

PRELIMINARY REPORT ON A SIXTH
SEASON OF EXCAVATION BY THE
UNIVERSITY OF SYDNEY AT PELLA
IN JORDAN (1983/84)

by
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Introduction

The University of Sydney commenced its sixth season of excavation as partner with The College of Wooster, Ohio in The Joint Expedition to Pella (Tabaqat Faḥl) on 14 December, 1983.¹ Digging ceased on 17 February 1984, except for the clearance of Tomb 62, which required a small team to stay on until 25 March. The expedition staff numbered twenty-five².

Excavation this season was concentrated more on the main city mound, Khirbet Faḥl, than in the previous two seasons. Our primary effort focused on the Iron and Bronze Age deposits of Areas III and IV (see *ADAJ* XXVIII [1984, p. 55-86] for the location of these and other areas mentioned). In some plots (IIIP, IIIQ, IVE) this involved removing the remaining Hellenistic and Byzantine strata;

these are now completely excavated in all but IIIP. A new plot, IIIF, was established east of IIIC to extend the "East Cut", and a new area, XXVIII A, was opened on the southern edge of Khirbet Faḥl to investigate a stretch of Middle/Late Bronze Age stone walling. Area XXIII A, on the north of the *tell*, was continued and yielded more Hellenistic remains. Three operations were undertaken beyond the *tell*. In Area XIV M (Jebel Sartaba) a few days were spent extending the sequence of Chalcolithic floors, partially excavated in the previous season, down to bedrock.³ The investigation of the Epipalaeolithic (Natufian) remains in the Wadi Hammeh (Area XX) was continued, as was the search for tombs in the hills surrounding the *tell* (Areas VI and XI).

The following report presents the results of these excavations in chronological

¹ It is a pleasure to acknowledge the invaluable assistance provided by Dr. Adnan Hadidi and the staff of the Department of Antiquities throughout the season. Dr. A. N. Garrard and Mr. S. Hart of the British Institute of Amman for Archaeology and History extended us their customary hospitality and more than once came to our aid with supplies and expertise. Special thanks are due also to Mr. T. C. Mitchell of the British Museum, London, Dr. P. R. S. Moorey of the Ashmolean Museum, Oxford, and their conservator colleagues who kindly undertook to conserve and restore the ivories, tablets and Astarte cult stand, Dr. J. J. Gowlett of the Oxford Radiocarbon Accelerator Unit who made dating facilities available *gratis* within a short space of time, Dr. A. N. Garrard for supervision of the faunal remains from site Wadi Hammeh 27, The Institute of Archaeology, London University for facilities for the study of plant remains and Mr. G. C. Hillman of that institution for advice with techniques of botanical identification, and finally Dr. E. A. K. Middlemost of the Department of Geology, University of Sydney for materials identification. The many acts of kindness by the Australian Ambassa-

dor to Jordan, Mr. R. Gate and Chargé d'Affaires Mrs. V. Kingsmail were also much appreciated. As in previous years, the expedition was funded chiefly by the Australian Research Grants Scheme, the Australian National Gallery and The University of Sydney, with contributions from The University of Queensland and The Australian Institute of Archaeology.

² The team consisted of: A. W. McNicoll, J. B. Hennessy, T. F. Potts, Co-directors; J. Hanbury-Tenison, Field Director; M. Wheeler, I. Biggs, Pottery Cataloguers; E. McGrath, Small Finds Cataloguer; B. Teissier, Conservator and Site Supervisor; V. Evans, Photographer; I. Edwards, K. Eriksson, L. Randle, Draughtspersons; S. Colledge, Paleobotanist; S. Bourke, Palaeosteologist and Site Supervisor; B. Churcher, P. Edwards, S. Gordon, T. Hart, K. North, C. Shepherd, S. Thorpe, P. Watson, Site Supervisors; Sultan Shreideh, Mohammad Darwish, Department of Antiquities Representatives; Badri Madi, Foreman: Abu Sami, Cook.

³ The results of this operation will be included in the forthcoming interim report *Pella in Jordan 2*.

order; the author is designated at the end of each section.

The Hellenistic finds of Areas IV and XXIII and the Byzantine finds of Areas IV and VI (tombs) will be described after the coming season.

T.F. Potts

The Natufian Settlement in the Wadi Hammeh (Area XX)

Wadi Hammeh 27: Early Natufian

During the 1983/4 Pella season, the 2.00 m. x 3.00 m. *sondage* made at the Natufian site of Wadi Hammeh 27 in 1982/3 (XX D) was extended to form a 9.00 x 5.00 m. plot (XX D+). Work was also begun on a plot of the same dimensions situated to the north (XX F).

The site lies on the flat top of a ridge, a remnant Pleistocene valley fill, which lies upstream from the confluence of the Wadi al-Hammeh and the Wadi al-Himar (Pl. XXXI).⁴ The evidence of surface scatters of archaeological material, the architecture excavated so far and further exposed wall stubs, and a seventy metre stretch of cultural debris exposed in the cliff section indicates a minimum area for the site of 2000 square metres. Since much of the site has evidently been lost through erosion, the original area may have approached half a hectare.

In both plots (Fig. 1) segments of substantial structures dry-built from limestone rubble have been uncovered just below topsoil layers. In each plot several large stones in the bottom course were roughly squared. Wall stubs are preserved up to three courses in XX D+, Wall 1, and to two courses in XX F, Wall 1. The maximum surviving wall height is 0.55 metres in XX F, *sondage* 1. From *sondage*

1 it also appears that Wall 1 is based on a broader platform (F. 5) composed of limestone rubble and clay. The segment of wall uncovered in plot XX F follows an arc 7.90 metres long.

The plan emerging in XX D+ is less clear, but it would appear that the construction here consists of sections of concentric curvilinear walls. If these remains turn out to be part of a circular structure, this would enclose the line of three engraved slabs (Feature 2) described in a previous report.⁵

The predominant type of archaeological deposit at Wadi Hammeh 27 is a single, thick, undifferentiated occupation horizon consisting of a brownish-black medium clay (*Standard Soil Colour Charts*, 7.5 YR 2/2). The greatest depth this has been excavated to is 0.75 metres in plot XX D+ (Fig. 2, loci 3.3 and 3.4).

The deposit lies directly under topsoil layers and over the travertine deposit which was utilized as floor space in the settlement (XX D, locus 3.2). A similar sequence occurs in plot XX F.

Other than a small amount of more recent artefacts in topsoil mixed with a strong proportion of Natufian material, the artefactual inventory from occupation and floor layers is purely Natufian. The recent material consists of a number of coarse terracotta and brown slip painted sherds attributable to the Late Byzantine and Early Islamic periods,⁶ a small bronze coin and a modern bullet.

The past season produced additional artefact types and provided a much firmer base for the quantitative analysis of the flaked stone industry. Though less than half the volume of plot XX D+ has been excavated to floor level, over 50,000 lithic pieces have already been recovered (Table 1).

⁴ P. G. Macumber, *Geology and Geomorphology of the Lower Wadi Hammeh Sites*, in McNicoll, A., *Preliminary Report on Fifth Season of Excavation at Pella in Jordan*, ADAJ, in press.

P. C. Edwards, *Two epi-palaeolithic sites in the Wadi Hammeh (Area XX)*, in McNicoll, A. *et*

al., *Preliminary Report on the University of Sydney's Fifth Season of Excavation at Pella in Jordan*, ADAJ, in press.

⁶ A. G. Walmsley, *The Umayyad Pottery and its Antecedents*, in McNicoll, A., Smith, R. H. and Hennessy, J.B., *Pella in Jordan 1*, Canberra 1982, 143-157.

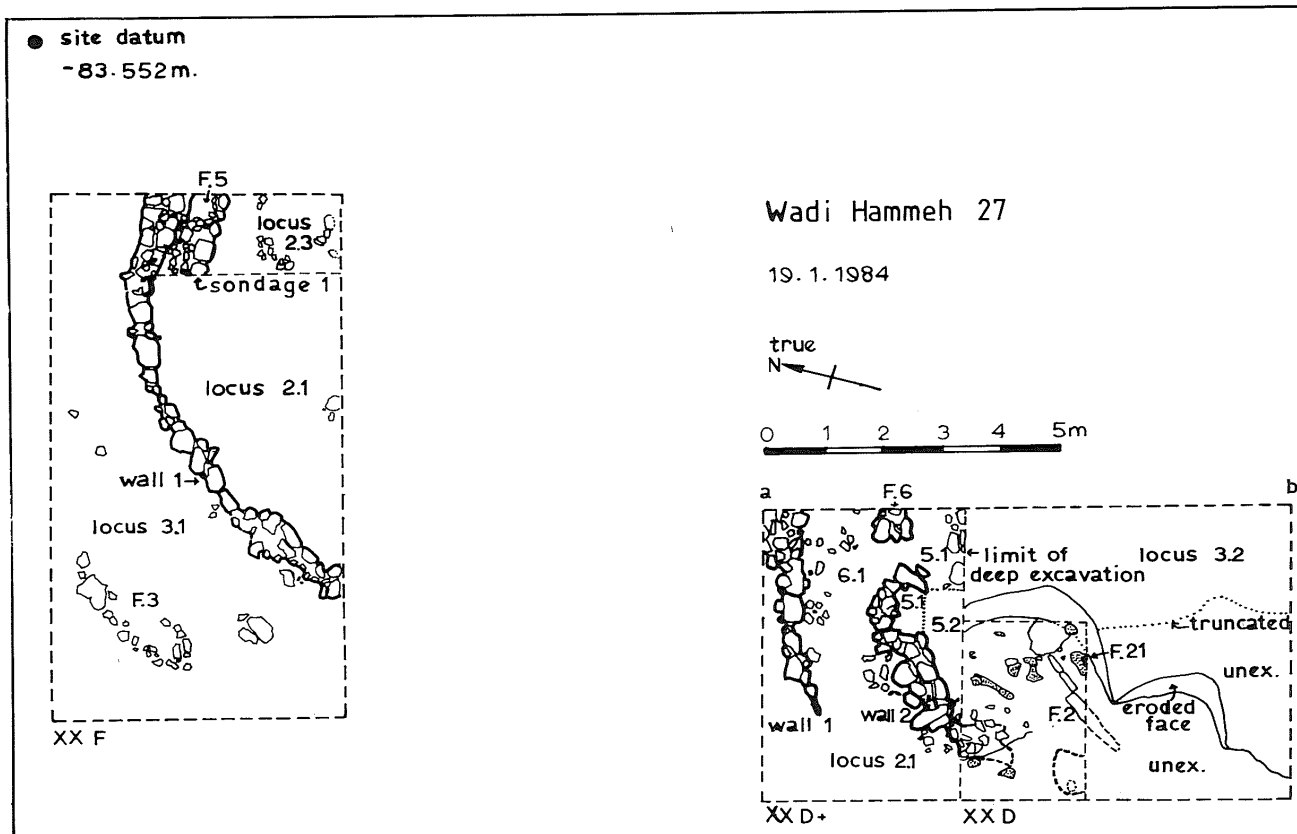


Fig. 1: Wadi Hammeh 27. Plan of excavated part of settlement.

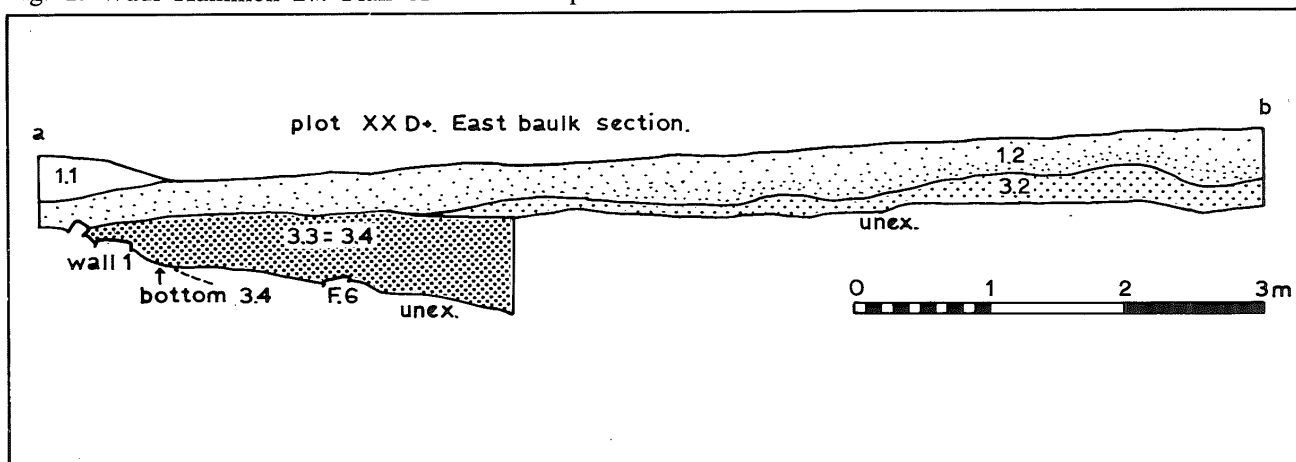


Fig. 2: Wadi Hammeh 27. Section a-b. See fig. 1 for position.

Table 1: Inventory of lithics from all levels, Plots XX D and XX D+.

	N	%
Debris	29,383	58.6
Debitage	19,704	39.3
Cores	195	0.4
Retouched	837	1.7
	<u>50,119</u>	<u>100.0</u>

A high percentage of the lithic material from XX D+ consists of debris and debitage, attesting to the considerable scale of chert flaking carried out in this area. Most of the cores are small bladelet

cores. The major type is the single platform core followed in frequency by change of orientation cores and a small type worked down to form a globular, multiple platform core.

For the retouched tools the results gained in the past season have further amplified the trends evident from the initial season's finds (Table 2). The microlithic and geometric microlithic categories are marginally predominant, followed by burins, and notches and denticulates made mainly on bladelets.

The most common bladelet types are Helwan and inversely retouched bladelets. The presence of silica sheen on the cutting

Table 2: Inventory of retouched tools from sealed deposits, Plots XX D and XX D+.

<i>Type No.</i>	<i>Type Description</i>	<i>N</i>	<i>%</i>
A	Scrapers on Flakes and Blades		
1.	End scraper on flake	5	
3.	Thumbnail scraper	2	
4.	Transversal end scraper	1	
5.	Rounded scraper on flake	7	
		<hr/>	
		15	2.2
B	Carinated and Core Scrapers		
13.	Nosed scraper, thick	3	
16.	Carinated narrow scraper	3	
17.	Micro-carinated scraper	1	
18.	Nucleiform scraper	1	
		<hr/>	
		8	1.2
D	Burins		
21.	Burin, dihedral	14	
22.	Burin, dihedral offset	17	
23.	Burin, dihedral angled	9	
24.	Burin on natural surface	21	
25.	Burin, double dihedral	1	
27.	Burin on straight truncation	11	
28.	Burin on oblique truncation	17	
29.	Burin on concave truncation	10	
30.	Burin on convex truncation	16	
31.	Burin, transverse on lateral retouch	1	
33.	Burin, multiple on truncations	1	
34.	Burin, multiple, mixed	3	
35.	Nucleiform burin	7	
36.	Burin, ventral	2	
		<hr/>	
		130	19.0
E	Retouched and Backed Blades		
38.	Blade completely retouched along one edge	1	
39.	Blade retouched on both edges	1	
40.	Blade, alternately or inversely retouched	4	
43.	Helwan blade	2	
44.	Broken retouched or backed blade	4	
45.	Blade with silica sheen	1	
		<hr/>	
		13	1.9
F	Truncated Pieces		
46.	Truncated backed piece	3	
47.	Truncated piece	20	
		<hr/>	
		23	3.4

H	Microliths		
50.	Partially retouched bladelet	2	
51.	Completely retouched bladelet	8	
52.	Pointed retouched bladelet	1	
53.	Bladelet retouched on both edges	1	
55.	Alternately retouched bladelet	6	
56.	Inversely retouched bladelet	49	
57.	Partially or completely backed bladelet	16	
61.	Narrow curved pointed backed bladelet	1	
62.	Broad curved backed bladelet	3	
66.	Helwan bladelet	108	
67.	Various backed bladelets	12	
68.	Broken backed bladelet	7	
		<hr/>	
		214	31.9
I	Geometric Microliths		
70.	Scalene triangle	1	
73.	Rectangle	1	
76.	Trapeze	3	
81.	Lunate	28	
82.	Helwan lunate	112	
		<hr/>	
		145	21.2
K	Notches And Denticulates		
84.	Piece with small notch	4	
85.	Piece with large notch	12	
86.	Piece with large notches	39	
87.	Denticulated piece	27	
		<hr/>	
		82	12.0
L	Various Tools		
88.	Piece esquillée	7	
89.	Retouched flake	9	
91.	Racloir	1	
92.	Perforator	7	
93.	Borer	9	
94.	Lame à machure	5	
95.	Pick	2	
96.	Varia	13	
		<hr/>	
		53	7.8
	Total	683	100.0

edge is most clearly correlated with these two types, followed by abruptly backed bladelets (Table 3).

Table 3: Presence of silica sheen on varieties of backed bladelets, from sealed levels, XX D and XX D+.

<i>Bladelet type</i>	<i>No. of bladelets</i>	<i>No. with silica sheen</i>
Helwan	108	25
Inverse	49	8
Abrupt	16	4
Other	18	5
	191	42

The frequency of Helwan lunates to other forms is 80%, an indicator, together with the corpus of ground stone, bone and shell, and decorated artefacts, that the site is to be considered as Early Natufian. Radiocarbon dates now obtained corroborate this evidence. Samples of charred seeds from two contexts in XX D+ were submitted to the Radiocarbon Accelerator Unit, Oxford. The dates from the samples are as follows:

OxA - 393 Humic acids
 from grain 11,920±150 b.p.
 OxA - 394 Charred grain 12,200±160 b.p.

In the 1983/4 season, bone ornaments in the form of drilled beads made from *Gazella* phalanges and flat pendants were discovered at Wadi Hammeh 27 (Table 4, Pl. XXXII: 1,2). One of the several *Dentalium* fragments found also has a hole drilled laterally through at one end as if to make it suitable for vertical suspension (Pl. XXXII: 3).

New ground basalt tools (Table 5) include three large, complete pestles, each with a distinctively individual shape (Pl. XXXIII: 1-3). There are further finds of miniature bowls (Pl. XXXIII: 4) and from topsoil some discoidal basalt plates. One fragment of a basalt bowl was engraved on its exterior with a concentric pattern reminiscent of the engraved slabs in XX D.

The technique of grooving occurs on fragmentary examples of a plaque and a pestle, however a clearer example of this type is a limestone plaque with a deep V-shaped groove cut down its centre (Pl. XXXIV: 1). This class of object is clearly not meant to have served as a whetstone or shaft straightener but rather had a decorative or symbolic purpose. From plot XX F a more obvious whetstone was found in the form of a fragmentary piece of burnt limestone, carrying longitudinal striations which constitute parallel grooves (Pl. XXXIV: 2). The stone assemblage is completed by a reproduction of the bone pendants in schist (Pl. XXXII: 4).

Two unusual items remain to be described. The first is a fragment of an apparently zoomorphic figurine (Pl. XXXIV: 3). It has several tiny holes pricked in its surface and a 'collar' deeply incised around its girth. The major interest is whether the object is ceramic or even a mixture of lime and ash. It is light and has a very fine-grained texture. Save for destroying the object for thin section analysis, there is little means at present for ascertaining the constituent material(s) of the object unequivocally.^{6A}

The second item is a roughly blocked out piece of limestone which was found as part of Wall 2 in plot XX D+. Sixty-five holes have been drilled into the limestone piece on a side which forms a flat plane (Pl. XXXV). Judging from the conical sections of the holes and the circular striations running around their rims, considerable rotational energy was achieved in making them. Many of the holes are drilled more than 0.5 centimetres deep, and some up to nearly a full centimetre.

Considerable interest centres on the function of the engraved slabs found in XX D and their relationship to the structure which enclosed them. When the function of the complex in plot XX D+ is considered it is necessary to take into account the positive evidence which now exists to show that at least some of the artefact types found at Wadi Hammeh 27 were made within the confines of the XX D+

Table 4: Inventory of bone and shell artefacts from sealed levels (XX D, XX D+ and XX F).

<u>Artefact type</u>	<u>No. complete</u>	<u>No. fragmentary</u>
Bone point	3	10
Bone pendant	5	1
Bone bead	2	2
<i>Dentalium</i> piece	—	8
<i>Dentalium</i> pendant	1	—
	<u>11</u>	<u>21</u>

Table 5: Inventory of ground stone artefacts from sealed levels (Plots XX D, XX D+ and XX F).

<u>Artefact type</u>	<u>No. complete</u>	<u>No. fragmentary</u>
Large basalt bowl	1	3
Miniature basalt bowl	3	1
Basalt mortar	—	1
Basalt pestle	3	6
Grooved basalt plaque	—	1
Basalt grinding stone	4	—
Limestone mortar	1	—
Grooved limestone pestle	—	1
Grooved limestone plaque	1	—
Limestone hammerstone	1	—
	<u>14</u>	<u>13</u>

structure.

These craft activities may be categorised as follows:

- a) The preparation and application of mineral pigments.
- b) The manufacture of bone beads.
- c) The manufacture of flaked stone tools.

Hundreds of fragments of red, mauve and yellow ochre have been found dispersed throughout the matrix of locus 3.4 in plot XX D+. These are evidently derived from larger pieces of the raw material such as the two fist-sized chunks of red and yellow ochre, which together with some fragmentary long bones stained yellow, were found stored in pit F. 21 in XX D.

Large basalt pestles were used to pulverize the ochre, an operation documented by two pestles which carry red and yellow stains on their respective ends. The types of miniature bowls and basalt plates found at the site would have been suitable as receptacles for mixing and holding the pigments. Evidence for the

application of ochre pigments includes the stained bone fragments mentioned above and the aforementioned fragment of engraved basalt bowl which was coloured red on its interior surface.

The predominant class of complete animal bone found at Wadi Hammeh 27 is the phalanx of *Gazella*. This, in itself, is unsurprising as the gazelle was a staple of the Natufian economy. The differential survival of these small, dense bones is a contributing factor to this pattern, and it is possible that butchering practices which involved stripping away the hooves together with the skin accentuated this survival pattern. In Plot XX D+ the large number of finds of podial elements may also be connected with the manufacture of bone beads. They include the articulated bones of a gazelle hoof sitting alone at the base of Wall 1. The link between what may have been a cache of the raw material and what was certainly the finished product (Pl. XXXII: 1) are two half-finished beads made on gazelle phalanges (Pl. XXXII: 5)

which had been whittled down to half length but subsequently lost or discarded before completion.

The background to these various activities remains the huge quantity of lithic debris found from XX D+. A similar amount has been found from a smaller volume in XX F, and judging by surface scatters of material, chert flaking was a ubiquitous activity at the site.

In addition to the material evidence of debris for the several activities outlined above, it may be added that the presence of awls and drills, and particularly the high numbers of large, sturdy burins, correlate well with the numerous products of drilling and engraving found in plot XX D+.

Evidence for food refuse in the form of hearths, charcoal and fragmentary bone has been relatively slight, though several bone fragments were burnt. Whether this pattern is typical or atypical of the site will have to await the sounding, both inside and out, of further structures.

As indicated above most identifiable bones and bone fragments are podial or metapodial elements. New *taxa* recovered in the past season include *Equus*, *Vulpes*, *Lepus* and *Testudo*. Bone identifications are supervised by A. N. Garrard. A preliminary list of identified species from both seasons is given below in Table 6.⁷

Table 6: Preliminary list of animal taxa from sealed levels (Plots XX D, XX D+ and XX F).

Equus sp.	Aves
Gazella sp.	Testudo sp.
Ovis/Capra sp.	Potamon sp.
Carnivora (large)	Dentalium sp.
Vulpes sp.	Melanopsis praemorsa
Lepus sp.	

Indirect evidence for the exploitation of plants in the form of mortars, pestles, querns, grindstones and sickle blades is now familiar from Wadi Hammeh 27 as other Natufian sites. yet the physical remains of these plants have proved rather

elusive in the sandy, acidic soils of the Levantine Coastal Plain.

An unusual and welcome aspect of the work at Wadi Hammeh 27 has been the recovery of a broad tableau of economically exploited plants. During the 1982/3 season it was discovered that there was preserved plant material within the archaeological contexts. Wood charcoal and charred seeds were recovered by flotation.^{7A} It was decided to continue the programme of flotation during the larger-scale excavation of the site. A flotation machine was set up in the wadi Hammeh. It was used without a pump but instead the head of pressure of the stream was utilised by leading the inlet hose pipe upstream for ca. one hundred metres. This was sufficient to produce a constant flow of water through the machine, over the weir and on to the sieves. The pressure was insufficient to adequately break up the soil matrix to release the charred fragments and so gentle manual agitation was required for each sample introduced. The sieve size used for the recovery of the plant material was 500 µm. One bucket (ca. 7.4 litres) of deposit could be processed at a time. It was possible to keep up with the rate of excavation (of the two plots) if approximately one quarter of the total excavated deposit was floated. In this way it was possible to monitor the relative proportions of charred fragments in the contexts immediately and therefore recover more of the same context if it proved exceptionally rich. A greater volume of soil from Plot XX D+ was floated because within this trench deeper stratigraphic layers were revealed prior to the complete removal of topsoil in Plot XX F. The total volumes from each context are given in Table 7.

Analysis of the remains was carried out at the Institute of Archaeology, London, in the Department of Human Environment. All charred items (whether immediately recognizable as seeds/fragments of, or not) were extracted from the flotation samples. The charred remains

⁷ A. N. Garrard, Personal Communication, 1984.

^{7A} G. Willcox, Archaeobotanical investigations at

Pella, typescript, Department of Archaeology, University of Sydney, 1983 ms; see also Edwards *op. cit.* for a list of identified *taxa*.

Table 7: Volumes of excavated deposit, from Plots XX D+ and XX F, which were floated.

<u>Area</u>	<u>Plot</u>	<u>Locus</u>	<u>Level</u>	<u>Volume</u> (buckets)	<u>Volume</u> (litres)
XX	F	2	1	4	29.6
		2	2	6	44.4
		2	3	19	140.6
	D+	3	3	9½	70.3
		3	6	¼	1.9
		3	4(a)	44½	329.3
		3	4(b)	51	377.4
		3	4(c)	22	162.8
		3	4(d)	4	29.6
		5	1	5	37

were finely comminuted and the sorting process was extremely time consuming. From certain contexts several hundreds of items were extracted the majority of which were no larger than *ca.* 1 mm.³ Preservation was generally quite poor. Small fragments of bone, small mammal bones and *mollusca* were also sorted from the flots.

The charred remains from the context XX D+ 3.4(b) have been sorted and the preliminary identifications are listed in Table 8. This context showed the greatest range of taxa. Identifications have been made, where possible, after comparison of the ancient specimens with modern reference material (in the reference collection prepared by G. C. Hillman). Most of the identifications carry a certain amount of doubt either due to poor preservation which prevented an exact comparison or as an indication that cross checking with modern equivalents had not been possible. Considering that the original volume of deposit from which the seeds and fragments came was *ca.* 380 litres, XX D+ 3.4(b) was by no means a rich context. Only a small percentage of the charred items which were extracted was identifiable. In some cases it was even quite difficult to distinguish small pieces of wood charcoal from fragments of seeds. The sample from this context contained several specimens of seeds which are almost certainly members of the family Gramineae (grasses), for which, as yet, there has been

no positive identification. In the table these specimens are referred to as "species X". There were no whole seeds in this sample, commonly the grains had broken just above the base, as illustrated in Figure 7, with what appeared to be the vestiges of the husk adhering. The drawings show the two lateral appendages which could be the remains of the pairs of prominent nerves of the paleas⁸. In some cases the basal part of the husk had become separated, as illustrated in Figure 6: 6, and on several of the better preserved seeds a circular "attachment scar" could be seen. Some of the "body" fragments of the seeds were recovered and these were noticeably laterally compressed. Although the grains were charred, the outer layers had a reddish tinge and it was easy to distinguish even the smallest fragments of this "species X". To enable identification of this taxon it was thought necessary to examine the micro-morphology of the grains and, in particular, to look at the micro-structure and cell patterns of the surface layers, always assuming that preservation allowed such a study. This was done with the aid of a Scanning Electron Microscope. The resulting photographs, Plates XXXVI and XXXVII, show details of the outer layer of the seed coat (? palea) with a regular arrangement of "circular cavities" overlying another layer with parallel ridges. These layers appear to cover the lateral appendages on the seed. "Species X" was

⁸ G. C. Hillman, Personal Communication.

found in all contexts from both plots XX D+ and XX F and its identification is considered a priority.

spontaneum, wild barley. As shown in Figure 6:2, this specimen has a wide, shallow furrow, it is dorso-ventrally com-

Table 8: Preliminary list of plant taxa from context XX D+ 3.4(b).

	<u>No. of items</u>
'Species X' - 'body' fragments	115
'Species X' - basal fragments	27
cf. <i>Stipa</i> spp. - fragments	4
<i>Hordeum</i> cf. <i>spontaneum</i>	1
Gramineae indet. - fragments	120
Awn fragments	47
cf. <i>Lens</i> sp.	1
Leguminosae - fragments	5
cf. Liliaceae	1
Leguminosae/Liliaceae	18
Small round seeds:	
cf. <i>Cuscuta</i> sp.	140
Cruciferae - conduplicate	18
cf. <i>Trifolium</i> sp.	12
Type with 'seams'	67
Type with thick testa	250
Charcoal fragments	

[(1) No taxonomic ordering has been attempted for this list.

(2) There are many more specimens within this context which require detailed examination prior to identification.]

This context contained several fragments of cylindrical grains which are referred to in the table as cf. *Stipa* spp., steppe grasses. The average diameter of these seeds was 0.8 mm., and therefore are probably representative of the smaller species of the genus. The seeds of this genus lack obvious distinguishing features, with the exception that commonly the embryo detaches and leaves a "chisel-shaped" end and the hilum is narrow and shallow.^{8A} These ancient fragments were poorly preserved and it was impossible to make a definite identification. One fragment has been assigned to *Hordeum* cf.

pressed and the cross-section is angular. The size/width of this fragment is comparable with the wild barley as opposed to the small seeded barley grasses. The sample from XX D+ 3.4(b) contained many small fragments which have been identified as indeterminate Gramineae (grasses) on the basis of texture. The texture of charred grasses and cereals is easily recognizable. None of the fragments carried features which would allow for genus/species identification, in a few cases the rounded surface of the grain had survived. Remarkably, awn fragments had survived in this (and other) samples from the site. These are the

^{8A} More taxonomic details of the genus will be given for the site Abu Hureyra in G. C. Hillman, *et. al.* Detailed account of plant remains from the

mesolithic and aceramic neolithic levels at Tell Abu Hureyra, Syria, forthcoming.

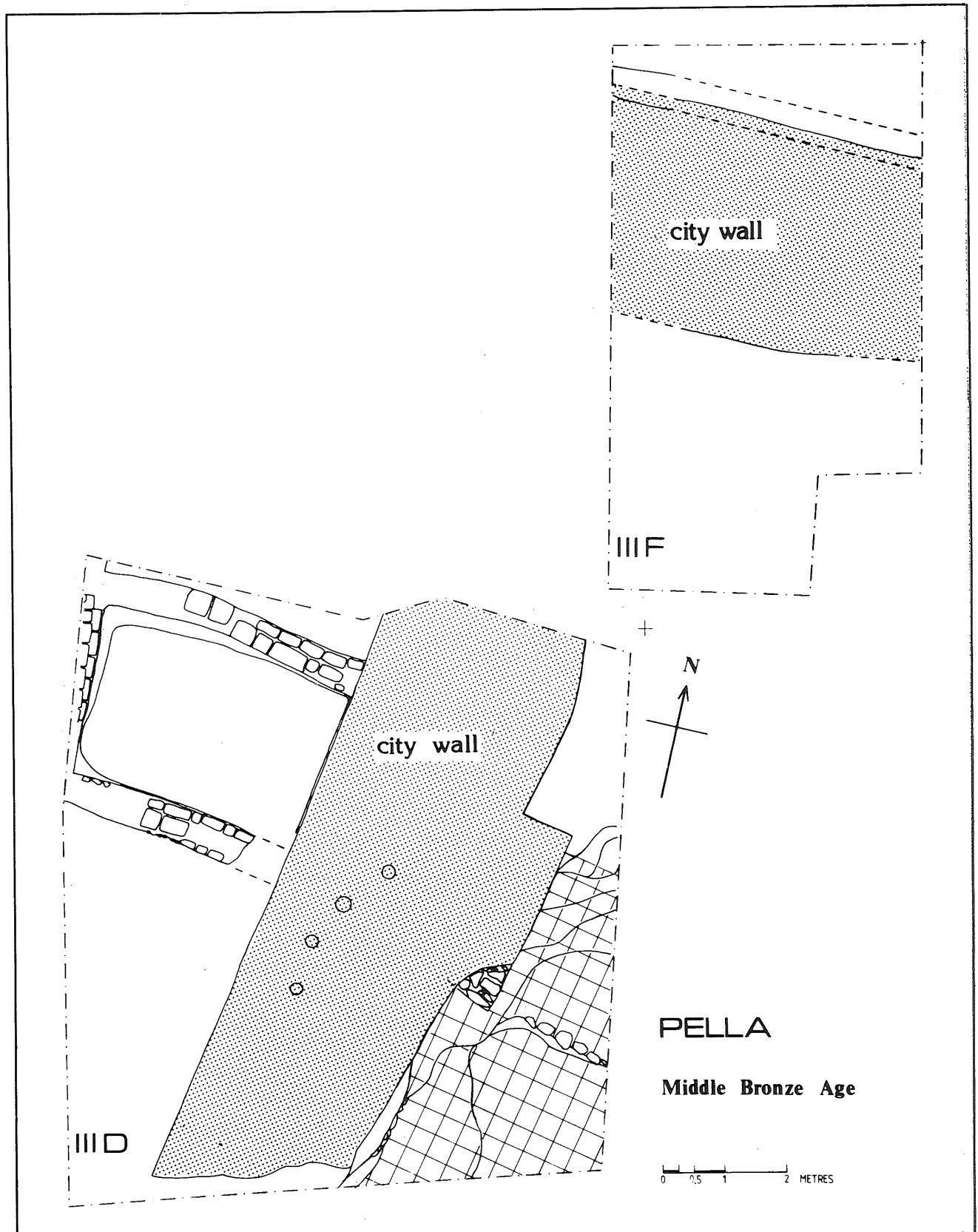


Fig. 3: Middle Bronze Age town wall and associated architecture.

fragile “bristles” attached to the husks of grasses. The ancient specimens were twisted, Figure 6: 5. The awns of *Avena*, oats, are twisted and also have barbs which

can be seen at high magnifications under the Scanning Electron Microscope.⁹ It is hoped that a similar examination of the ancient awn fragments may reveal disting-

⁹ B. R. Baum, Additional taxonomic studies on *Avena fatuoides*: some morphological attributes seen using the scanning electron microscope.

Canadian Journal of Botany, 49, (1971) p. 647-649.

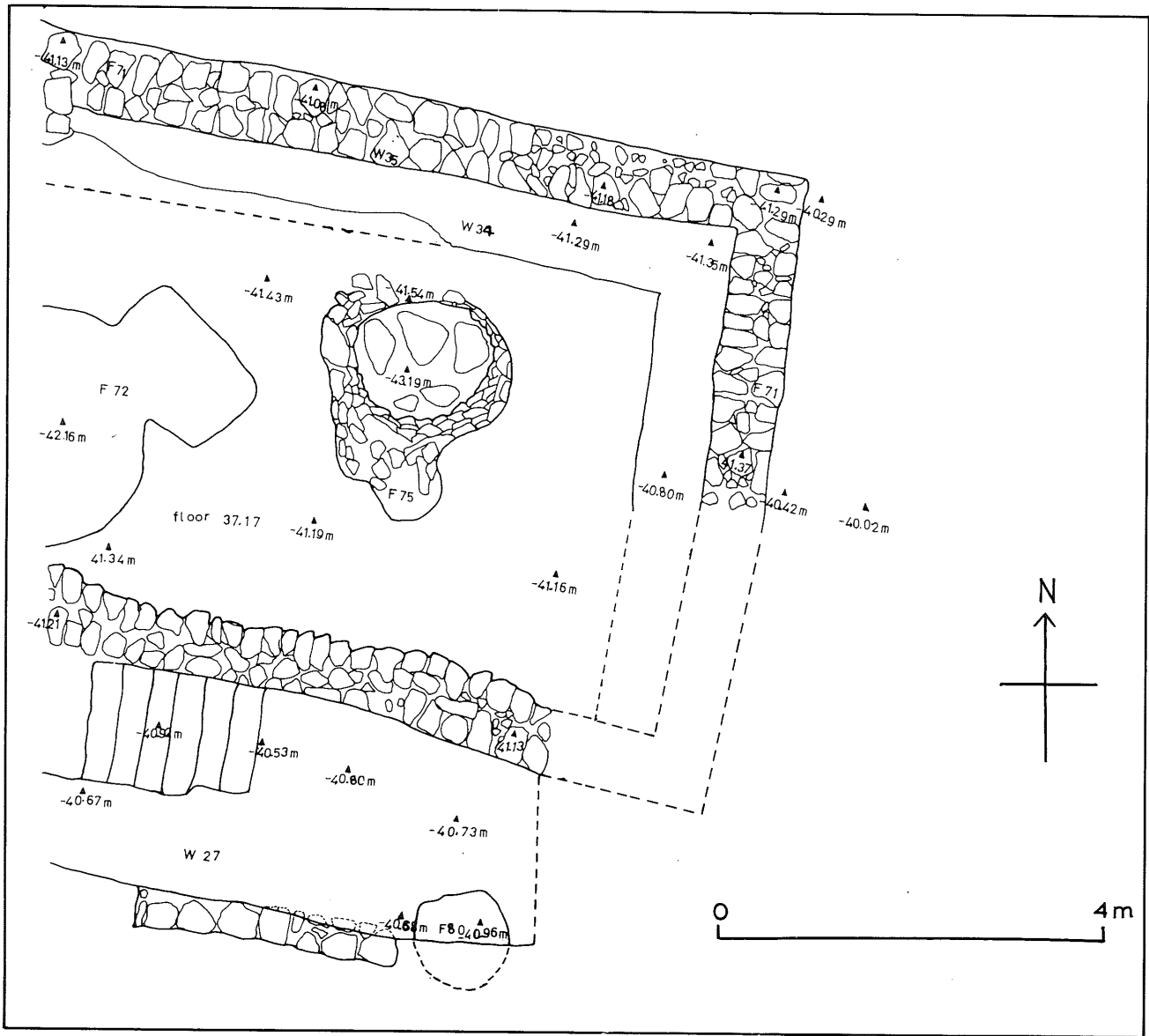


Fig. 4: Plot III C. Middle Bronze Age II architecture. Plots III D and III F.

uishing features.

The charred cotyledons of members of the family Leguminosae (peas, beans) also have a characteristic texture which makes it possible to separate even the smallest fragments. In Table 8 the specimens assigned to Leguminosae are those having part of the hemispherical surface of the cotyledon, as illustrated in Figure 8: 2, together with the characteristic internal texture. One fragment in this context showed the fusion of two cotyledons which resulted in a lenticular, as opposed to a spherical-shaped seed and thus resembled seeds of the genus *Lens*, lentils. The internal structure of seeds of several genera of the family Liliaceae (lilies) is formed of large isodimetric cells which, when viewed in transverse section across the seed, form radiating rows from the

central embryo cavity. A large specimen in context XX D+ 3.4(b) possessed these features. The textures of the seeds of the two families, Leguminosae and Liliaceae, can look very similar and the category "Leguminosae/Liliaceae type" in Table 8 refers to fragments with no other distinguishing features apart from texture.

The large majority of the charred remains in this context (and in all others from XX D+ and XX F) were "small round seeds". These required sorting at high magnification in order to see any distinguishing features. Many were badly preserved and will require more time (and patience!) to separate into different taxonomic types (ca. 150-300 of these "small round seeds" were submitted for C-14 dating). Of the better preserved specimens, five different taxa have been identi-

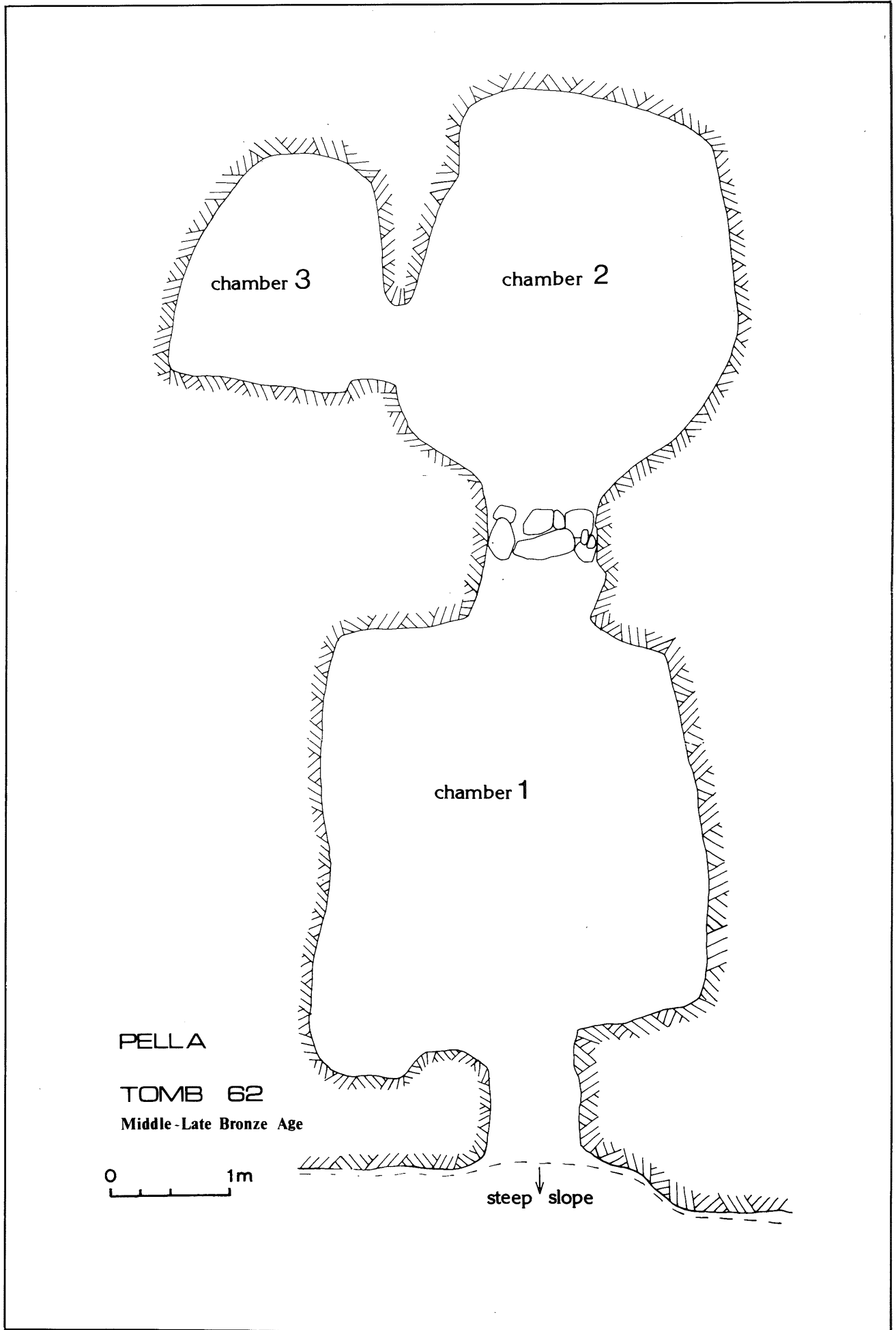


Fig. 5: Tomb 62.

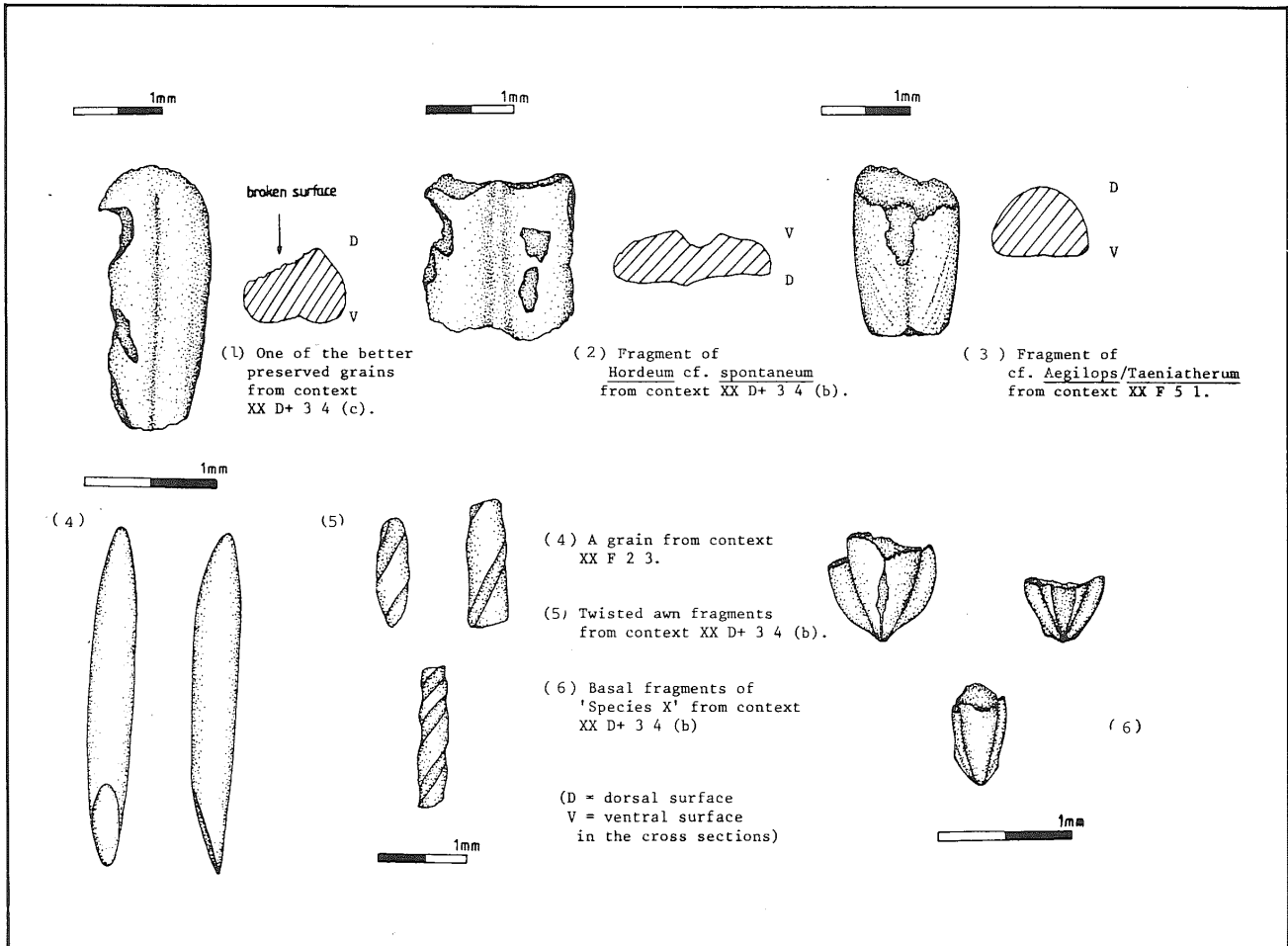


Fig. 6: 1. One of the better preserved grains from context XX D+ 3.4.
 2. Fragment of *Hordeum* cf. *spontaneum* from context XX D+ 3.4b.
 3. Fragment of cf. *Aegilops/Taeniatherum* from context XX D+ 5.1
 4. A grain from context XX F 2.3.
 5. Twisted awn fragments from context XX D+ 3.4b.
 6. Basal fragments of 'species X' from context XX D+ 3.4b.

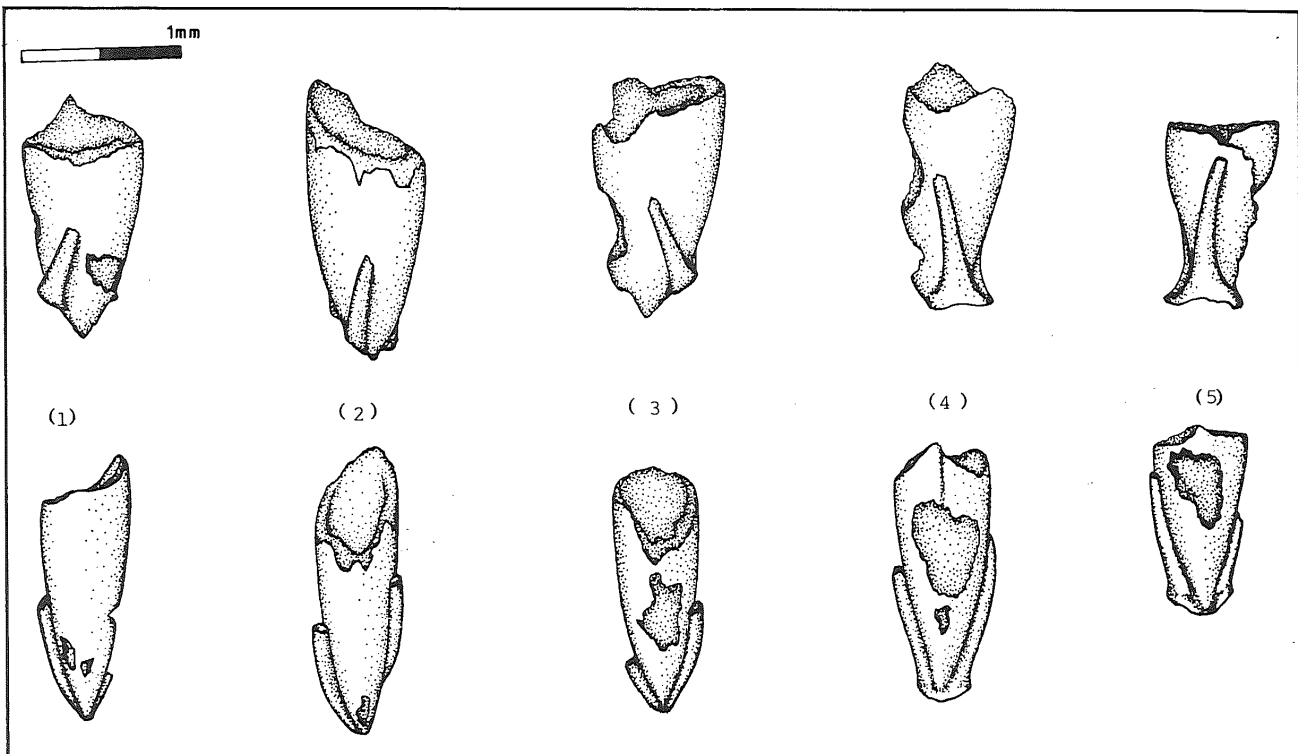


Fig. 7: Lateral (above) and ventral (below) views of specimens of 'species X' from context XX D+ 3.4b. Fragments (4) and (5) show the circular 'attachment scar' at the base of the seed.

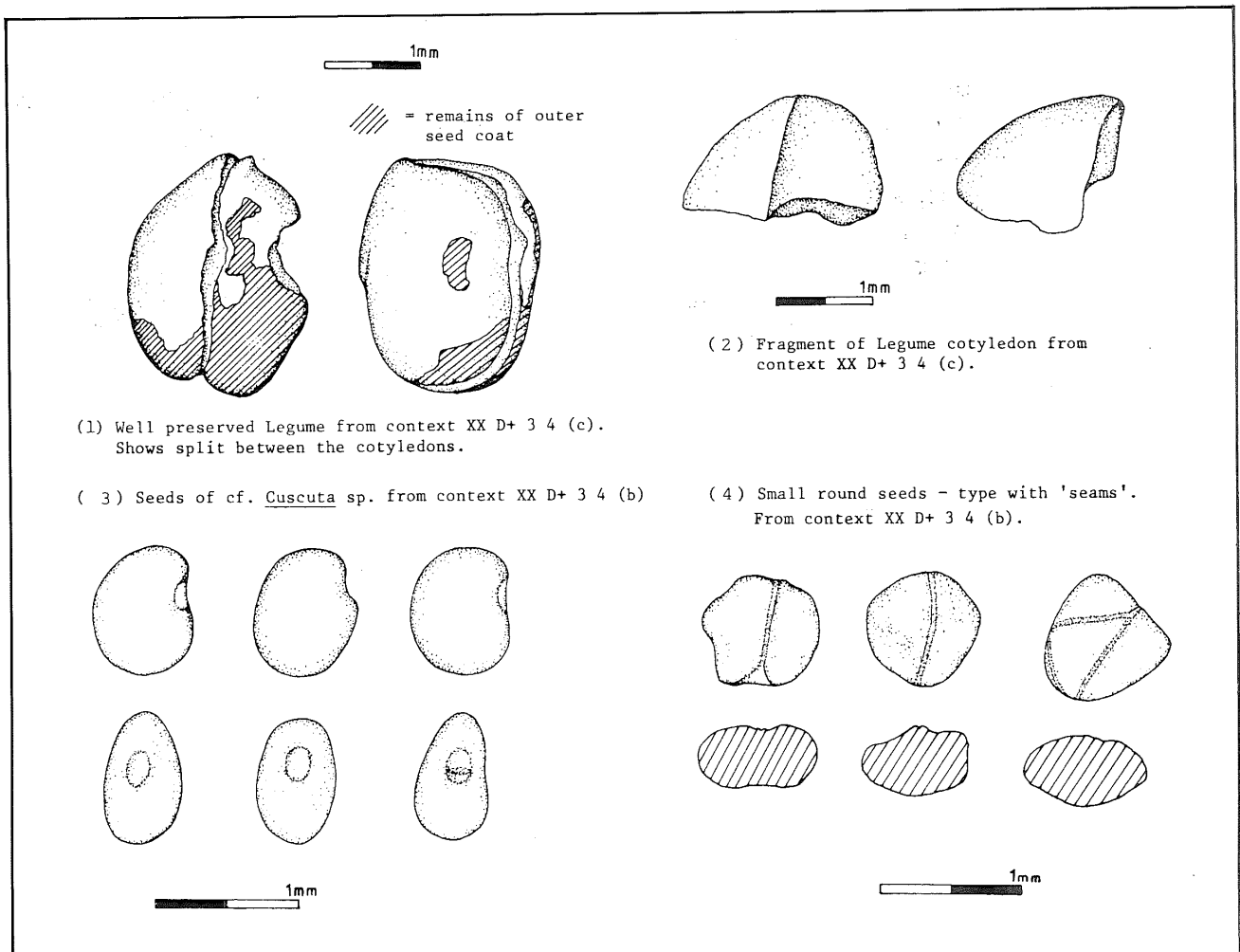


Fig. 8: 1. Well preserved legume from context XX D+ 3.4c. Shows split between the cotyledons.
 2. Fragment of legume cotyledon from context XX D+ 3.4c.
 3. Seeds of cf. *Cuscuta* sp. from context XX D+ 3.4b.
 4. Small round seeds - type with 'seams'. From XX D+ 3.4b.

fied so far. The preliminary identifications include cf. *Cuscuta* sp. (Fig. 8: 3), a conduplicate Cruciferae, cf. *Trifolium* sp. (seeds with "tuberculate" surface pattern), and two taxa for which there are, as yet, only descriptions rather than names, a small angular type with 'seams' (Fig. 8:4), and a type which has seeds commonly split in half, with a thick testa.

Large lumps of charcoal have also been sorted from the flotation sample and identifications will be made in due course.

There were no noticeable concentrations of charred remains in any of the contexts from plots XX D+ and XX F.

Context XX D+ 5.1 was very much richer than any others sampled and this would be expected because it was nearest to the floor level within the XX D+ structure.

The Natufian site was exceptionally well positioned for exploitation of the range of plants at the forest margins together with those in the steppe forest.¹⁰ As Harris notes,¹¹ it is vitally important to study the exploitation of wild plants on pre-agricultural sites and to understand the pre-domestication processes of wild plant manipulation which gave rise to agriculture and fully cultivated crops.

The greatest problem encountered

¹⁰ W. Van Zeist and S. Bottema, Vegetational history of the Eastern Mediterranean and the Near East during the last 20,000 years in J. L. Bintliff, and W. Van Zeist, *Palaeoclimates, Palaeoenvironments and Human Communities in the Eastern Mediterranean Region in Later Pre-history*, BAR International Series, 133 (ii), (1982)

p. 277-321.
¹¹ D. R. Harris, Ethnohistorical evidence for the exploitation of wild grasses and forbs : its scope and archaeological implications, in W. Van Zeist and W. A. Casparie, *Plants and Ancient Man*, 1984.

when dealing with the plant remains from very early sites is undoubtedly the inevitable poor preservation. Identification has to be based on the recognition of internal patterns of plant tissues, their cell patterns and microscopic details, such as plumule structure, rather than on the gross morphology of whole seeds. Unfortunately, this automatically makes the sorting process extremely lengthy. For the plant remains from the Wadi Hammeh it is hoped that during the next year a greater amount of time will be devoted to these problems so that it will be possible to confirm identifications and produce lists of taxa which are far more informative than the one included here.

In the coming Pella season it is intended to complete the excavation of plots XX D+ and XX F while continuing full recovery of finds by dry and wet sieving, and water separation of botanical remains. It is hoped to run this strategy in conjunction with topsoil clearance over a wide area in order to elucidate the village plan and locate further structures.

Phillip C. Edwards and Sue Colledge

The Middle Bronze Age (Area III)

Three plots, IIIC, IIID and IIIF, produced material dating to the later half of the Middle Bronze Age. The earliest construction uncovered is the town wall and associated architecture in IIID, now the southernmost of the series of trenches down the south-east corner of the *tell*;¹² probably contemporary with this is another large wall in IIIF (a new 5.00 x 10.00 m. plot east of IIIC). The remains of domestic architecture in IIIC, immediately upslope from IIID, date to a later phase of the Middle Bronze Age.

The Middle Bronze Age Town Wall and Associated Architecture (IIID, IIIF) (Fig. 3)

The removal of the rubbish and wash deposits in IIID, dating from Late Roman

to Umayyad times, was completed in 1984. The rubbish varied in depth from roughly 3.00 m. in the north-west of the plot to over 5.00 m. in the south-east. The underlying remains, dating to the Middle Bronze Age, are heavily eroded and present an irregular surface sloping sharply from north-west to south-east. Running diagonally across the plot from south-west to north-east is a large mud-brick wall, 3.30 m. wide, which must be the town fortification (IIID Wall 1). Inside this wall only the highest preserved deposits, in the north-west corner, have been excavated. One complete room and a small part of another have been cleared. Outside the wall the much deeper Roman rubbish deposits finally gave way to a second large mud-brick feature, distinct from the wall, but clearly related to it.

The inner line of the town wall is quite clear in plan from the distinctive colour of its bricks, even where the adjacent deposits have not been cleared from the face. The northern half of the outer line is also clear; it has been partly freed from the Middle Bronze Age accumulation against its face. There is an external buttress about midway along which increases the wall's total width to 4.18 m. It is presumably one of many. The southern corner of the buttress has been completely destroyed by erosion revealing a foundation of medium-sized, angular stones. The outer face of the wall south of the buttress is also lost. Not much has been removed, however, and its original line can be safely reconstructed on the basis of the wall's regular width from the inner face. A number of courses of rounded (ca. 0.20 x 0.30 m.) stones underlie the brickwork near the southern preserved end of the wall. These may, however, be a much later (Roman) attempt to prevent further collapse of the wall. It had been severely undercut by erosion at this point and the cavities filled with Roman wash. The date of the stone courses will be established when they are removed and the fill amongst and behind them examined.

The superstructure consists of two

^{11A} G. C. Hillman, Personal Communication.

¹² Plot IIIE, below IIID, produced no stratified

deposits earlier than Byzantine and has been backfilled.

brick types. The lower and uppermost parts are built from crumbly dark grey bricks; sandwiched between these layers is a 1.20 m. thick band of green bricks of the same crumbly texture. The divisions occur consistently across one course. A thin (ca. 2-3 cm.) layer of mud-plaster was applied to both faces.

A group of four round holes, between 0.28 and 0.35 m. deep, describe an arc in the body of the wall. It is possible that these holes represent an original structural feature of the wall (reinforcing beams?); but since they lie directly under late rubbish it is, perhaps, more likely that they reflect secondary activity. They contained no material that could be identified as wood.

As can be seen in the the plan (Fig. 3) the outer face of the wall seems to be turning slightly to the north before running into the unexcavated deposits in IIIC. This may be partly due to the inward cant of the wall's upper courses. The ancient topography in this area is not yet established. The wall is probably running uphill over the neck which connects the site of Khirbet Fahl to the eastern hills. This rise would account for some of the eleven metres which separates the height of the preserved top of the wall where it enters IIIC from the base level in the south-east corner of IIID.

In this latter area, outside the wall, are the very heavily eroded remains of another large feature built of hard, clayey, yellow mud-bricks. This also is probably an element of Pella's Middle Bronze -Age defensive system, but in its present state and with the limited area so far exposed, one can not be sure. Its northern limit runs almost parallel to the northern end of the buttress but its southern and eastern limits are undefined; it extends into the baulks in both directions, covering the entire south-east corner of the plot (except for a small area where it has been eroded completely away onto earlier material, as yet unexcavated). The top nowhere survives; the preserved brickwork rises to a maximum height of 4.50 m. against the buttress. it

seems to have been built right up against the face of the town wall; its courses run parallel to the latter, and preserve in negative the line of the destroyed southern corner of the buttress. What function it served one can, at this stage, only speculate upon: most probably it is another large wall, but it may be a massive buttressing.

Plot IIIF, 5.00 x 10.00 m. immediately east of IIIC, was established this season to recover the rest of two MB IIc rooms in IIIC which yielded an unusual group of artefacts in 1981.¹³ As it turned out, these rooms continued for approximately a metre only and produced nothing exceptional. But the plot proved rewarding for other reasons; below and east of the rooms lies a mud-brick wall, 3.58 m. wide, running approximately east-west (Fig. 3). As with the town wall, the primary related surfaces have not been reached: on the north side a series of secondary wash and rubbish deposits dating to MB IIb-C have been encountered below a thick Hellenistic fill extending into IIIF from IIIC.¹⁴ On the south the bottom of the deep Roman-Umayyad rubbish has not yet been reached. But the stratified rubbish north of the wall at least provides a *terminus ante quem* which is confirmed by the typical Middle Bronze Age bricks — hard, clayey, yellow-brown — employed in its construction. This dating indicates that the wall in IIIF must be at least partly contemporary with the town wall in IIID. The details of their stratigraphic relationship, however, cannot yet be described since the junction in IIIC has not been excavated.

Both faces of the wall are well-preserved up to the point where the hard yellow-brown bricks give way to completely different crumbly chocolate coloured bricks with cream mortar. This upper brickwork formed the eastern limit of the northern of the two Phase A rooms from IIIC and eventually collapsed into it. No true face of this chocolate coloured brickwork survives but it is preserved over almost the full width of the original wall and was probably of comparable dimensions. At some stage, perhaps contempor-

¹³ See *Pella in Jordan 1*, p. 49 and fig. 6a.

¹⁴ See *Pella in Jordan 1*, p. 68, fig. 12.

ary with this rebuilding, a skin wall in harder brown bricks was added to the northern face slightly off-set to the north. Only its western end was preserved.

A construction date for the walls in IIID and IIIF cannot be given until their primary surface have been uncovered. For the time being the earliest *terminus ante quem* is provided by the small amount of pottery from the structure built against the inside of the town wall in the north-west corner of IIID. One complete room has been excavated along with a small part of the adjacent room to the north. They are over 4.00 m. higher than the base level of the town wall's outer face, but this may be at least partly the result of terracing or natural fall on the side of the mound. Unfortunately, very little pottery was left *in situ* on the floors; most of the material recovered relates to an intentional fill which was brought in for the next construction phase of which very few traces remained (much more awaits excavation in IIIC). At present only a date in the Middle Bronze Age can be assured.

The walls of the room are mud-brick on stone foundations and survive to a maximum height of over one metre. The interior faces carry a coating of pebbly mud-plaster which thickens considerably from ca. 3 cm. to over 15 cm. as it curves onto the floor. The room has no doorway; entry must have been from above.

Finds were very few in IIID and IIIF. The Hellenistic fill in IIIF produced a faience "common style" Mitannian cylinder seal (70037) showing a recumbent antelope (Pl. XXXVIII: 2). Lower down in the MB II rubbish against the IIIF wall, part of a calcite/alabaster bowl (70132) decorated with a ram's head (presumably one of four) was found. A similar complete bowl was recovered from a Pella tomb in the second season (unpublished).

Middle-Late Bronze Age Domestic Architecture (IIIC) (Fig. 4)

In the 1981/2 season a thick chip-lime plaster floor associated with the large stone wall (IIIC Wall 3), running north-south

through the plot, was uncovered.¹⁵ These belong to building Phase V in the sequence published in *Pella in Jordan 1*, pp. 49 ff. In the two subsequent seasons the remainder of this phase, extending into IIID, was excavated and removed and approximately 1.20 m. of earlier Middle Bronze Age strata uncovered. The southernmost stones of wall 3 are now all that remain of Phase V.

The trenches of the Phase V walls were deep and have seriously interrupted the stratigraphy of the lower deposits. More excavation will be necessary before a clear picture can be drawn; at present the building sequence seems to be as follows.

The earliest feature uncovered consists of three sides of a rectangular room 4.10 m. wide and over 6.10 m. long. The walls (Wall 35) are constructed of dark bricks, not particularly hard, on a neatly laid stone foundation. The south-east corner is still obscured by the last vestige of Wall 3 and the west wall lies unexcavated beyond the plot in IIIN. There is as yet no doorway. The southern wall was built directly against a 1.90 m. wide hard, yellow mud-brick wall (Wall 27), which is probably an earlier construction corresponding to a late phase in the use of the green mud-brick wall; it runs up to, and seems to be cut into the latter.

Another wall (Wall 34) was built immediately against the inside of the room on the north and east side effectively widening its walls and reducing the interior space. No bricks are visible, but the line of the walls is clear from the mud-plastered inner face and the homogeneous red-brown gritty texture of the body of the walls. They have not yet been excavated to their bases so their stratigraphic relationship to Wall 35 is unknown.

The lowest floor of the room yet excavated consists of fine white plaster (IIIC 37.17). A stone-lined pit (F.75) nearly 2.00 m. deep was sunk from this floor near the northern wall. Judging by the discolouration of the sherds inside, it was probably a cesspit. A sequence of later floors and packing was best preserved to

¹⁵ See *ADAJ*, XXVII (1983), p. 331-336.

ca. 0.80 m. depth in the north-east corner of the room (IIC, 37.13, 39.1, 39.3-5, 39.8-9) and along the western baulk (IIC 37.11, 37.13). Elsewhere they were largely cut away by the levelling operations and trenches for the walls of Phase V (see below). After a thicker packing (and probably a partial collapse), IIC 37.4, another series of floors and packing occur (IIC 36.9, 37.1-3, 37.5-7, 37.9-10). These were only preserved over an area of ca. 1.00 m.² against the western baulk, so it is unclear how much of the room was still standing at this stage.

Contemporary with the second lowest floor (IIC 37.13) the cesspit was filled with soil and smaller stones used to line a shallower pit (F. 69). A large pit (F. 72) was cut further west extending into the IIC/IIN baulk.

Remains of a later architectural phase were encountered in the north of the plot. Two walls running north-south (walls 29 and 30) and two running east-west (walls 32 and 33) define parts of two small rooms immediately north of the earlier structure. The surviving courses are of small to medium-sized stones which, in the case of Wall 32, lie directly over the western end of the north wall of the earlier room (Wall 35). At least this part of that structure must, by then, have fallen into disuse. The associated surfaces are very disturbed, and the floor contemporary with 37.17 has not yet been reached in this area. The floors of these strata were kept very clean and produced very few finds. They included parts of a bone pin (70065) and a gypsum/calcite bowl (70076).

The late Middle Bronze Age strata extend a little way into the north-west corner of plot IID before being cut off by erosion. In this area, south of the wide mud-brick Wall 27, a sequence of floors similar to those inside the large room was excavated, including a fine white plaster surface corresponding to IIC 37.17. More floors below this have been excavated in this locus proving that Wall 27 dates back to an earlier period and remained in use for

a considerable time. Again the surfaces were kept well-cleaned; a group of three large well-preserved bone awls were among the few artefacts recovered.

Above these strata in the western two-thirds of plots IIC/D lay a collapse and levelling deposit (IIC 30.9, 36.8) from the top of which the trenches for the Phase V walls were dug.¹⁶ A further wall belonging to Phase V was discovered in the north-west corner of IID (Wall 28). It runs approximately east-west and its dimensions (1.20 m. wide, surviving to a height of 1.40 m. in the western baulk) and monumental construction indicate that it is the southern return to Wall 3 of IIC. Erosion has completely destroyed their junction at the southeast corner of the plastered room (locus 36). It was suggested in a previous report¹⁷ that Wall 3 may represent the town wall of the Late Bronze Age. This is now thrown into some doubt. The stretch of similar walling excavated in Area XXVIII A (see below) is relevant to this issue. At present, it must be admitted that either or both of these constructions may belong not to a defensive circuit, but to large buildings.

The trenches for the Phase V walls (IIC Walls 3, 15/31, 16, 17 and 28) varied in depth from 1.05 m. to only 0.10 m. When they had been excavated and beds of small stone footings laid, Walls 3, 15, 16, 17 and 28 were built and a thick chip-lime plaster floor (IIC 36.7) laid over the whole area. This floor covered the footings of Wall 31. After an interval of undetermined length, this wall was built directly upon the plaster floor, thereby connecting the corner of Walls 15/16 to Wall 3. The later architectural additions and replastering of this surface were excavated in the fourth season and have been described in a previous report.¹⁸

The function of the Middle-Late Bronze Age architecture in IIC is not entirely clear. The large room with plastered floor and cesspit and the stone walls which succeed it to the north are probably domestic, but Wall 27 suggests a more

¹⁶ *Ibid.* and Pella in *Jordan 1*, p. 49.

¹⁷ *Pella in Jordan 1*, p. 58.

¹⁸ *ADAJ*, XXVII (1983), p. 331.

monumental construction. Its connection with the mud-brick town wall (visible in the erosion section at the southern end of IIC) raises the possibility that it is too an element of the city defenses. The uncertainty regarding the function of the Phase V structure was mentioned above. It may be added here that any defensive advantage deriving from the monumental quality of Walls 3 and 28 would have been partly negated by the Phase A collapse¹⁹ and the remains of the mud-brick town wall which was left standing, albeit in a dilapidated state, immediately outside Wall 3.

Ivories and Cuneiform Tablets from a Phase V Pit (Plot IIC)

The most spectacular finds of the season came from a pit (F. 80) cut down from a Phase V floor into Wall 27 of plot IIC. The pit was sealed by a layer of thick chip-lime plaster from one of the Phase V floors, IIC 36.1 and 36.7, and partly covered by the western end of wall 25/26 (Fig. 4).

The artefacts were concentrated in the lower thirty centimetres. Unfortunately, the upper soil contents (which contained nothing unusual) was excavated in the fifth season and erosion between seasons destroyed part of one side of the ivory box 70402. A few pieces of a second container, 70416, were recovered at the edge of the pit; more of this may also have been lost.

It is difficult to say why this unlikely group of objects came to be deposited in a pit. Only the ivories are of a value worth hiding. The goods were distributed irregularly about the bottom of the pit apparently at different times.

Of the ivories, the more complete is the "Lion Box" (Pl. XXXIX). The box itself was made of wood which has completely perished. We are left with the ivory inlays which decorated its sides (70402) and lid (70415). Fortunately they retained their original juxtaposition in the soil thereby permitting a confident reconstruction of its shape and dimensions, though

some points of detail remain uncertain.

The box was rectangular, 13.2 x 8.6 cms. Each side consists of three rectangular panels, a large undecorated panel in the centre with smaller decorated panels either side. The panels are surrounded on all sides by thin matchstick-like ivory bars. All of these elements were inlaid into the wooden frame. On the box's short sides, the two side panels of ivory are overlaid with separately carved Djed pillars modelled in low relief. On the box's long sides, the side panels carry pairs of papyrus fronds touching at the top of the stalks, another well-known Egyptian motif. The central panels may also originally have carried decorative elements. The present arrangement with all the decoration concentrated at the corners makes for an odd and unlikely effect. Since all four central designs are missing one may conjecture that they were crafted from some perishable material such as ebony or of a valuable and/or reusable material such as gold which has been removed.

The lid of the box lay about ten centimetres away. It carries two compositions: a pair of rampant antithetical lions, their front paws resting on a pair of intertwined serpents, all on a rectangular background consisting of ten flat ivory panels; and an Egyptian winged disc bordered below by a third serpent. The juxtaposition of these compositions in the soil, upside-down to one another and at an angle of about 60°, indicates that the lid was not flat but rose to a ridge at one end in the manner of many Egyptian boxes.²⁰ The triangular openings on the sides of the ridge accommodated ivory "eyes of Horus".

Egyptian lids of this type were slid into place and secured by tying string around a pair of knobs, one set in the ridged end of the lid and another in the short side below. A gold-capped bronze "stud" found in the pit is probably one of these (70433). Two other small pieces of gold may also derive

¹⁹ *Pella in Jordan 1*, p. 49, fig. 6a.

²⁰ See, for example, the boxes from Tutankhamen's tomb: H. Carter and A. C. Mace. *The Tomb of*

Tutankhamen (1933), Vol. I, Pl. LVI: B; Vol. III, Pl. LXXI: A.

from the box. One is a group of three small gold links (70438), the other a piece of sheet gold moulded into the form of a segmented gable (70444).

The style of the box is difficult to localise. Many elements are unambiguously Egyptian: the Djed pillars, papyrus fronds, winged disc, intertwined serpents, and Wedjet eyes. But the most prominent figures — the lions — are not. While close parallels are elusive, their antithetical arrangement and style are, in general terms, Levantine. The stylized rendering of the manes in a double curve on the shoulder and projecting in a sharp point in front of the chest links them to the lions and sphinxes from Acemhüyük dated to the eighteenth or nineteenth century B.C.²¹ and raises the possibility that the Pella box is substantially older than its context of deposition.

However that may be, it is clearly a work of the very highest technical and artistic quality. Both in conception and execution the hand of a master craftsman is evident. The technique of placing cut-out figures modelled in low relief on plain ivory panels seems to be previously unattested in the ancient Near East.

Fragments of a second container inlaid with ivory (70416) were found a few centimetres away (Pl. XXXVIII: 1). In this case not enough survived to permit reconstruction of the original shape or dimensions. The body of the container must again have been made of wood. All the surviving pieces probably come from the decoration of its sides. Two complete and one fragmentary Djed pillars are preserved. As in the Lion Box they are surrounded by match stick-like bars but

unlike that box they were set directly on the wood, not on plain ivory panels. Two tall plain rectangular panels do survive but these were placed separately beside the Djed pillars. It is again possible that the back panels and framed areas held motifs made from another material which has been removed or has perished.

The workmanship and technique of the two boxes are very similar. They may be products of the same workshop or even the same craftsman.

A few centimetres lower were fragments of two cuneiform tablets of unbaked clay (70417, 70418) (Pl. XXXVIII: 3). Both are damaged and no complete words can now be read. They are nonetheless an important addition to the still extremely limited corpus of Bronze Age cuneiform inscriptions from Palestine and Transjordan²² and provide the earliest evidence yet of literacy at Pella.²³

A third clay fragment carries part of the impression of a stamp seal, probably a scarab. The design consists of a striding man in conquering pose, holding aloft a mace with which he is about to smite a kneeling victim. This familiar Egyptian motif seems not to appear on scarabs before the reign of Tuthmosis III²⁴ and may, therefore, prove crucial for the dating of the other contents of the pit. The right edge of the impression is lost but around the rest of the oval field is a smooth groove, U-shaped in section, corresponding to the seal's mount, probably gold. The fragment is too small to allow definite identification of the type of document. It may be part of a tablet, but it could also be a clay tag or sealing. Boxes, including those with ridged lids like the Lion Box,

²¹ C. Decamps de Mertenfeld, *Inventaire commenté des ivoires phéniciens et apparentés dans le Proche-Orient*, Paris 1954, pl. CXXVI: 1088, 1089; Pl. CXXVII: 1093, 1096. For date: P. O. Harper, *The Connoisseur* (Nov. 1969), p. 156-162.

²² One Akkadian tablet has previously been found east of the Jordan River at the Iron Age site of Tawilan: S. Dalley, *Levant XVI* (1984), p. 19-22.

²³ Previously the earliest evidence of writing at Pella were the two fourteenth century tablets found at el-Amarna in Egypt; J. A. Knudson, *Die El-*

Amarna Tafeln, Leipzig, 1915, nos 255, 256.

²⁴ Compare W. F. Petrie, *Scarabs and Cylinders with Names*, London, 1917, Pl. XXVII, nos. 41, 42; E. Horning and E. Staehelin (eds) *Skarabäen und andere Siegelamulette aus Basler Sammlungen*, Mainz 1976, nos. 305-309 (and p. 188 for a discussion of this motif); H. R. Hall, *Catalogue of Egyptian Scarabs etc. in the British Museum*, Vol. I, *Royal Scarabs*, London 1913, nos 1108-1115. On the problem of dating such representations see: B. Jaeger, *Essai de classification et datation des scarabées Menkhéperre*, Göttingen 1982, esp. p. 167.

were sealed in this manner. Unfortunately, the back of the impression, which would in this case have received the imprint of the string, has not been preserved. It does, however, have finger impressions on the left side which are not evident on either of the tablets.

A close date for the pit cannot be given until the Phase V pottery has been analysed. A preliminary assessment suggests a range in the late sixteenth or fifteenth century B.C.

Area XXVIII

Area XXVIII, established in the sixth season, is located approximately mid-way along the southern crest of the *tell* above a precipitous drop into the Wadi Jirm. Erosion has been very severe here as elsewhere on the southern slope of the mound, and a series of wash gulleys have cut deeply into the side of the *tell*. One of these revealed the existence of a large stone wall running east-west along the edge of the *tell* and since further erosion will soon cause its collapse a small trench was established against its inner face (Plot XXVIII A). The wall attracted attention because of the similarity in its dimensions (still standing to over 2.00 m.) and monumental construction to Walls 3 and 28 in Plots IIIC and IIID at the southeastern corner of the *tell* (see above). As was mentioned above, the function of these latter walls remains uncertain, particularly the question of whether they constitute a Middle-Late Bronze Age town wall. It was hoped that the new stretch might, if proved contemporary, help to settle this issue. It is situated where one would expect a defensive circuit to run, right along the *tell*'s edge, but how far it extends in either direction is unclear. If it continued any considerable distance some stretches will have been destroyed by the deeper wash gulleys but enough should survive to establish a connexion with Wall 28 of IIID. As yet, however, we have nothing but their constructional similarity to judge by; they may prove to be independent construc-

tions.

The uppermost levels of XXVIII A consisted of a paved Byzantine floor and retaining wall. Approximately 0.50 m. of underlying deposits adjacent to the highest surviving course of the wall have been excavated. These date to MBIIB-C but until the manner of the wall's construction (freestanding, terrace, or trench-built) has been determined, this cannot provide a *terminus ante quem* for its erection.

Two pit burials cut from two successive floor surfaces inside the wall were excavated. The lower contained the skeletons of three infants accompanied by a torpedo juglet, a black burnished juglet and a carinated bowl (chalice). The higher grave (Feature 10) is situated in the north-west corner of the plot and the north and west edges of the grave lie just in the baulks. All of the contents, however, were recovered. The sides of the grave are lined with medium-sized flat-faced stones.

The grave contained the articulated skeletons of four adults/ sub-adults and the following offerings: a lamp (72170), a low, open bowl (72215), two carinated bowls (chalices) (72291, 72318), two cylindrical juglets (72332, 72290), a copper/bronze pin (70344), a wedge-shaped piece of bone, bored through and incised (70319), geometrically engraved bone inlays from three wooden boxes, a faience flask decorated with the pattern of a lotus flower (70323) and the shells of two tortoises (70337, 70338).

Both graves were discovered near the end of the season and the processing and recording of the material is not completed.

T. F. Potts

The Late Bronze-Early Iron Ages (Areas III and IV)

In Plot IIIN the Early Iron Age house of Phase IA,²⁵ which had been destroyed by fire, was removed and an earlier architectural phase uncovered. This is Phase II in the sequence established in

²⁵ ADAJ XXVIII (1984), p. 64 ff.

IIIC.²⁶ The preserved architecture consists of parts of three stone walls (Walls 54, 55, 59) in the south-west quadrant of the plot (Pl. XL: 1). To the north is a courtyard with three *tabūn* ovens (Features 88, 93, 94) and a number of pits (Features 82, 85, 86).

The walls are constructed of medium-sized stones not as carefully laid as in the succeeding phase. They survive to a few courses only; the superstructure was presumably mud-brick. The floors consist of tamped earth.

In Plot IIIC a number of vestigial surfaces overlaid the main phase II floor, IIIC 16.²⁷ These, along with the Phase IB surface, lensed out towards the west and did not reach the IIIN west baulk. This accounts for the slope of the Phase IA floor west of the pillar bases.²⁸

Phase II does not seem to have been destroyed. No complete vessels were found *in situ* and apart from the usual domestic inventory — sherds, basalt quern fragments — the lower half of a ceramic nude female figurine (70198), Two “spindle whorls” (70069, 70207) and fragments of a bronze pin (70256) were the only notable finds. The Phase IB deposits, though not related to any architecture, produced a copper/bronze bracelet fragment (70026), the pelvis of another nude female figurine (70052), and half of a cylindrical bone container decorated at each end with bands of cross-hatching (70055). This last piece is probably a survival from the Early Bronze Age.²⁹ The pottery largely repeats that recovered in IIIC and will be illustrated in the forthcoming interim report *Pella in Jordan 2*.

By the end of the season, the western continuation of the phase III²² walls from IIIC (Wall 9 and F.20) were beginning to appear in the eastern half of IIIN but only a small area of the associated floor was

reached (Pl. XL: 1). Among the finds from this phase are a bone “spindle whorl” (70326), a disc-shaped ceramic lid (?) (70329), a clay “spindle whorl” (70260) and fragments of bronze pins (70219, 70309).

In Plot IIIQ, immediately west of IIIN, the last of the Roman deposits were removed and the uppermost Iron Age strata exposed. These levels are very disturbed; only a few wall stumps and *tawa-been* survive. The latest reconstructable architecture, that of Phase IA, was reached at the end of the season. Only the tops of the walls have yet been uncovered; none of the floor has been excavated.

In Plot IVE, ten metres north of IIIQ, the uppermost Iron Age levels are again poorly preserved and the stratigraphy interrupted by the deep foundation trenches of Hellenistic walls. Very little architecture has survived. The walls are poorly built of medium-sized stones. The stratigraphy here cannot be tied to that of Area III until Plot IIIP, between IVE and IIIQ, has been taken down to these levels.

The metre or so of Iron Age deposits excavated so far in IVE consists of a close sequence of poorly defined surfaces, wash and rubbish deposits with occasional fills or collapses. Very few of these deposits can be confidently followed any distance and this uncertainty is compounded by the Hellenistic trenches which divide the plot into a number of stratigraphically isolated units. The lowest surface uncovered was burnt in the small area excavated. On the floor lay a pair of jugs one of which contained twelve carbonized wooden spindle whorls (70340) (Pl. XL:2) and a conical clay stamp seal (70341) (Pl. XL: 3). The figures on the seal are rendered in a crude, purely linear style. two quadrupeds and a snake are visible around the edge but the identity of the central motif is unclear.

²⁶ *Pella in Jordan 1*, p. 56-58, fig. 7a. The separate phasing for IIIN in *ADAJ XXVII* (1983), p. 336-342, is partly incorrect and now entirely superseded. (The revised phasing of the upper strata of this plot will appear in *Pella in Jordan 2* (forthcoming)). The one phase sequence now applies to all plots of Areas III and IV.

²⁷ *Pella in Jordan 1*, p. 56.

²⁸ *ADAJ XXVIII* (1984), in press.

²⁹ For comparanda and discussion see J.B. Hennessey, *The Foreign Relations of Palestine in the Early Bronze Age*, London 1967, 82-3, Pl. LXXVII: 12-17.

³⁰ *Pella in Jordan 1*, p. 58, fig. 7b.

The latest continuous surface, *ca.* one metre higher, was also heavily burnt. This is the only floor that can be followed across a large area of the plot. Towards the centre lay the remains of nine large storage jars, burnt and broken in the conflagration (Fig. 11:6). They sat upon an area of stone paving evidently intended for this purpose. The rest of the floor consisted of tamped earth.

The most important finds came from a thick deposit (*ca.* 0.30 m.) of broken pottery in the north-west corner of the plot. The stratigraphy is disturbed but there are enough indications to be sure that this deposit falls between the two burnt surfaces described above. It was cut into by a later pit which has unfortunately removed some of the sherds. In addition to a large number of vessel fragments, the deposit contained parts of two ceramic cult stands (Pls. XLI, XLII). Both are tower-shaped with flat sides and stand about 0.50 m. high with a flat tray near the top of the interior. The more complete (72064) (Pl. XLI), is decorated on each side with two incised pine trees separated by horizontal bands of "rope" decoration, and double rows of applied "studs" below the rim. Horn-like swellings at each corner imitate the familiar stone altars from Palestine. The exterior surface is applied with a red wash. The interior tray was more than once relined with plaster and a new coat of red wash.

The other stand (72066) (Pl. XLII), is less complete. The best preserved side, presumably the front, carried two moulded figures of the nude goddess Astarte standing above the modelled head of a feline.³¹ Her arms fall straight by her sides; her hair falls in a curl either side of the face in the familiar manner deriving from representation of the Egyptian goddess Hathor. Above the figures are six applied bands of plain and "rope" decoration and above

these two rows of incised double chevrons. The other sides, of which fragments survive, are covered with a thick red slip and decorated with geometric designs in yellow paint. The lowermost rope band of the front continues along the sides but changes to a plain band at the back. None of the base and very little of the interior tray was recovered but a small part of rim, from which rises a modelled human head, survived. This head was set at the right rear corner of the offering tray facing inwards. It carries the same red and yellow decoration as the sides. Below the rim is set a single row of studs. Traces of blackening from fire inside the rim and around the face suggest that this stand once held burnt offerings, presumably to Astarte. Similar blackening on the front facade is less easily explained.

A close date for the cult stands cannot be given until the associated pottery has been fully analysed. A selection is illustrated in Figures 11: 1-5; 7; 8. Parallels with cult stands and vessels from Taanach, Megiddo³² and elsewhere suggest a broad eleventh - ninth century B.C. range, with the tenth century perhaps the most likely. The fabric, firing and slip of the horned stand (72064) are very similar to one of the Taanach stands which has been dated to that century.³³ Some Cypriot black-on-red ware sherds which were recovered from the deposit support such a dating (Fig. 11:2).

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Tombs

The search for tombs was conducted throughout the season by Mr. Sultan Shraideh of the Department of Antiquities. An unsuccessful investigation was made of the hill immediately to the west of the *tell*, now covered by an orchard, where

³¹ The top half of the left Astarte and the right feline head were missing and have been restored at the Ashmolean Museum, Oxford.

³² Taanach: P. Lapp, *BASOR* 195 (1969), p. 42-44; Megiddo: H.G. May, *Material Remains of the Megiddo Cult*, Chicago, OIP XXVI, 1935, Pls.

XIII-XV. For the Astarte stand compare also the earlier stands and house models from Meskene on the Euphrates: J. Margueron, *Syria* LIII (1976), p. 193-232, especially "Tour J", "Tour O", and "Maison V". A fuller study of the Pella cult stands and comparanda will appear later.

³³ Lapp, *loc. cit.*

road-building had uncovered Middle-Late Bronze Age tombs. A deep trench in Area XI on the steep north slope of Tell Husn uncovered part of a Roman or Byzantine rock-cut chamber ("Tomb 63"); it is probably not a tomb and work here was discontinued.

Area VI

Tomb 60³⁴ is a looted MBIIC or LBI pit tomb. Its contents had been thoroughly robbed, perhaps during the cutting of an adjacent Roman/Byzantine tomb. The scattered fragments of a chocolate-on-white jar are all that remain to indicate its date; an Iron Age bar-handled bowl found higher in the fill must be intrusive.

Tomb 61, like its neighbour Tomb 52,³⁵ had also been robbed. The plan suggests a Late Roman date.

Tomb 64 is located further to the south, beside Tomb 54, which was excavated in the fifth season.³⁶ It was discovered on the last day of excavations and the recording of the artefacts has had to be held over until the next season. Like Tomb 54 it contained quantities of well-preserved timber from coffins and beams presumably employed to support the roof. This was not successful and much of the roof has collapsed. The bones from the *loculi*, however, are in an excellent state of preservation as are the other organic remains; a tuft of hair, a pair of leather sandals and a bed of leaves under one of the skeletons.

The tomb was robbed after the roof had begun to collapse (some of the fall was used to prop open the lid of one of the sarcophagi) and most of the artefacts removed. Some lamps and other vessels of clay and glass were recovered inside the tomb and in the *dromos* around the door. The date of the tomb is probably close to that of Tomb 54 but a definite statement must await further analysis.

Area XI

Tomb 62 (Fig. 5) is located on the north-east crest of Tell Husn about twenty metres along the contour from Tombs 20 and 22³⁷ with which it is largely contemporary. It consists of three rock-cut chambers entered through a short *dromos*. The roof of chambers 1 and 2 had completely collapsed and that of chamber 3 partially fallen thereby crushing much of the pottery below, but still hundreds of vessels were retrieved, virtually or completely intact. The total inventory of approximately two thousand artefacts makes Tomb 62 much the richest burial discovered at Pella and one of the very largest of its date in the Levant.³⁸

The burials were seriously disturbed by roof collapse and water action. The bones are very fragmentary and what survives is in an extremely poor state. An estimate of the number of interments will probably have to be based chiefly on the teeth. Preliminary impressions suggest a hundred or more individuals.

The majority of funerary offerings consist of pottery vessels dating to L.B. IA, perhaps beginning at the end of MBIIC (Figs. 9, 10). The types includes many familiar forms: lamps, low, open bowls (plain, red slip and occasionally with a thin white slip), simple carinate or round profile bowls (plain and red slip), double carinate bowls ("chalices"), ovoid two-handled jars, large and small dipper juglets, cylindrical juglets (plain, red burnished, black burnished and white burnished), white slip bowls and white slip jars. The painted vessels include some unusual pieces. In addition to the typical chocolate-on-white jars (Fig. 9:2) and low open bowls, there are also three cylindrical juglets (Fig. 9:3), two amphoriskoi (Pl. 16.4), and a carinate bowl (the typical white slip bowl form) in this style of

³⁴ Tomb numbers 55 to 59 were not assigned this season.

³⁵ *ADAJ* XXVIII (1984), in press.

³⁶ *Ibid.*

³⁷ *Pella in Jordan 1*, p. 43-49.

³⁸ Compare the tomb excavated by C., Clamer at

Tell Balata (Schechem), in 1976: *Qadmoniot* XIV, 1-2 (1981), p. 30-34; *IEJ* 27 (1977), p. 48. The Schechem tomb contains parallels for much of the Tomb 62 pottery and small finds. However, it continues later (into LB IIA) and seems to be somewhat larger.

decoration. Other vessels have a less resilient white slip covering only the upper half of the vessel (Fig. 10:3) and form an easily recognisable variant. The "chocolate" decoration is often actually bichrome; usually a purple-brown and a rusty orange. Some cruder jars imitate the chocolate-on-white designs, especially the solid pendant triangles, in red-brown paint on an unslipped surface. Some of the white slip bowls have a markedly coarser fabric and carry a thin, unburnished slip. These also may be local imitations.

Beside these Transjordanian and Palestinian types there are also Cypriot imports: a number of spherical black lustrous wheelmade ware juglets (Fig. 9: 5), a monochrome bowl and a red lustrous wheelmade ware "spindle bottle".

Other contents of the tomb include: many scarabs; three cylinder seals; copper/bronze toggle pins, earrings, arrow heads and a knife; glass beads (including mould-made "spacer beads"); bone inlays, incised with geometrical designs, from wooden boxes; bone "spindle whorls" (buttons?); a palmwood "spindle whorl"; calcite/alabaster flasks; a silver crescent earring; frit, banded agate, carnelian and other stone beads; two gold earrings and a gold toggle pin.

When the contents of the first chamber were removed a tamped earth floor appeared underneath. This proved to be the uppermost of a series of surfaces and floor packings, approximately 0.30 m. thick. On one of these surfaces lay numerous basalt querns, grinding stones and potsherds. These include typical domestic forms such as cooking pots, dating to the late Middle Bronze Age. Evidently the three chambers had originally functioned not as a tomb but as a food processing area.³⁹

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Catalogue of Bronze and Iron Age Pottery, (Figures 9-11).

All vessels are wheel-made. Scale of illustrations, 1:3

Figure 9: Tomb 62 (Area XI)

1. CN 5009 (Reg. no. 72062) Loc. 1 lev. 2
Carinated bowl. Monochrome decoration. Fairly finely levigated clay with fine to medium chert and lime grits. Fired buff throughout. Very friable.
2. CN 5353 (Reg. no. 72340) Loc. 1 lev. 2
Jug. Chocolate-on-White Ware. Well levigated clay with some chert and lime inclusions. Fired hard, light buff throughout. Creamy burnished white slip on exterior and base of neck interior. Slip worn in bands on interior of neck and in patches of exterior. Purple-brown painted decoration. Rim chipped; otherwise intact.
3. CN 5354 (Reg. no. 72341) Loc. 1 lev. 2
Cylindrical juglet. Chocolate-on-White Ware. Very finely levigated clay with no visible grits. Fired hard, metallic grey at core and pale buff at edges. White slip all over. Decorated in purple-brown paint.
4. CN 5053 (Reg. no. 72084) Loc. 1 lev. 2
Amphoriskos. Chocolate-on-White Ware. Fairly well levigated clay with some small chert grits. Fired light buff throughout; soft and chalky. White slipped from just below shoulder carination up and over lip (note that the drawing is incorrect in showing the slip all over). Purple-brown painted decoration.
5. CN 5236 (Reg. no. 72224)
Juglet. Cypriot Black Lustrous Wheelmade Ware. Very finely levigated clay fired dark grey throughout.

Figure 10: Tomb 62 (Area XI)

1. CN 5984 (Reg. no. 72098) Loc. 1 lev. 2
Bowl. Undecorated. Fairly levigated

³⁹ It is interesting to compare this with the reuse of an earlier (Chalcolithic-EB I) burial chamber for the Shechem tomb; see previous note.

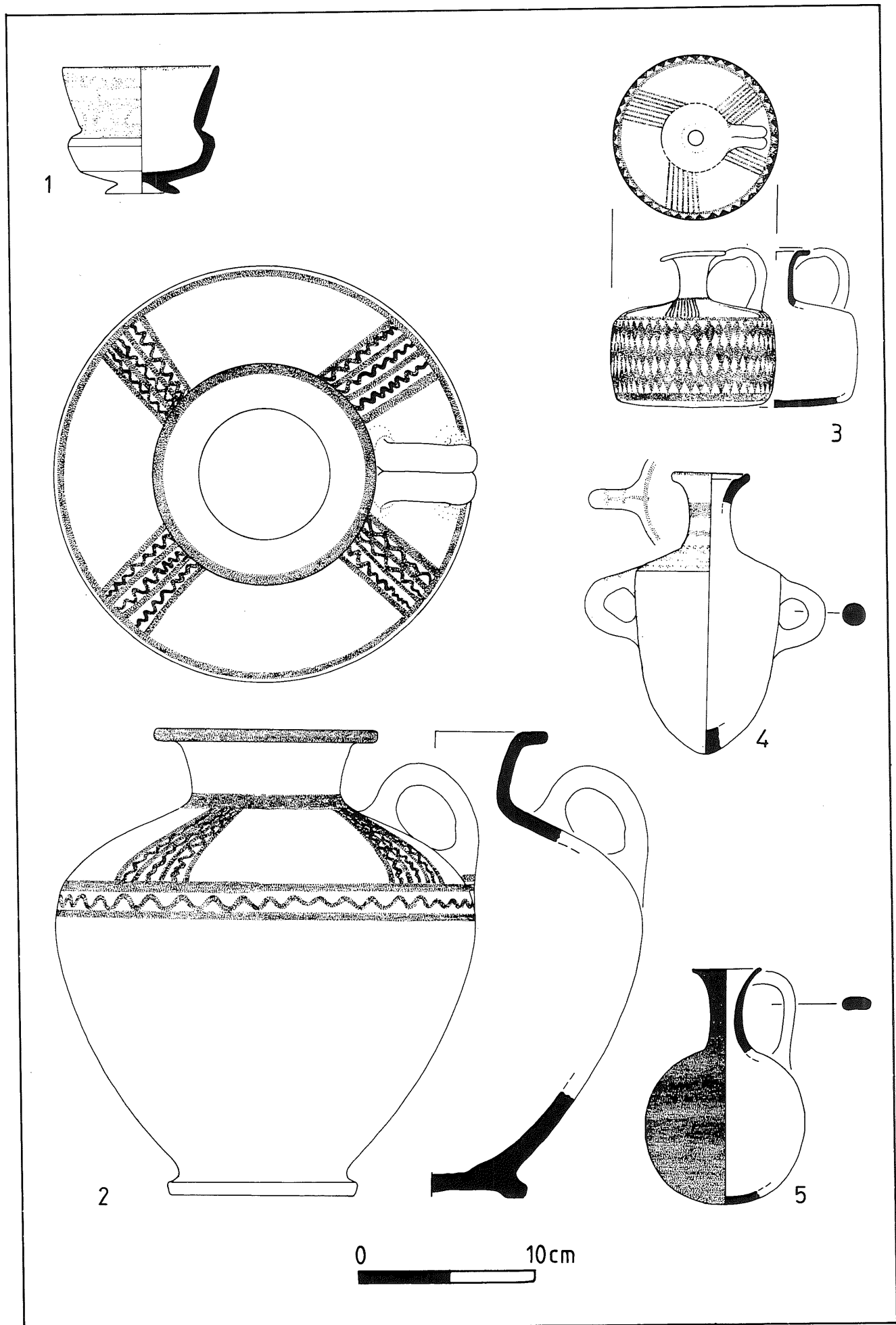


Fig. 9: Pella. Tomb 62 pottery. M.B. IIc-L.B. Ia

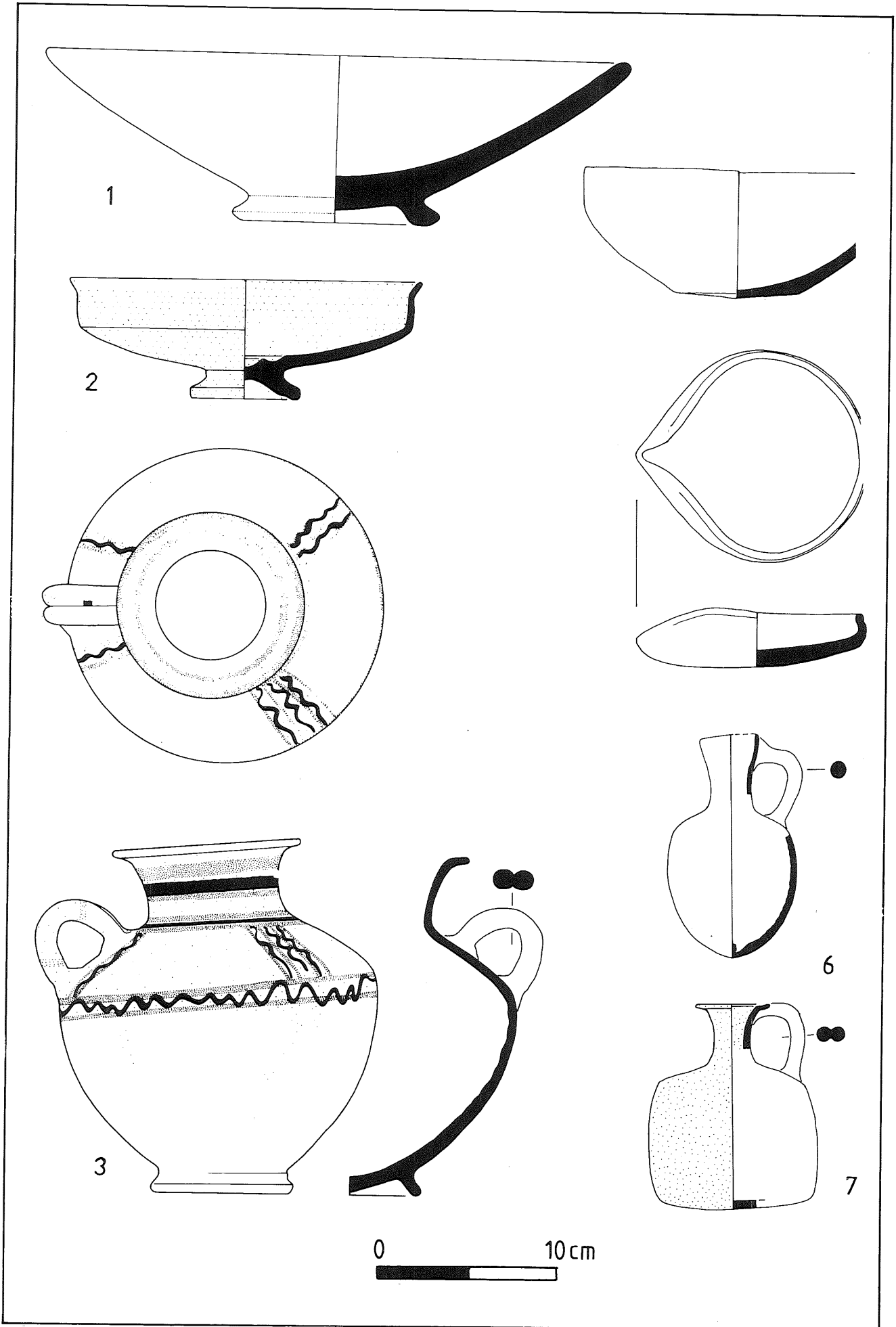


Fig. 10: Pella. Tomb 62 pottery. M.B. IIc-L.B. Ia.

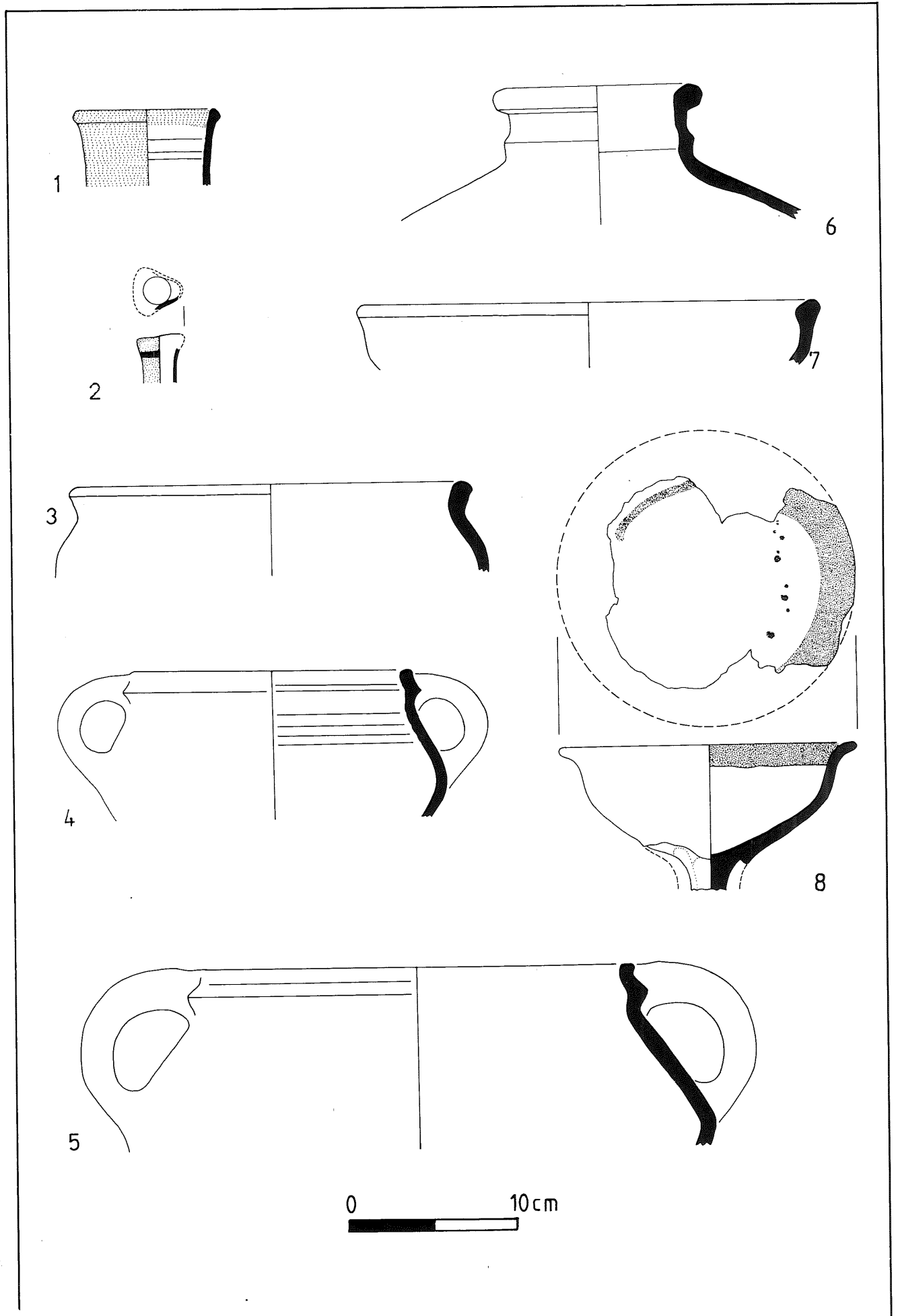


Fig. 11: Pella. Plot IV E. Early Iron Age Pottery.

- clay with many small and some large, mainly chert, inclusions. Fired buff with orange exterior and grey on interior towards the core.
2. CN 5115 (Reg. no. 72119) Loc. 1 lev. 2
Bowl. White slip. Very well levigated clay with some tiny red and white grits. Fired creamy buff throughout. Burnished white slip all over.
 3. CN 4977 (Reg. no. 72040) Loc. 2 lev. 1
Jug. Chocolate-on-white Ware. Fairly levigated clay fired light orange-brown; fairly soft ware. Vestigial white slip from shoulder up. Bichrome decoration in black and red-brown paint.
 4. CN 4947 (Reg. no. 72011) Loc. 1 lev. 2
Bowl. Undecorated. Fairly levigated with fine and medium chert and lime grits. Fired hard buff at core and reddish-buff at surfaces.
 5. CN 4968 (Reg. no. 72032) Loc. 1 lev. 2
Lamp. Fairly levigated clay with many medium chert and lime grits. Fired buff throughout.
 6. CN 4951 (Reg. no. 72015) Loc. 1 lev. 2
Dipper juglet. White slipped. Very well levigated clay with few visible grits. Fired hard grey at core to greyish-buff at interior surface. Thick creamy white burnished slip on exterior.
 7. CN 5042 (Reg. no. 72078) Loc. 1 lev. 2
Cylindrical juglet. White slipped. Well levigated clay with some fine grits. Fired pale pinkish-buff. Creamy white burnished slip all over exterior.
- lip.
 2. CN 4772 Loc. 21 lev. 2/3
Trefoil juglet. Cypriot Black-on-Red Ware.
 3. CN 4703 Loc. 21 lev. 2
Krater/Deep Bowl. Fairly levigated clay with fairly large and medium chert and lime grits fired grey at core and buff-brown at surfaces. Many air pockets.
 4. CN 4707 Loc. 21 lev. 2
Cooking pot. Fairly levigated clay with many sandy fine and medium grits. Fired black at core and brown at extreme surfaces.
 5. CN 4695 Loc. 21 lev. 2
Cooking pot. Coarsely levigated clay with many small mainly white (quartz?) grits. Fired light grey at core to red-brown at surfaces.
 6. CN 4194 Loc. 16 lev. 7
Jar. (Ware description not available) Undecorated.
 7. CN 4716 Loc. 21 lev. 2
Bowl. Undecorated. Fairly levigated clay with fine and medium chert and lime grits. Fired buff, grey in a few patches. Well smoothed inside and out.
 8. CN 4698 Loc. 21 lev. 2
Pedestal Bowl ("Chalice"). Fairly coarsely levigated clay with medium and fine chert and lime grits. Fired greyish at core to buff at exterior. Decoration in red-brown paint on the rim, interior and exterior.

Figure 11: Plot IVE, Early Iron Age
1. CN 4815 Loc. 21 lev. 3
Jar. Matt red slip on exterior and over

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