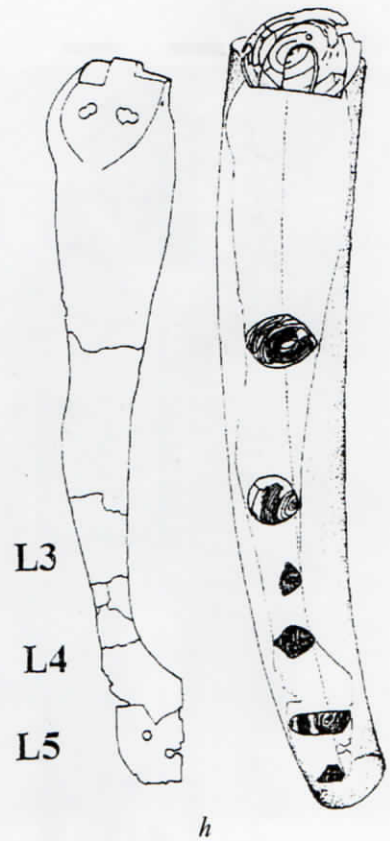
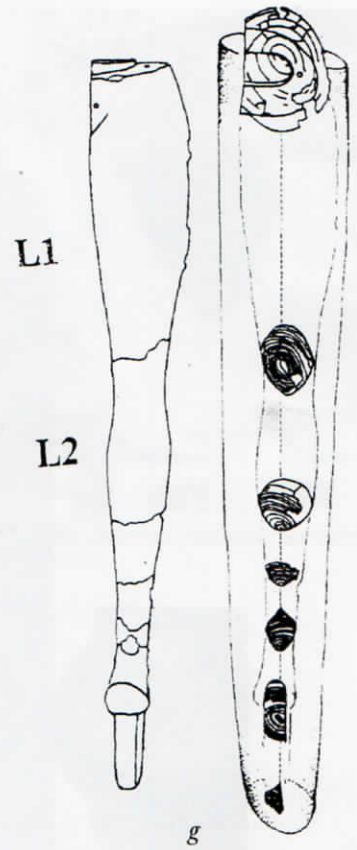
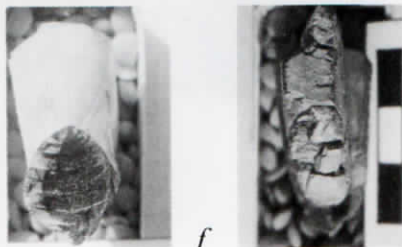
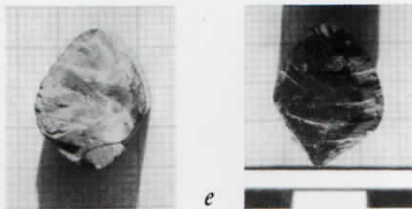
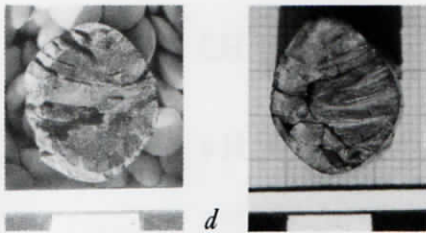
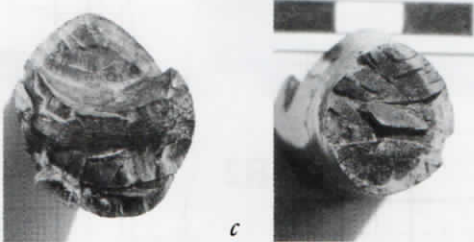
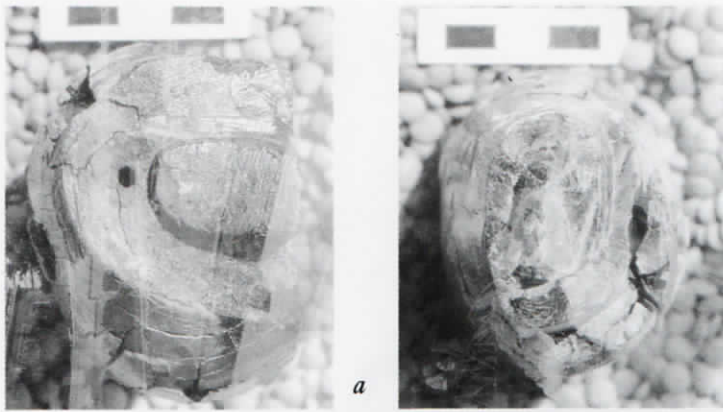


b

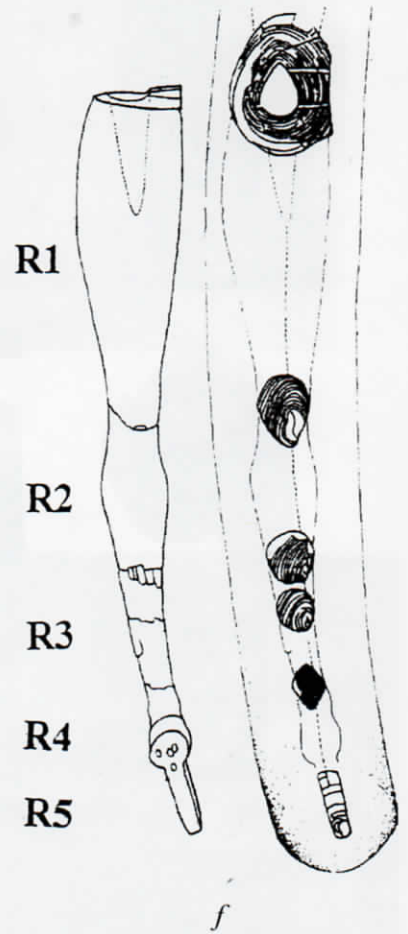
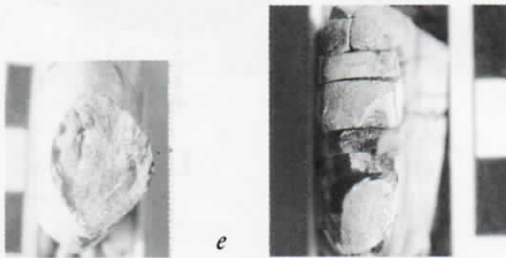
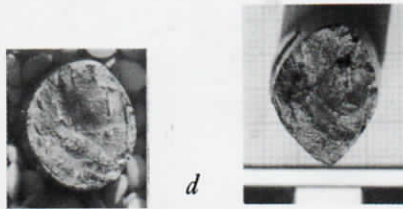
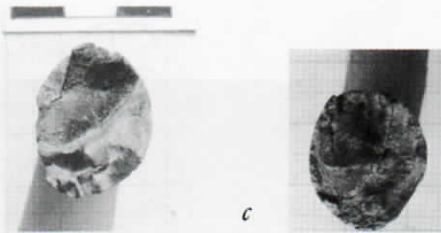
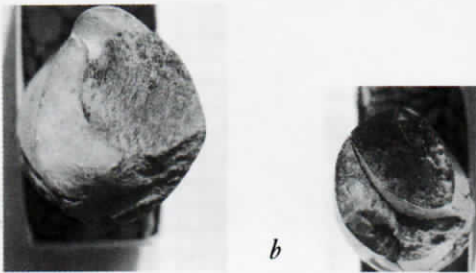
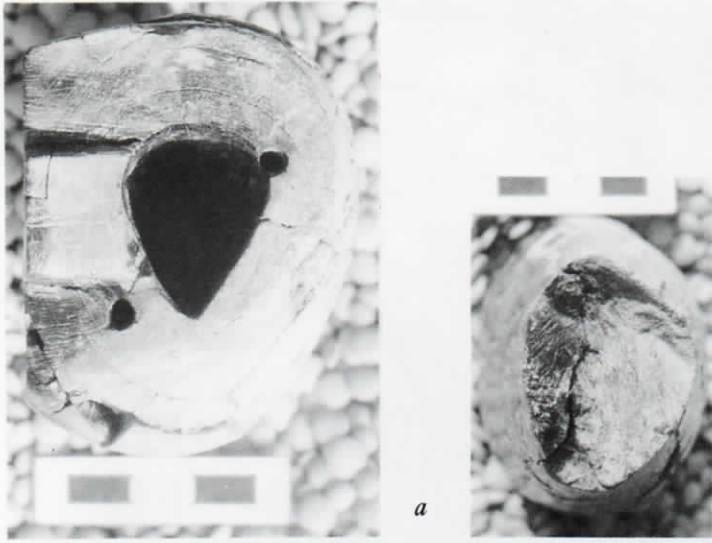


c

The joins at the waist: (a) the top of the hips; (b) the bottom of the waist (replica in wood); (c) the waist joining mechanism (hypothetical reconstruction in wood).



Left leg: sections of the six fragment groups (top views at left, bottom views at right): (a) fr. L1; (b) L2; (c) L3a; (d) L3b; (e) L4a; (f) L4b, L5; (g)–(h) sketches showing break lines and tusk orientation, frontal and lateral views.



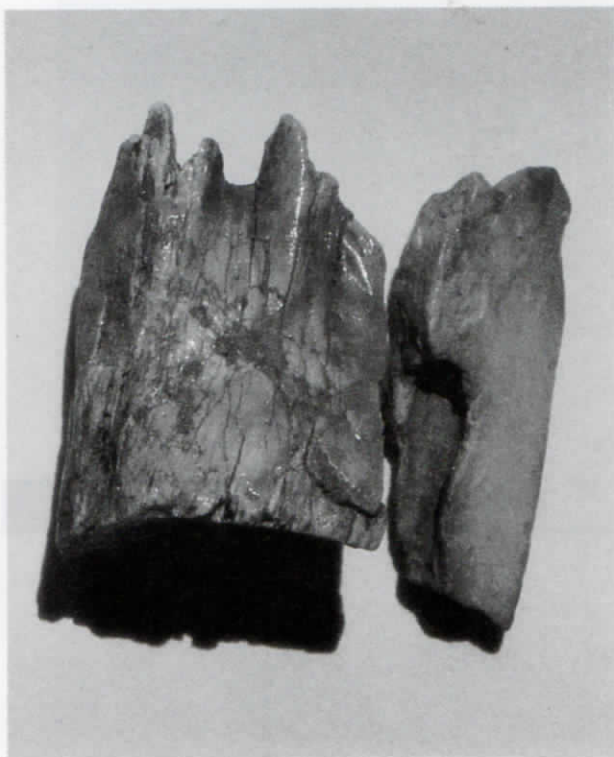
Right leg: sections of the five fragment groups (top views at left, bottom views at right): (a) R1; (b) R2; (c) R3a; (d) R3b; (e) R4, R5; (f) sketch showing break lines and tusk orientation.



a



b



c

Detailed views of the feet: (a) left foot (top); (b) left foot (underside); (c) right foot fragments.



a



b



c



d

The serpentine head: (a) right profile; (b) top; (c) front; (d) back.



a



b

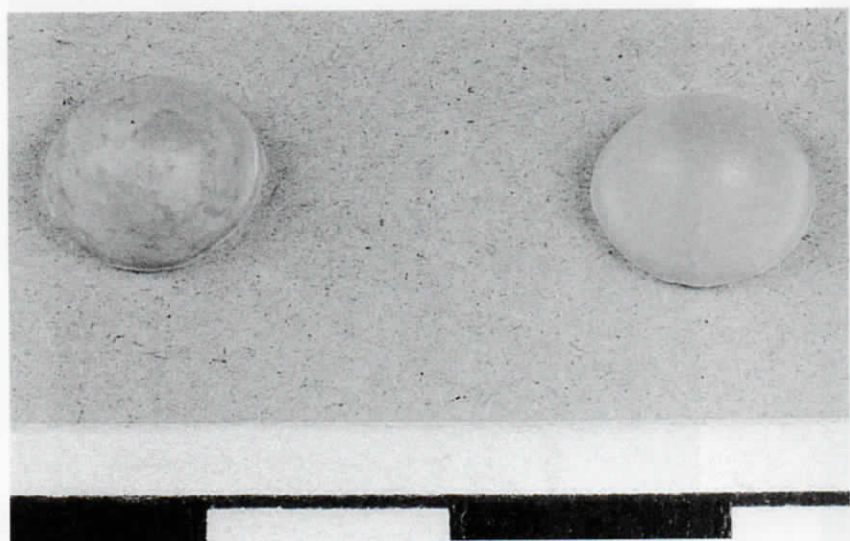


c

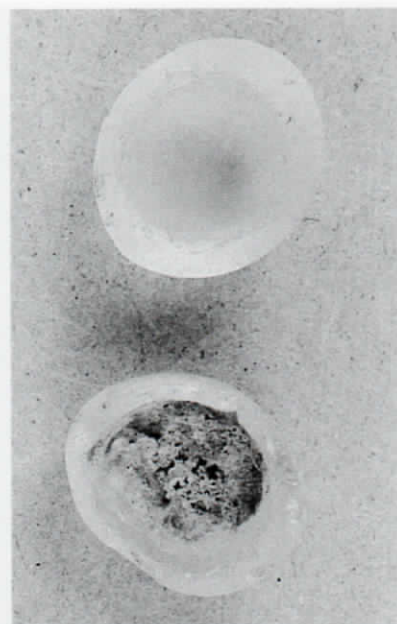


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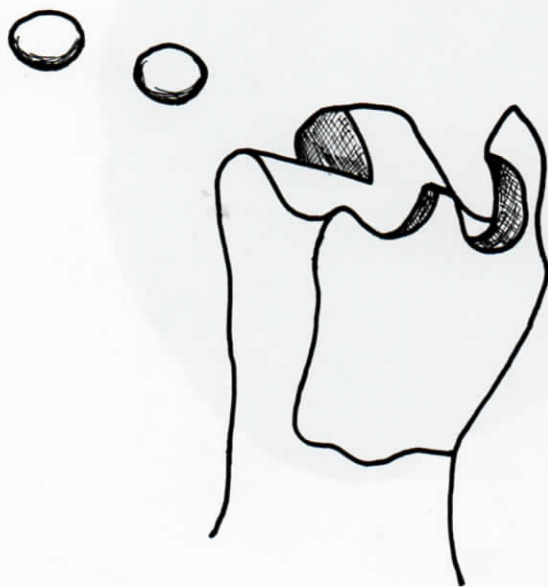
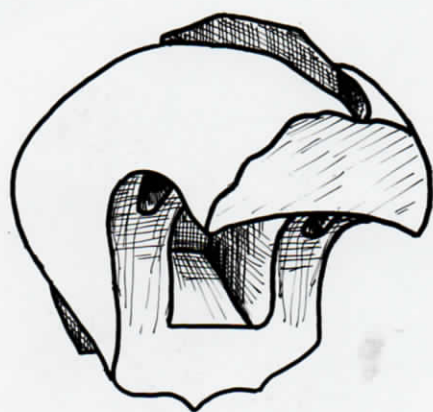
The join of the serpentine head to the ivory: (a-b) ivory neck and face: (a) in profile; (b) back view; (c) the interior of the serpentine head; (d) the head in place.



a



b



c

(a-b) The rock crystal eyes: (a) outside view; (b) inside view; (c) exploded view of eyes, ivory and serpentine head.



a

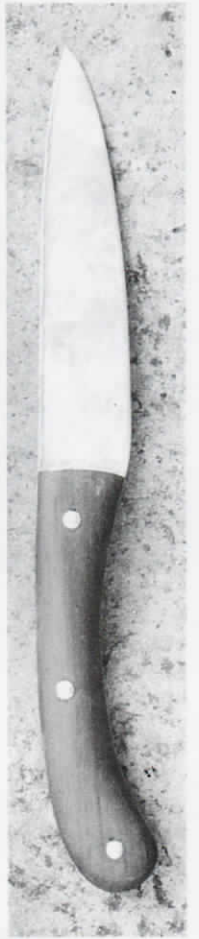


b

*(a) Gold fragments associated with the belt; (b) the same fragments reconstructed hypothetically in strips.
Scale: (a) 1/1.8; (b) 1/1.4*



a



d



c

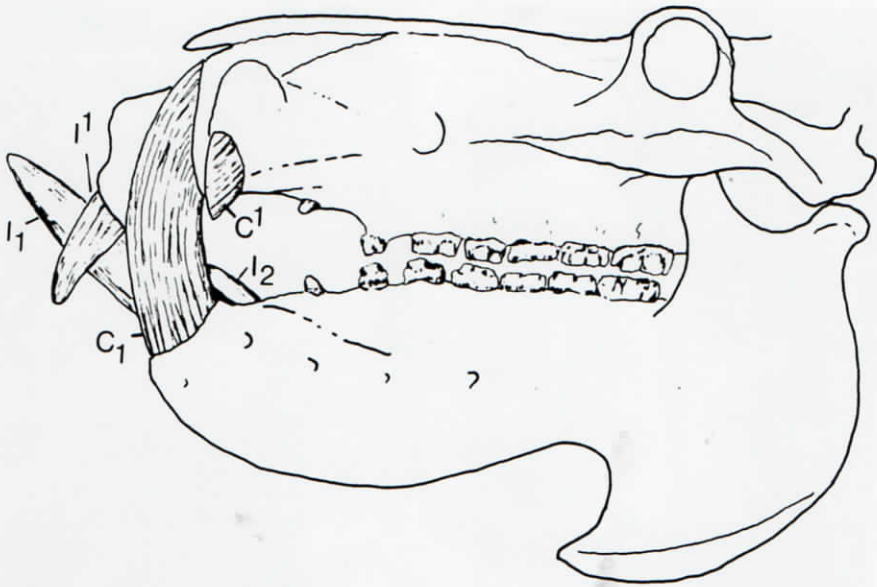


b

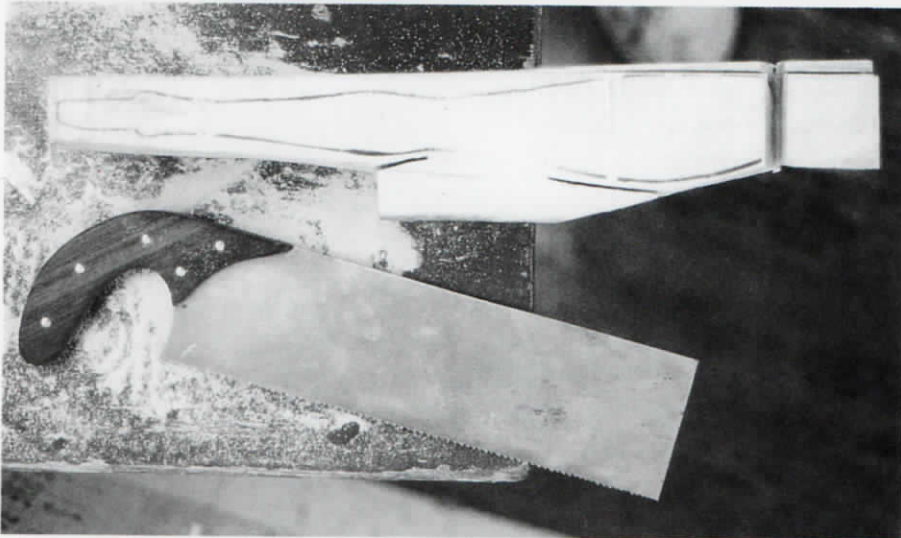


e

The craftsman's tools: (a)–(b) Minoan saw with rivets at handle (HM2023); (c) saw replica, cutting ivory; (d) knife; (e) replica tools: saws, buck knife, Melian obsidian; local sand, Naxian emery, grinding or hammering stones.



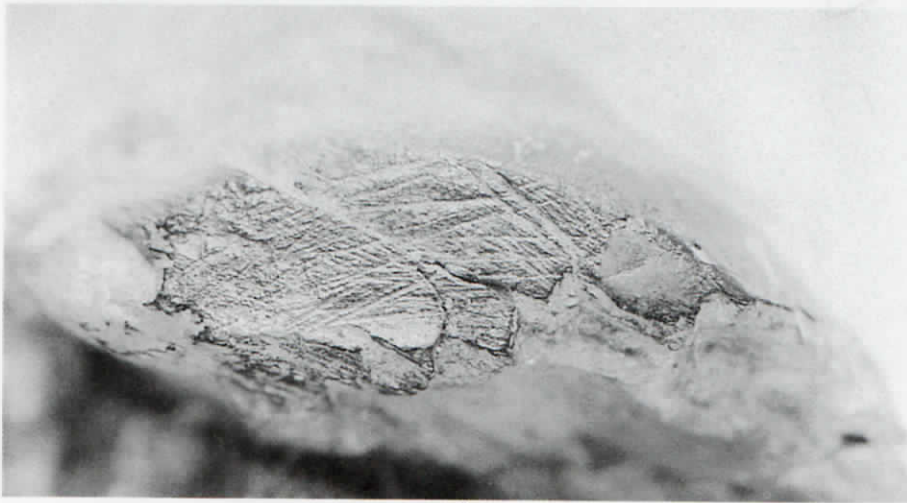
a



b



c



d



e

(a) Dentition of the hippopotamus. Principal tusks: C_1 / C^1 — lower/upper canines; I_1 / I^1 — large lower/upper incisors; I_2 — small lower incisor (I^2 not shown), drawing by O. H. Krzyszkowska, reproduced with permission; (b) sawcuts in replica of leg, with toothed bronze saw; (c) saw marks on replica; (d)–(e) toolmarks: (d) saw marks on bottom of torso; (e) abrasive marks on tab.



a



b

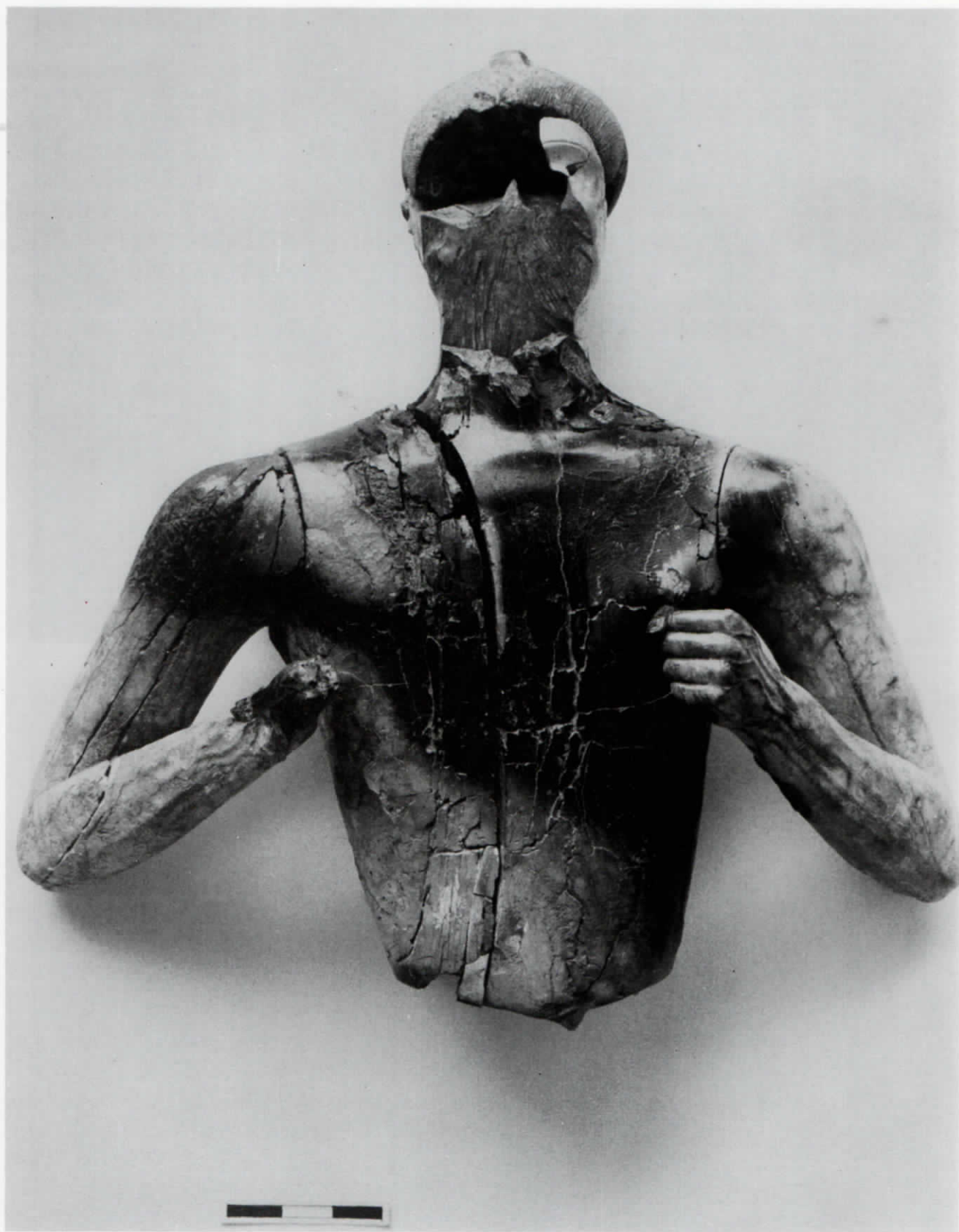


c



d

Vinyl polysiloxane impressions of dowel holes: (a) right leg medial join, single; (b) left leg medial join, double; (c)–(d) left leg medial join, triple, two views. Scale: enlarged, approx. $\times 6$



The torso of the Kouros.

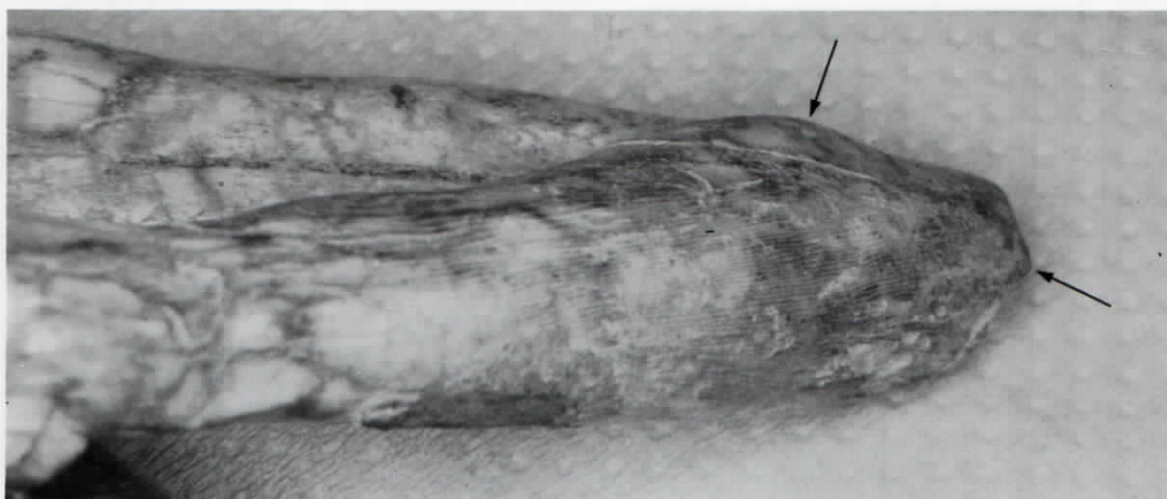


a



b

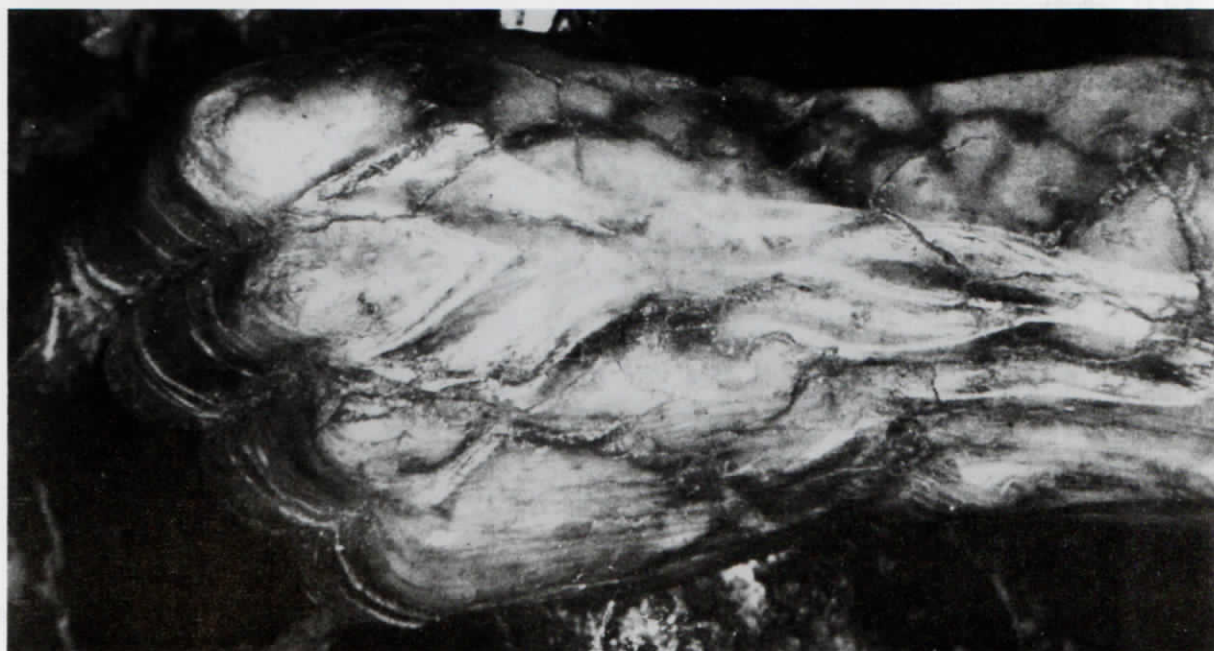
(a) Detail of the left shoulder (ridges and grooves over deltoid muscle arrowed); (b) dorsal surface of left arm.



a

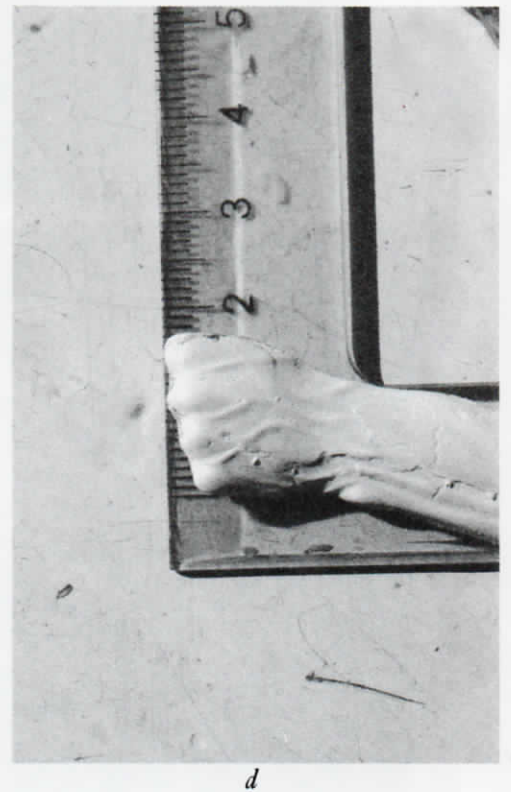
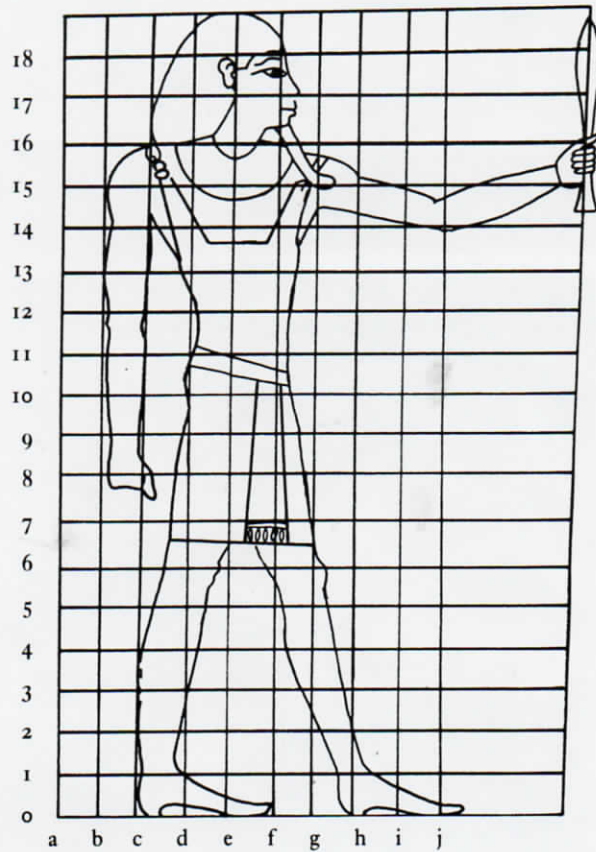
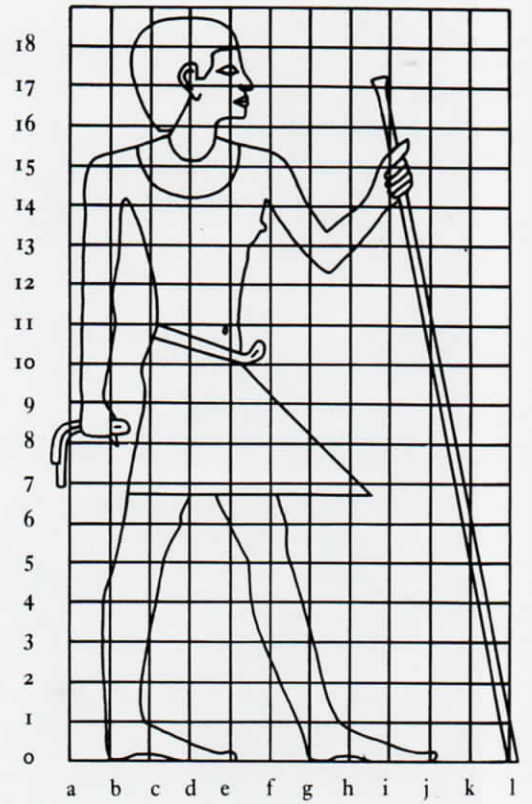
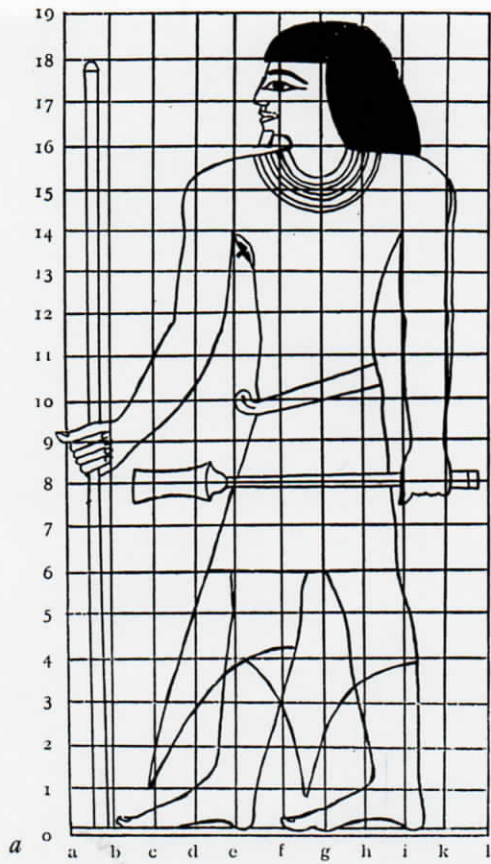


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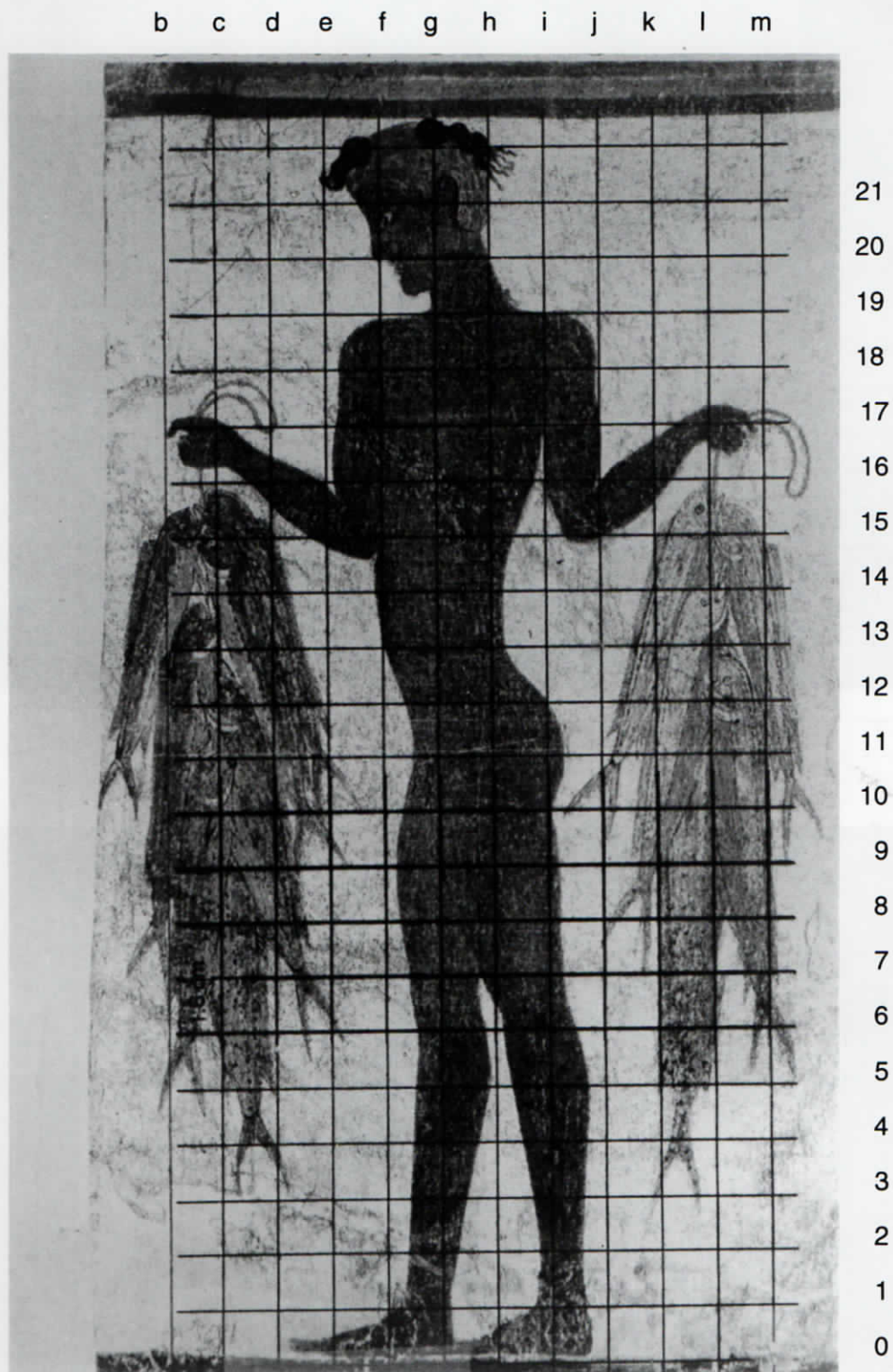


c

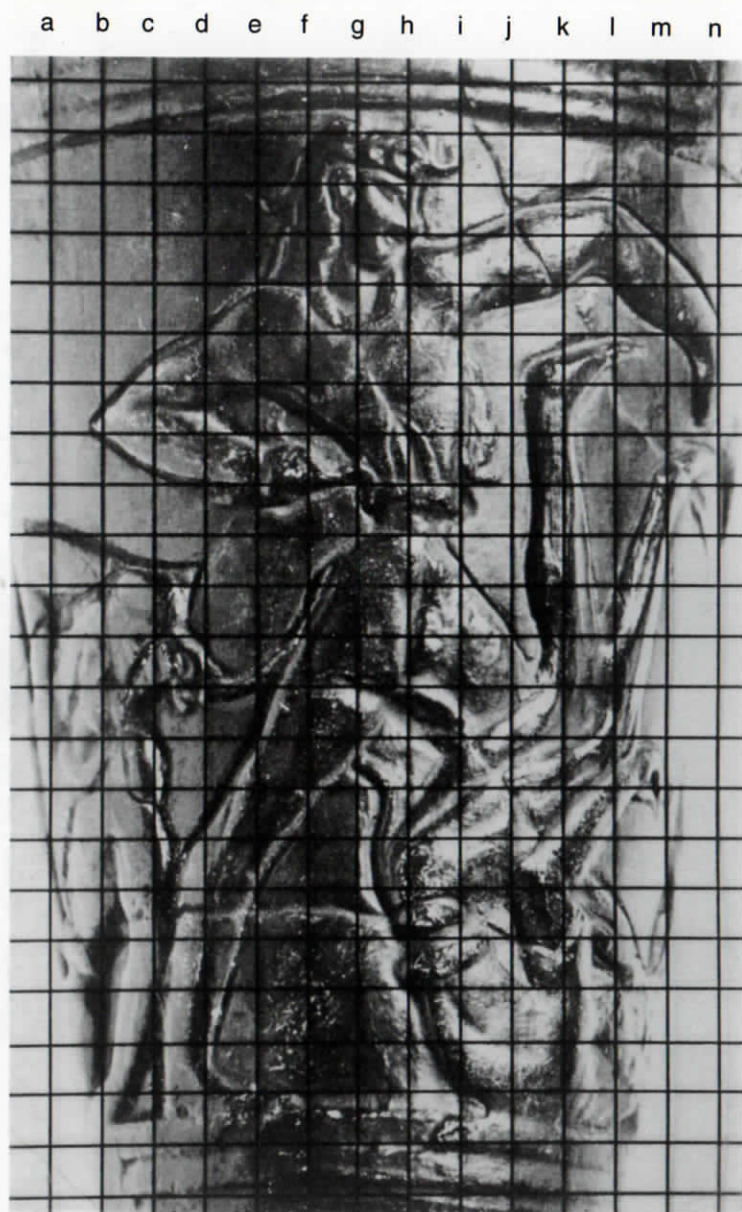
(a) The left arm, showing muscles and tendons on dorsal surface; (b) dorsal venous arch of left hand; (c) detail of left hand.



(a) Figure of Sarenput II (Elephantine, temp. Sesostris II–III) with grid completed from surviving traces (after Müller 1940, 84b); (b) figure on astronomical ceiling, TT 353, TT (Thebes, 18th Dynasty) with grid completed from surviving traces (after Robins 1996, fig. 5.2); (c) Stela of Amenemhat Nebuy (Abydos, late 12th Dynasty) on hypothetical 18-square grid (after Robins 1996, fig. 10.29); (d) the Palaikastro Kouros: plaster cast of left palm (from mould made by Moak).

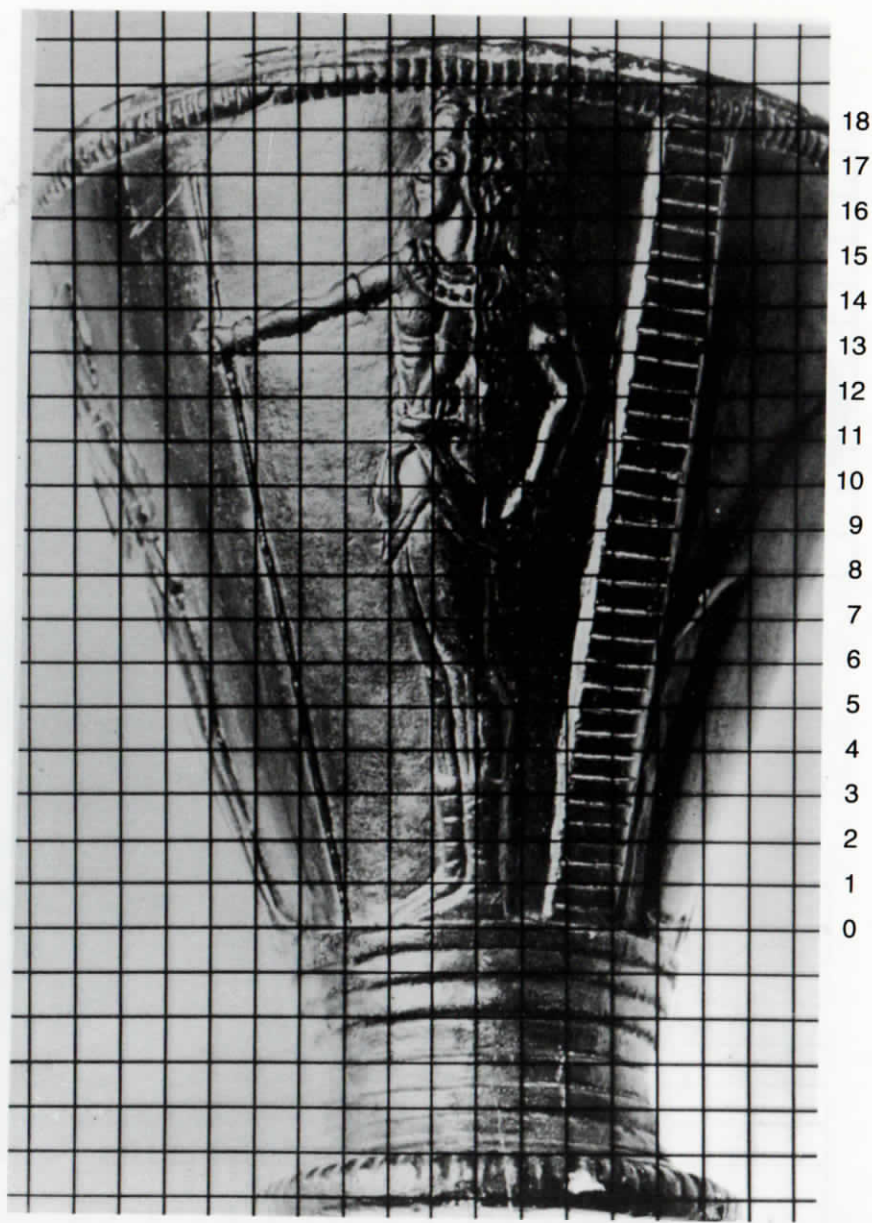


The Fisherman fresco from Thera, on hypothetical 21-square grid (superimposed over pl. 19 in Doumas 1992); supersedes Measure for Measure, pl. XL1c (above Chapter 8, n. 6).



18
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a



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b

Neopalatial parallels with superimposed 18-unit hypothetical grid, photographed at right angle to surface (photograph from 1:1 casts, courtesy of Archäologisches Institut der Universität Heidelberg); (a) a boxer on the Boxer Rhyton from Agia Triada; (b) the 'Chieftain' on the Chieftain Cup from Agia Triada (these supersede Measure for Measure, pl. XLIIb and XLIIIb respectively; above, Chapter 8, n. 6).



a



b

Ivory Figures from Mycenae: (a) 'Ivory Trio', Athens NM inv. no. 7711. H. 7.8 cms; (b) standing male, Athens NM inv. no. 2471. H. (max. pres.) 9 cms. Courtesy of the National Archaeological Museum, Athens.



a



b

Unprovenanced chryselephantine figures: (a) statuette of 'Boy-God' (H. 16.5 cms), Seattle Art Museum no. 57.56, Margaret E. Fuller Fund; (b) statuette of boy (H. 16.8 cms), Ashmolean Museum, Oxford, 1938.692.



a



b



c

Unprovenanced chryselephantine figures: (a) 'Mistress of Sports' (H. 17.8 cms), courtesy of the Royal Ontario Museum, Toronto, Canada, no. 931.21.1; (b) standing female (H. 10.4 cms), courtesy of the Walters Art Gallery, Baltimore, no. 71.1091, forgery; (c) 'Minoan Goddess' (H. 21.5 cms), courtesy of the Walters Art Gallery, Baltimore, no. 71.1090.